Infinium® System

Controller and Transmitter

USER MANUAL

Contents

Safety Warnings and Instructions

⚠WARNING! To reduce the risk of fire or electric shock, do not expose this appliance to liquid or moisture.

⚠CAUTION! To reduce the risk of electric shock, do not remove cover. No user-serviceable parts inside. Refer to qualified service personnel. Removing the cover voids the warranty.

POWER SUPPLY NOTICE FOR INTERNATIONAL OPERATION - Please call Williams AV Customer Service at +1-952- 943-2252 to order the appropriate power supply for the country of use.

Important Safety Instructions:

1. Read and follow these instructions.
2. Keep these instructions.
3. Clean only with dry cloth.
4. Install in accordance with the manufacturer's instructions.
5. Do not install near any heat sources such as radiators, heat registers, stoves, or other appliance (including amplifiers) that produce heat.
6. 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 a third grounding prong. The wide 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.
7. Only use with Certified Grounded Line Cord
8. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the appliance.
9. Only use attachments/accessories specified by the manufacturer.
10. Unplug this appliance during lightning storms or when unused for long periods of time.
11. Power Sources - The appliance should be connected to a power supply only of the type described in the operating instructions or as marked on the appliance.
12. Object and Liquid Entry - Care should be taken so that objects do not fall and liquids are not spilled into the enclosure through the openings. Do not use this appliance near water or expose it to liquids.
13. Servicing - The user should not attempt to service the appliance beyond that described in the operating instructions. All other servicing should be referred to qualified service personnel.
14. Wall or Ceiling Mounting - The appliance should be mounted to a wall or ceiling only as recommended by the manufacturer.

Precautions:

1. Power – Before turning on the power for the first time, read the following section carefully. The unit is designed for use only with the line cord of the region in which it will be operated.

2. Voltage – The unit uses 24 VDC power. Use the Williams AV TFP 062 power supply to assure proper operation.

3. Do not plug in the audio input, headphone output, Ethernet, nor Dante connections while the power switch is in the on position.

4. Do not handle the Infinium Controller, the Infinium Transmitter, or power cord when your hands are wet or damp. If water or any other liquid enters the Infinium Controller cabinet, take the unit to qualified service personnel for inspection.

5. Place the Infinium Controller in a well-ventilated location. Take special care to provide plenty of ventilation on all sides of the unit, especially when it is placed in an audio rack. If ventilation is blocked, the Infinium Controller may overheat and malfunction.

6. Do not expose the Infinium Controller or the Infinium Transmitter to direct sunlight or heating units, as the internal components temperature may rise and shorten the life of the components. Avoid damp and dusty places.

7. Care – Do not use rough material, thinners, alcohol, or other chemical solvents or cloths since this may damage the finish or remove the panel graphics.

Avertissements et instructions de sécurité

AVERTISSEMENT! POUR RÉDUIRE LES RISQUES D'INCENDIE OU DE CHOC ÉLECTRIQUE, NE PAS EXPOSER CET APPAREIL À LA PLUIE OU À L'HUMIDITÉ.

MISE EN GARDE! POUR RÉDUIRE LE RISQUE DE CHOC ÉLECTRIQUE, NE PAS RETIRER LE COUVERCLE. L'APPAREIL NE CONTIENT AUCUNE PIÈCE RÉPARABLE PAR L'UTILISATEUR. CONFIER LES RÉPARATIONS À UN RÉPARATEUR QUALIFIÉ. L'OUVERTURE DU COUVERCLE ANNULERA LA GARANTIE.

AVIS CONCERNANT LE BLOC D'ALIMENTATION POUR UNE UTILISATION HORS DES ÉTATS-UNIS – Prière d'appeler le service à la clientèle de Williams AV au +1-952- 943-2252 pour commander le bloc d'alimentation adapté au pays dans lequel l'appareil va être utilisé.

Consignes de sécurité importantes:

1. Lire ces instructions
2. Conserver ces instructions
3. Nettoyer avec un chiffon sec uniquement.5
4. Installer conformément aux instructions du fabricant.
5. Ne pas installer à proximité de sources de chaleur telles que radiateurs, registres de chaleur, cuisinières ou autres appareils (y compris les amplificateurs) qui produisent de la chaleur.
6. Ne pas supprimer ou contourner la fonction de sécurité de la fiche polarisée ou de mise à la terre. Une fiche polarisée a deux broches dont l'une est plus large que l'autre. Une fiche de mise à la terre a deux broches et une troisième broche de mise à la terre. La lame large ou la troisième broche est fournie à des fins de sécurité. Si la fiche fournie ne rentre pas dans la prise, consulter un électricien pour le remplacement de la prise obsolète.
7. Utiliser uniquement avec un cordon d'alimentation mis à la terre certifié.
8. Protéger le cordon d'alimentation contre tout piétinement ou pincement, en particulier au niveau des fiches, des prises de courant et de l'endroit où il sort de l'appareil.
9. Utiliser uniquement les pièces/accessoires spécifiés par le fabricant.
10. Débrancher cet appareil pendant les orages ou lorsqu'il n'est pas utilisé pendant de longues périodes.
11. Sources d'alimentation - L'appareil doit être connecté à une alimentation électrique uniquement du type décrit dans le mode d'emploi ou tel qu'indiqué sur l'appareil.
12. Pénétration d'objets et de liquides - Des précautions doivent être prises pour que des objets ne tombent pas et que des liquides ne soient pas renversés dans le boîtier par les ouvertures.
13. Réparation et entretien - L'utilisateur ne doit pas tenter de réparer l'appareil autrement que de la manière décrite dans le mode d'emploi. Toute autre tâche d'entretien ou de réparation doit être confiée à un technicien qualifié.
14. Montage mural ou au plafond - L'appareil doit être monté sur un mur ou au plafond uniquement comme recommandé par le fabricant.

Précautions:

1. Alimentation – AVERTISSEMENT : AVANT DE METTRE L'APPAREIL EN MARCHE POUR LA PREMIÈRE FOIS, LIRE SOIGNEUSEMENT LA SECTION QUI SUIT. L'amplificateur est conçu pour être utilisé uniquement avec un cordon d'alimentation adapté à la région dans laquelle il sera utilisé.

2. Étiquette de tension (panneau arrière) - Une étiquette située au niveau du raccordement électrique sur le panneau arrière indique la puissance consommée CA de appareil. L'étiquette indiquera 48VDC.

3. Ne pas brancher les connexions d'entrée, de sortie, Ethernet ou USB lorsque l'interrupteur d'alimentation est sur la position de marche.

4. Ne pas manipuler le IR M1 ou le cordon d'alimentation avec les mains mouillées ou humides. Si de l'eau ou tout autre liquide pénètre dans l'armoire du IR M1, confier l'appareil à un technicien qualifié pour inspection.

5. Placer le Infinium BA C1 controller dans un endroit bien ventilé. Veiller tout particulièrement à assurer une ventilation suffisante de tous les côtés du IR M1, en particulier lorsqu'il est placé dans un rack audio. Si la ventilation est bloquée, le IR M1 peut surchauffer et dysfonctionner. Ne pas exposer le IR M1 à la lumière directe du soleil ou à des appareils de chauffage, car la température des composants internes du IR M1 pourrait augmenter et réduire la durée de vie des composants. Éviter les endroits humides et poussiéreux.

6. Entretien - Ne pas utiliser un matériel abrasif, des diluants, de l'alcool ou d'autres solvants ou chiffons contenant des produits chimiques, au risque d'endommager la finition

Recycling Information

Help Williams AV protect the environment! Please take the time to dispose of your equipment properly.

Please do NOT dispose of your equipment in the household trash. Please take the equipment to an electronics recycling center for proper disposal.

System Overview

The Infinium® system is the next-generation broadcast audio solution designed specifically for AV professionals by Williams AV—the leader in assistive communication. Designed for commercial AV environments, Infinium® empowers AV integrators to design and deploy seamless, high-quality audio experiences across diverse environments.

Infinium® systems broadcast low-latency audio to an unlimited number of Auracast™ supported devices—including hearing aids, cochlear implants, headphones, mobile phones and dedicated Infinium® receivers.

The Infinium system is composed of three parts: the Infinium Controller, the Infinium Transmitter, and the Infinium Receiver (“Figure 1: The Infinium system and Auracast interactions” on page 6).

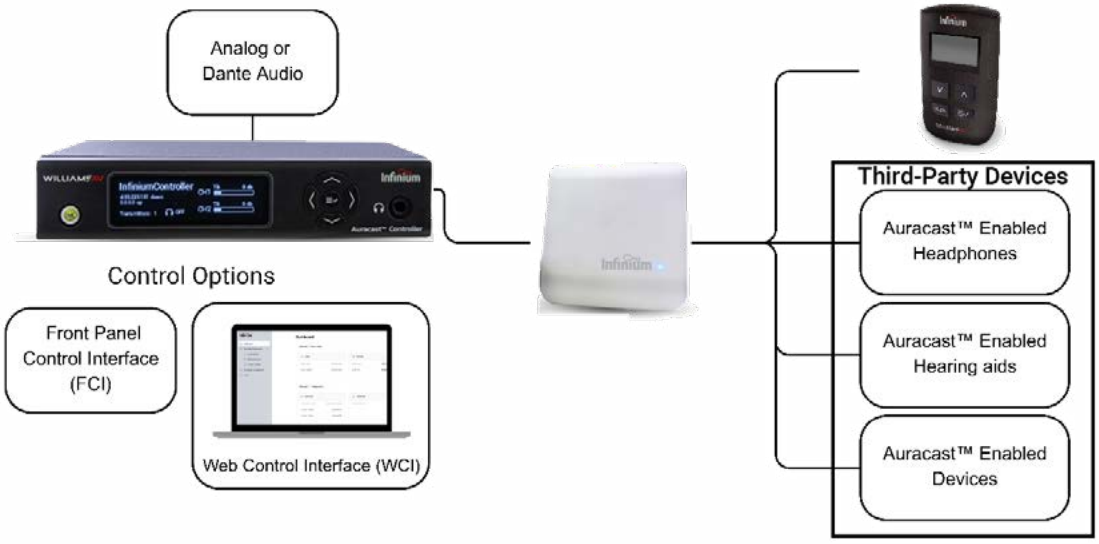
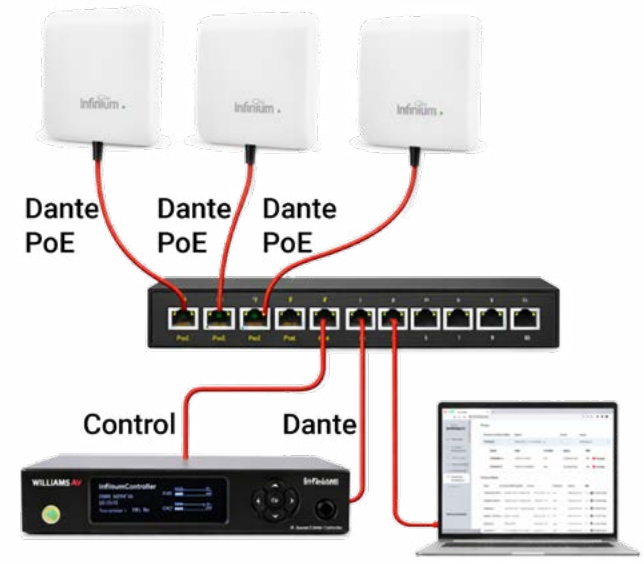


Figure 1: The Infinium system and Auracast interactions

Enhanced Scalability and Management (ESM)



The Enhanced Scalability and Management (ESM) feature allows multiple transmitters to be connected and managed through the controller. This feature comes with transmitter management and the ability to broadcast roaming audio.

A network switch is required to connect multiple transmitters.

This update is available for all customers with firmware update 2.0 or higher. If your Controller or any Transmitters are not at firmware 2.0 or higher, please read the firmware update installation instructions. See “Firmware Updates” on page 17 for more details.

Figure 2: Network switch links multiple transmitters to the control.

Roaming Audio

Roaming audio can be used to broadcast audio to the listener from the closest transciever. With our roaming audio feature, the listener would not have to select broadcast channel. Instead, listener experiences a seamless handoff between transmitters without needing to manually select a different channel or broadcast stream.

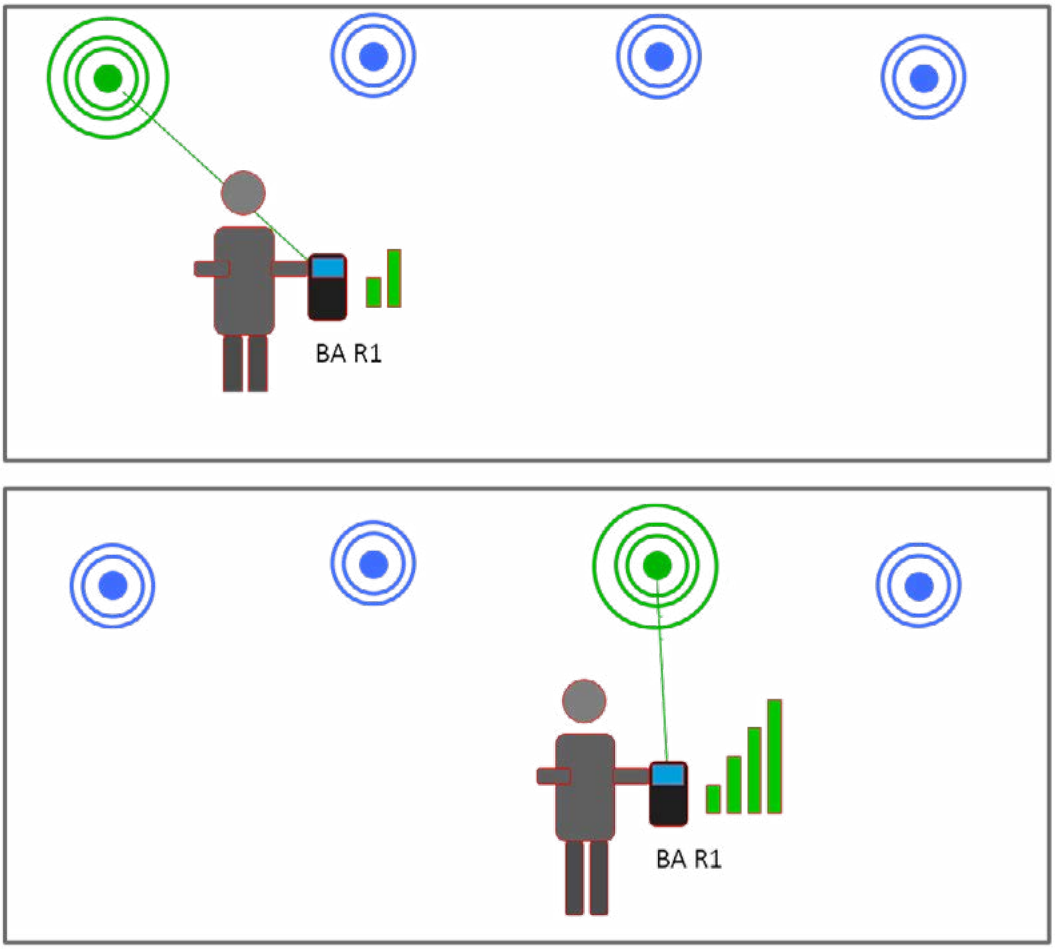


Figure 3: Roaming audio transmitting from the closest location

BA CT1 Controller-Transmitter System

The Infinium® BA C1 controller and Infinium® BA T1 transmitter are packaged with a 10’ (3m) Ethernet cable under the BA CT1 model number. The BA C1 controller and the BA T1 transmitters can also be purchased separately.

Figure 4: The Infinium BA CT1 system contents

BA C1 Controller

The BA C1 controller is the brains of the Infinium® system, processing Analog and Dante audio for optimum performance. The BA C1 controller supports balanced and unbalanced, mic and line, XLR – ¼” combination, terminal block and Dante audio. These inputs can be configured to broadcast two independent mono channels (streams) or one stereo channel.

Figure 5: BA C1 Infinium Controller

The BA C1 controller incorporates two network ports: a control network connection and an audio network connection. While each port is normally connected to different networks, they can coexist and operate fully on the same network if needed.

The BA C1 controller supports two methods to configure the system settings and view status in real time. The Web Control Interface (WCI) allows users to configure all aspects of the controller and transmitter from their PC. The PC can be connected directly to the controller (Link-Local) or remotely from a common network. See “Web Control Interface” on page 18 for more details.

The Front Panel Control Interface (FCI) displays important system status information and configures basic settings for fast setup and effective troubleshooting. See “Front Panel Control Interface” on page 29 for more details.

Front Panel

The Infinium controller front panel provides access to all status information and most configuration controls. The Front Panel Control Interface (FCI) consists of the OLED screen and navigation buttons.

Figure 6: BA C1 Infinium Controller front panel

Controller Front Panel Descriptions:

	Interface	Description
1.	Power switch	Latching power switch illuminates when device is ON and powered. Does not reset when power is lost. System configuration is retained across power cycles.
2.	User Interface Control OLED Screen	Front panel display interface used in conjunction with the navigation buttons.
3.	User Interface Control buttons	Four directional buttons and one select button for viewing, optimizing and troubleshooting Infinium system parameters.
4.	Headphone Output	¼” TRS jack for stereo or mono headphones.

Back Panel

The Infinium controller rear panel provides input and power jacks.

The Infinium controller has two Inputs or channels. Input 1 labeled “1/L” can be configured with XLR-¼” (Combo Jack), Terminal Block, Dante, or Test Tone as the Input Source. Input 2 labeled “2/R” can be configured with a Terminal Block, Dante, or Test Tone as the Input Source. If not in use, inputs can be disabled.

All analog inputs support balanced and unbalanced line-level audio. When using unbalanced audio input, short the audio negative to the audio ground at the jack.

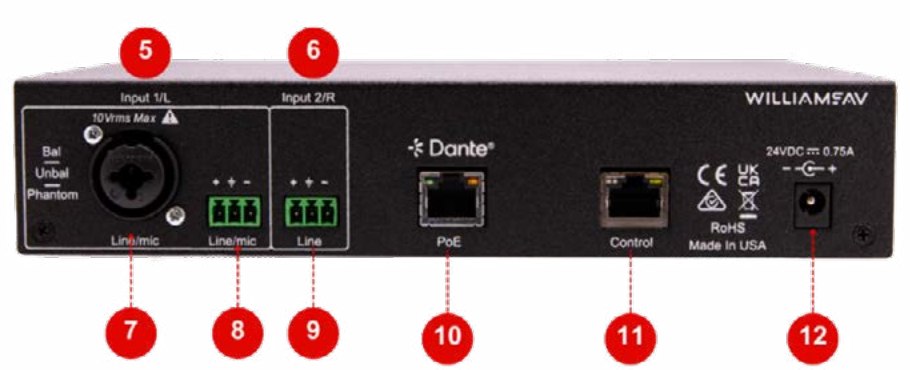


Figure 7: BA C1 Infinium Controller back panel

Controller Back Panel Descriptions:

	Item	Description
5.	Input 1/L	Refers to the XLR, ¼” TRS, or 3-pin terminal block associated with mono Channel 1 or Left stereo input
6.	Input 2/R	Refers 3-pin terminal block associated with mono Channel 2 or Right stereo input
7.	Combination 3-pin XLR, 1/4” (TRS) jack	Analog audio input is capable of balanced or unbalanced line level, or balanced or unbalanced microphone with selectable phantom power
8.	Terminal Block CH 1 (Phoenix-style Block)	3-pin terminal block for analog audio input. Line (+ ⏚ -)
9.	Terminal Block CH 2 (Phoenix-style Block)	3-pin terminal block for analog audio input. Supports Line (+ ⏚ -).
10.	Transmitter (Audio) RJ45 port	Dedicated transmitter port that supports a direct-to-transmitter cable connection or can connect to transmitter over a Dante network.
11.	Control RJ45 port	Dedicated control port supports a direct PC connection or can connect to a network. The control port and the transmitter port can be connected to the same network or to separate networks.
12.	Controller Power IN	Utilizes a Williams AV TFP062 24 V, 18 W DC power supply.

BA T1 Transmitter

The Infinium BA T1 transmitter broadcasts Auracast audio up to 328 feet (100 m) in open spaces using the Infinium BA R1 receiver. The transmitter uses Bluetooth Low Energy technology to deliver one or two Auracast channels or streams.

The BA T1 transmitter has a single RJ-45 jack input that supports audio, PoE power and control signals. The single cable connection between the controller and transmitter simplifies installation and reduces cost.

Figure 8: BA T1 Infinium Transmitter front and back

Infinium Transmitter Front and Back Panel Descriptions:

	Item	Description
1.	Status LED	LED communicating status
2.	RJ-45 port	Connects to Infinium controller or PoE audio network
3.	Mounting holes	Mounting holes

Infinium REST API

The Infinium® system supports remote control through its REST API. This API provides a standardized set of rules and conventions that enable third-party control systems—such as Q-Sys, Crestron, Extron, or AMX—to perform the same functions as are available through the Infinium Web UI. The following link provides an overview of how standard HTTP methods enable a third-party controller to change DSP settings or presets, retrieve system status, change the IP addresses, subnet masks, and gateway settings and more.

See **TCH 066 - Infinium REST API Programmers Guide** for more details on the Williams AV website.

Quick Setup Instructions

1. Place or mount the controller in an appropriate location, such as a server rack, lectern rack, etc.
2. Position or mount each transmitter centrally near where the audience would listen to ensure optimal Auracast audio transmission. Choose a location where there are no walls or panels that could obstruct the wireless signal. The transmitter may be placed flat on a table or mounted to a junction box on the wall or ceiling.
3. Connect one end of a CAT 5e or newer cable to the transmitter. The maximum length for a standard CAT 5e or newer cable is 328 feet or 100 meters; there is no minimum length requirement.
4. Connect the other end of the CAT 5e or newer Ethernet cable to either the Dante/PoE port of the controller OR to a PoE-enabled network switch that is on the same network as the controller's Dante/PoE port.
5. Power on the controller. It will take approximately 30 seconds to boot. During the startup, the display will show the INFINIUM logo followed by the controller's firmware version before reaching the Main screen.
6. Verify the transmitter LED is lit.
7. Configure the audio input settings in the menu before connecting any sources to the controller inputs. This helps prevent potential damage to the input circuitry. Configuration can be done via the controller's Front Panel Control Interface or through the Web Control Interface using a PC.
8. Navigate the Audio menu to select the Audio Sources for Input 1 (Left) and/or Input 2 (Right). When the desired audio source is displayed, press the menu/select button to activate the selection. NOTE: Mic Gain and Phantom Power are only available on Input 1.
9. If Dante is one of the selected audio sources, use the Dante Controller to subscribe the desired Dante source to the BA CT1 controller.
10. The transmitter will automatically connect to the controller, and the system will become active. It is ready to begin broadcasting once an audio signal is present.
11. Power off the controller.
12. Connect your audio source(s) to the appropriate audio input(s) on the controller.
13. Power on the controller. The boot process takes approximately 30 seconds.
14. [OPTIONAL] Connect headphones to the ¼" monitor jack on the front of the controller to verify the audio source and confirm input settings.
15. Use an Infinium receiver (BA R1) or any Auracast-compatible device to select and listen to the desired broadcast channel.
16. [OPTIONAL] Rename the audio channels via the Web Control Interface.

Adjust Settings Via the Front Panel or a Web Browser

1. Connect a network cable from the controller's Ethernet (RJ-45) port labeled Control directly to either a PC or your local area network. **NOTE**: This port is dedicated to system management and does not carry audio signals.
2. Open a web browser on the computer that is either directly connected or on the same local network as the controller's Control port.
3. Enter the Control IP address exactly as it's displayed on the controller's front panel into the browser's address bar to access the Web Control interface.
4. The browser will open the controller's web page, displaying the Login screen. Enter the following default login credentials:

   Username: *admin* **Password:** *admin*
5. The web browser will display the controller's Dashboard, showing the status of the controller and transmitter. Use the website's tab navigation on the left to access and configure settings.

Dante Networking Advice

- All transmitters must be on the same network as the controller's Dante port.
- The controller's control port can be on either the same network as the Dante system or a separate one.
- A single controller can manage up to approximately 100 transmitters on the same network, with a hard cutoff of 150. If your use case requires more transmitters, it is recommended to section them off with a VLAN.
- If transmitters and/or controllers are enrolled in Dante Domain manager or are locked in Dante Controller, the setting and management of Dante parameters by the controller may be unreliable.
- Disable Energy Efficient Ethernet on all network switches to avoid instability in the Dante audio. This setting is also known as IEEE 802.3az, Green Ethernet or power saving mode.
- In setups with many transmitters and devices, ensure your network equipment is handling multicast traffic properly.
    - Ensure all switches on the network have IGMP snooping enabled.
    - Ensure that there is an IGMP querier on the network.
    - Switches should forward unregistered or unknown multicast traffic.
- To have the most reliable audio experience, tailor the networks' QoS settings to prioritize Dante traffic. Recommendations for QoS settings recommendations are available on the Dante website. https://www.getdante.com/support/faq/how-does-dante-use-dscp-diffserv-priority-values-when-configuring-qos/

Dante Multicast Flows

When routing audio from a single controller (BA C1) to 3 or more transmitters (BA T1s), ensure that Multicast Flows are enabled in Dante controller.

To enable multicast, open the application Dante Controller. Then:

1. Go to Device Info
2. In the window that appears, double click your controller's Dante name.
3. Click on the Transmit tab.
4. In the Multicast Transmit Flows sidebar, click Add.
5. Under Add to New Flow, select the checkboxes for both channels
6. Click Create.

Additional Notes

- The transmitter is powered via PoE (Power over Ethernet). The controller-to-transmitter connection supports digital audio, PoE, and data communications over a single Ethernet cable.
- If using a network connection, ensure the Ethernet switch or router supplies PoE to the transmitter. If the transmitter is directly connected to the controller, the controller supplies the PoE.
- The Test Tone is a 1kHz sine wave audio signal.

Bluetooth SIG Venue Registration

If your system is used in a public venue, you should register your venue location with the Bluetooth Special Interest Group (SIG). This grants license rights, and demonstrates Regulatory and Accessibility Alignment, among other benefits.More details and registration are available at https://www.bluetooth.com/auracast/location-registration/

Installation

Preparation

The connection to the transmitter requires a CAT 5e or better cable without a strain relief boot. Normal Ethernet cable length limitations apply. For transmitter locations within 10 ft (3 m) of the controller or for initial setup, the CAT6 cable provided with a BA CT1 system can be used to connect to the controller.

For transmitters connected to the controller over an audio network, PoE must be supplied by the router or switch connected to the transmitter.

Depending on the location of the transmitter, electrical boxes, screws, etc. may be needed.

Guidelines

The controller should be set up in a well-ventilated area. Do not expose the Infinium Transmitter to direct sunlight or place near heating units. A rise in temperature for the transmitter internal components may shorten the life of the components. Avoid damp and dusty locations for the transmitter.

The controller can be placed on a flat surface using the rubber feet provided with the controller. The controller can also be rack-mounted using the RPK 005 or RPK 006 Rack Mount Kits (sold separately).

Ensure that each side of the transmitter is unobstructed by walls or barriers. If placing the transmitter in an audio rack, ensure there is ventilation on each side of the transmitter.

Before installing the transmitter in a remote or challenging location, you can test that the system is operating by connecting the transmitter to the controller using the CAT6 cable provided. Power on the controller, set the Audio Input Test Tone and monitor the audio from an Infinium Receiver or Auracast compliant user device.

Auracast signals will be affected by room orientation and materials, 2.4 GHz usage in the space, audience density and sensitivity of the receivers being used. For larger spaces, position the BA T1 transmitter centrally near the audience to maximize Auracast transmission. To test reception, the Infinium receiver can be used to display the RF Received Signal Strength Indicator (RSSI) levels in the space.

Tech Services Design Support

For help with placement, Williams AV Tech Services department offers complimentary Infinium system design services, including heat mapping, optimal transmitter placement, and elevation planning to ensure complete and reliable coverage. Using sophisticated predictive modeling and system design tools, they can simulate real world environments, validate coverage, and optimize performance before deployment to reduce risk and ensure seamless operation.

Mounting Tips

- Transmitters can be mounted in a variety of locations, including the ceiling, wall and under a table or other surface.
- The transmitter has four mounting key holes that may be utilized. Two of the holes fit electrical boxes commonly utilized in the US and Australia, while the other two fit electrical boxes commonly used in many countries in Europe, including the UK. Included in the transmitter delivery is a mounting pattern that can be utilized to mark holes for mounting.
    - The mounting template (MAN 306) is also available electronically on the Williams AV website. If you print the mounting template from the website, measure the print-out before using to ensure proper scaling.
- In addition to the keyholes, the transmitter has a threaded hole. The purpose of this hole is to attach a screw (4M/4mm nominal diameter) with an attachment mechanism, such as a wire. This acts as a safety connection should the general attachment method fail.
- Place transmitters high in the space to avoid the signal being attenuated by going through human bodies.
- The coverage pattern of the BA T1 transmitter is approximately omnidirectional. It is recommended that it is mounted centrally in the space.
- For large areas, several transmitters may be needed. Please contact Tech Services for advice and modeling.
- Evaluate for potential RF interference within the 2.4 GHz spectrum before placing your transmitters using an RF scanning tool.
- Common sources of 2.4 GHz Interference include wi-fi devices, communication systems, large crowds and audiences, and structural materials.
- Avoid mounting transmitters close to other devices (such as Wi-Fi access points) operating in the 2.4 GHz spectrum.
- Large audiences can attenuate 2.4 GHz signals. Keep in mind that coverage in a full space will likely be different than an empty space. If feasible ensure that coverage is sufficient while an audience is present.
- Building materials affect coverage. These attenuating materials include but are not limited to the following: Steel and metal framing; Concrete and cinder block; Glass with a metallic coating; Elevator shafts.
- Transmitters may be painted, but avoid using paints that contain metallic particles.

Setup

Connect a Single BA T1 Transmitter and BA C1 Controller

The BA T1 transmitter can be connected directly to the BA C1 controller using a CAT 5e or better cable. In this configuration, the controller port supplies audio, configuration data and PoE to the transmitter.

Figure 9: The Infinium Controller to Transmitter direct connection

The BA T1 transmitter can also connect to the BA C1 controller over a shared Dante network. If connecting the BA T1 transmitter to a network, the router or switch that the connects to the BA T1 transmitter must supply PoE to the transmitter. When connected to a shared Dante network, the Audinate Dante Controller software may be required.

A PC can directly connect to the BA C1 controller over a shared audio network using a CAT 5e or better. The PC can also connect to the BA C1 controller over a shared network by connecting the Controller to a router via an CAT 5e or better cable.

The controller and transmitter can connect using the same network. In this configuration, the controller provides audio and configuration data to the transmitter. The PoE must be supplied by the router or switch that connects to the transmitter. In either configuration, the two devices will automatically recognize each other and be ready to broadcast immediately when audio is present.

For Dante sourced audio, the Audinate Dante Controller software is required to complete the audio connections.

Connect Multiple Transmitters

To connect multiple transmitters, a network switch is required. See “Enhanced Scalability and Management (ESM)” on page 6 for more details.

Connect Audio Inputs

Install the desired audio inputs to Input 1 and Input 2 of the Infinium controller.

Ready to Broadcast

The Infinium® system can now broadcast audio using the default settings. The system can be configured to meet your venue’s specific performance needs.

Configuration

Infinium® Controller and Transmitter are ready to broadcast using default settings. The system can be configured two ways. For advanced set-up configuration and management, the Web Control Interface (WCI) is accessible from any modern web browser. Alternatively, the Front Panel Control Interface (FCI) is perfect for simple setups or on-the-fly changes. Located on the front panel of the Infinium Controller, it provides quick access to configure key settings—like selecting your audio source and adjusting input gain.

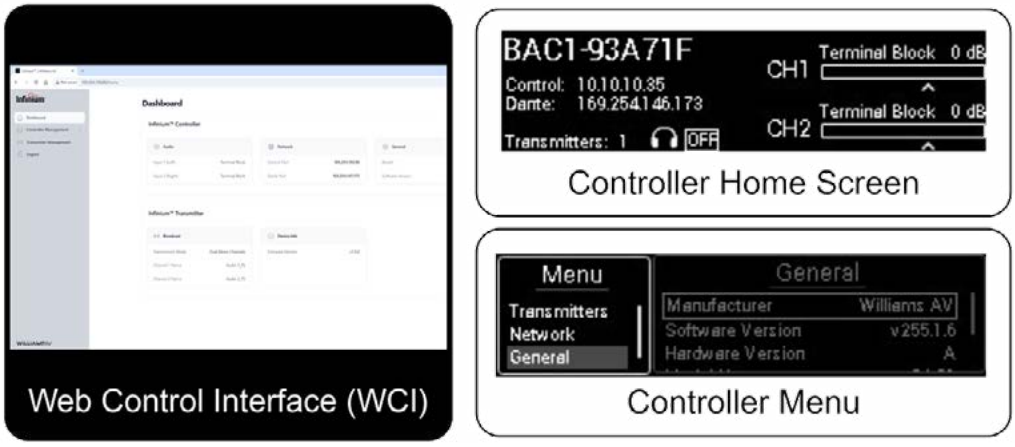


Figure 10: The Infinium Control user interfaces

Both configuration methods allow for identifying and selecting inputs for each channel, selecting Audio presets, adjusting gain based on the VU meter, adding additional gain, and using Phantom Power for microphones.

Each Infinium® Controller and Transmitter comes with factory default settings that minimize the set-up time to produce high-quality, low-latency audio.

To fully configure the Infinium system, go to “Web Control Interface” on page 18 or “Front Panel Control Interface” on page 29.

Firmware Updates

New firmware versions for both the controller and transmitter(s) are available on the Williams AV website (https://williamsav.com/documentation/).

For firmware updates and basic configuration with one transmitter, using local networking provides the easiest and most reliable connectivity and is the recommended approach. The transmitter can be connected directly to the back of the controller.

Alternatively, you may use a managed or unmanaged network switch that provides PoE to the transmitters. This is required if using multiple transmitters. **Note**: We do not recommend using unmanaged switches.

CAUTION! Do not unplug from the network or power anything down during this update process.

WARNING! **Multiple transmitters are only supported from firmware versions 2.0 and up.** If the BA C1 controller firmware version is not at least 2.0 **AND any** connected transmitter is not to at least firmware 2.0, you must only perform a firmware update with one transmitter connected.

Compatibility with receiver firmware: Receiver firmware is updated independently of controller and transmitter firmware. However, to ensure proper operation, the receiver firmware must be on 2.x to work with transmitters and controllers using 2.x firmware.

Always update transmitter firmware before controller firmware.

To update one or more transmitter’s firmware:

1. Log into your system’s web control interface. For more information, see “Web Control Interface” on page 18.
2. Go to **Transmitter Management** and scroll to where you can update the firmware.
3. Select the desired transmitter firmware zip folder. Then click **Update Now**.
4. Transmitter firmware updates take approximately 6 minutes under good network conditions. Multiple transmitters may take more time.

To update the controller firmware:

1. Update any transmitter firmware before updating the controller.
2. Log into your system's web control interface. For details, see "Web Control Interface" on page 18.
3. Go to **General Settings**.
4. Select the desired controller firmware .bin file. Then click **Update Now**.
5. Controller firmware updates may take approximately 10 minutes under good network conditions.

Note: Doing this process may make your transmitter(s) unavailable until their firmware is updated.

Web Control Interface

The Infinium BA CT1 controller and transmitter can be configured from a PC using the Web Control Interface (WCI). The BA C1 controller hosts a web page that enable a PC to access and modify all aspects of the BA C1 controller and BA T1 transmitter from a web browser such as Google Chrome, Microsoft Edge, Safari and Mozilla Firefox.

Note: the BA C1 controller's Web Control Interface is not optimized for Mobile device web browsers.

To access the Web Control Interface:

1. Connect your computer to the same network as the BA C1 Infinium controller's Control port—or plug your computer directly into the BA C1 controller's Control port on the back of the unit.
2. In a browser, type the Infinium controller IP address shown on the BA C1 controller's front panel.
3. At the login screen, use the default credentials:

   Username: *admin*
   Password: *admin*

Note: Williams AV strongly recommend changing the login credentials after your first login to keep your system secure.

The web interface is organized into four main configuration categories in the left side navigation:

- Dashboard
- Controller Management
- Transmitter Management
- Logout

Dashboard

The Dashboard page shows a comprehensive overview of the controller and transmitter's status. The dashboard does not provide access to controls.

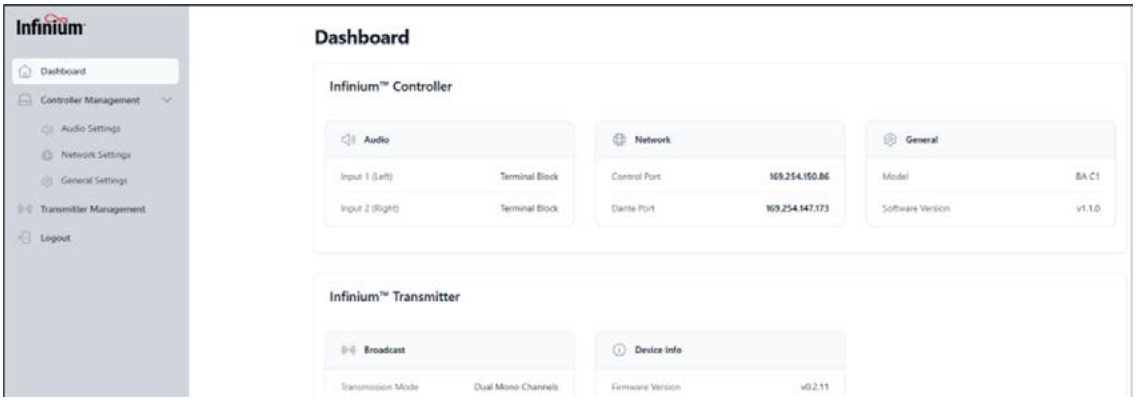


Figure 11: Dashboard

The dashboard provides status information for the Controller and Transmitter as follows:

Infinium® Controller:

- **Audio Settings**
  - Status of input 1 (Left): Type of input being used.
  - Status of input 2 (Right): Type of input being used.
- **Network Settings**
  - Control Port IP Address
  - Dante Port IP Address
- **General Settings**
  - Model number and software version in use.

Infinium® Transmitter:

- **Broadcast Configuration**
  - Transmission Mode: Stereo or dual mono
  - Channel Name
- **Device Info**
  - Firmware version

Controller Management

Controller Management includes access to review and modify settings related to the BA C1 controller functions.

Audio Settings

The Audio Settings category is used to display and configure the audio attributes for each channel. The category includes:

- **Input Source List** shows which source is selected for each input, and the current gain level.
- **Input Source** defines the input format for the selected audio channel.
- **Mic Gain** adds 40 dB of gain for low-powered signals and microphones.
- **Phantom Power** applies a bias voltage to power a condenser microphone through the analog input.
- **Digital Gain** adjusts the incoming audio level received at the controller input from your external source.
- **Audio Preset** is used to choose from several common preset DSP (Digital Signal Processor) broadcast modes or customize High Pass Filter (HPF), Low Pass Filter (LPF) and Compression for your needs. Audio Presets include:
  - **Flat:** Does not apply HPF, LPF or compression
  - **Music:** Applies HPF at 31Hz, LPF at 16kHz and 1:1 or no compression
  - **Voice:** Applies HPF at 125Hz, LPF at 6.3kHz and 1:1 or no compression
  - **Hearing Assist:** Applies HPF at 500Hz, LPF at 8kHz, and 2:1 compression
  - **Custom:** Select to adjust HPF, LPF and compression values

Implementation Instructions:

1. Click **Audio Settings** to access the audio configuration control settings and status.
2. Click **View Details** for Input 1 (Left) or Input 2 (Right) to access the targeted configurable settings.
3. Select the Input Source connected (“Figure 12: Audio Settings for Input 1 (Left)” on page 20). Input 1 available options include an XLR - ¼” (combination jack), Terminal Block, Dante, Test Tone or Disabled. Input 1 terminal block and XLR jack support Balanced Line Level, Unbalanced Line Level, Microphone Level, and Phantom-powered Microphone level.
4. Input 2’s available options include Terminal Block, Dante, Test Tone or Disabled. Input 2 terminal block supports Balanced Line Level, Unbalanced Line Level.
5. Set the **audio volume** on the external audio source.
6. Use the slider to adjust **Digital Gain** as necessary using the VU meter. Digital Gain adjusts the controller gain immediately, without needing to press Apply Changes. The audio level should be set so that it peaks slightly below the 0 dB level as shown on the VU Meter.
7. If a microphone is the audio source, select **Mic Gain** for additional 40 dB gain if needed for low-powered signals.
8. If a microphone is the audio source, **Phantom Power** becomes an available setting. If desired, select Phantom Power to apply bias power to a condenser microphone.
9. Select and adjust **Audio Preset** or create a custom one.
10. Press **Apply Changes** to initiate the change.

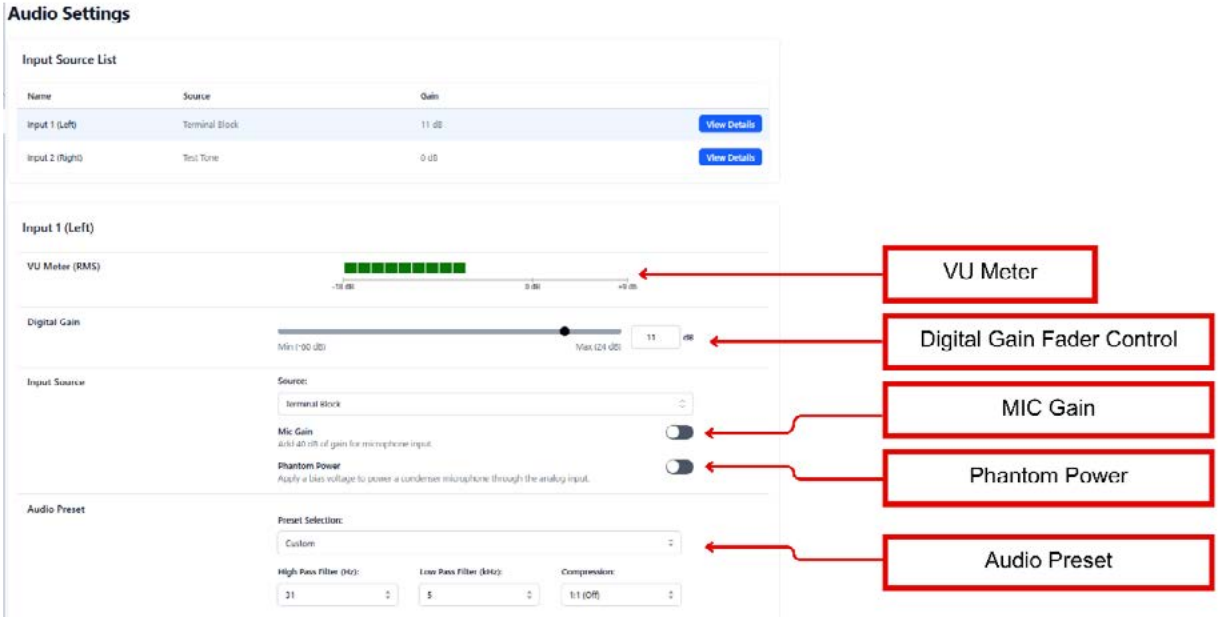


Figure 12: Audio Settings for Input 1 (Left)

Network Settings

Network Settings allow you to review and configure the two network interfaces available. The page will display the current IP Address, IP type, MAC Address and Link Status for each network. The interfaces are named Control and Dante.

Control Port

The **Control Port** is used to connect a PC or network to the controller in order to configure the Infinium system. It consists of:

- **General Settings**:
  - Host name: how the Controller is labeled on a network, making it easier to identify.
- **IP Configuration**:
  - **Obtain IP automatically (DHCP)**: automatically obtain an IP Address from the network DHCP server. If selected, the IP Address, Subnet Mask, and Gateway fields will be grayed out and not configurable.
  - **Set IP Manually (Static IP)**: specify a static IP Address. If selected, enter the IP Address, Subnet Mask, and Gateway fields.

Implementation Instructions:

1. To adjust Control settings, select **View Details** of the Control interface.
2. To change the Host Name, highlight the current name and type in desired name. The default name will be in the form of BAC1-xxxxxx
3. To implement the Network configuration changes, press **Apply Changes**. Follow the prompts to confirm change and allow the required restart of the controller.

Note: The user has the option to revert to previous settings at any time before restarting the controller.

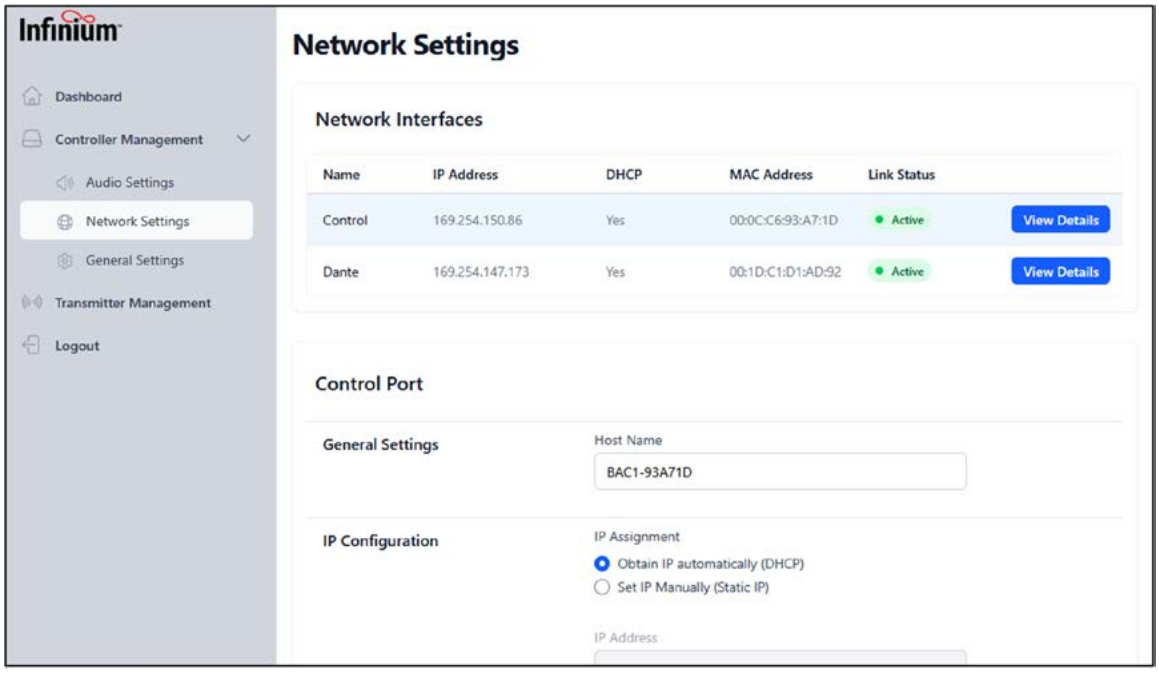


Figure 13: Network Settings for control

Dante Port

- **General Settings:**
  - Displays Dante device name. To change the Dante device name, utilize the Audinate Dante Controller software.
    - Power Over Ethernet (PoE) Enable will be set as the default generating power for a directly connected Transmitter. If the transmitter is connected to a router or switch, PoE must be supplied by that switch or router.
    - PoE can be switched off if required. This can be used as a hard reset for directly connected Transmitter.
  - See if the POE status is active or inactive.

- **IP Configuration:**
  - Choose **Obtain IP automatically (DHCP)** and the port automatically obtains an IP Address from the network DHCP server. If selected, the IP Address, Subnet Mask, and Gateway fields will be populated and grayed out, i.e. not configurable.
    - Choose **Set IP Manually (Static IP)** to specify a static IP Address. If selected, the IP Address, Subnet Mask, and Gateway fields will become available to be populated.

Implementation Instructions:

1. To adjust **Dante** settings, select **View Details** of the Dante interface (“Figure 14: Network settings for Dante/Poe.” on page 22).
2. The Dante **Device Name** of the controller is preconfigured with the system and not changeable.
3. **PoE** can be enabled or disabled here. Poe default setting is Enable. Before disabling PoE, make sure that PoE to the transmitter is supplied by the connected network device.
4. To implement the Network configuration changes, press **Apply Changes**. Follow the prompts to confirm change and allow the required restart of the controller.

Note: The user has the option to revert to previous settings at any time before restarting the controller.

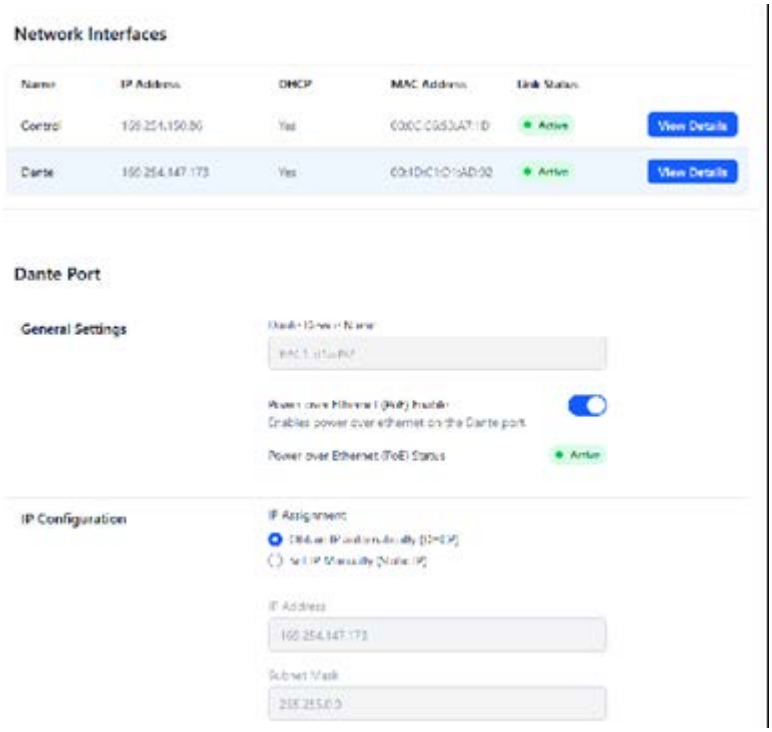


Figure 14: Network settings for Dante/Poe.

General Settings

The General Settings screen provides device information, allows for rebooting the device, resetting to a factory setting, installing controller firmware updates, locking the Controller front panel, changing the Administrator password, and generating a new API key.

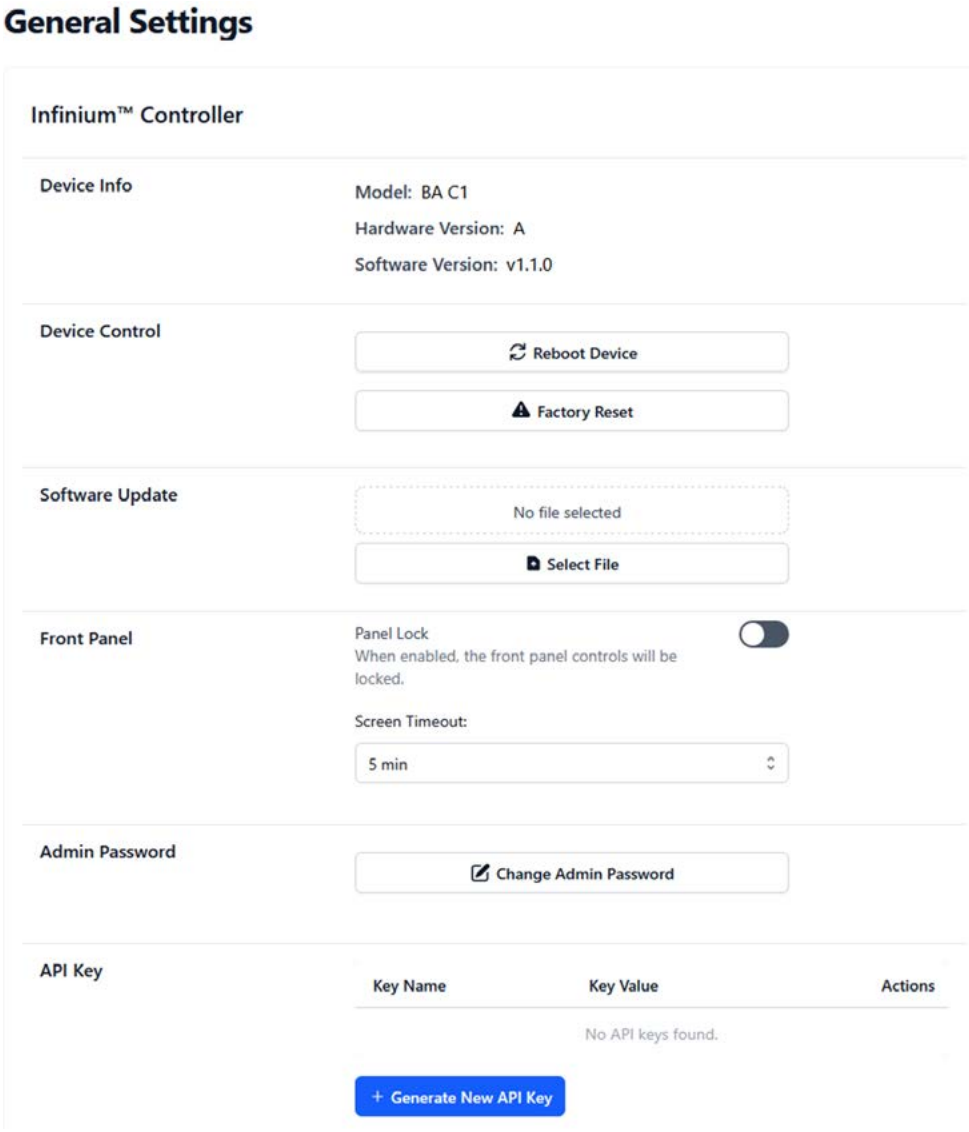


Figure 15: General settings

Reboot Device

Rebooting the device restarts the controller. Directly connected transmitter will lose the PoE while the controller reboots, which restarts transmitter. No settings will be lost for any device.

Factory Reset

Selecting Factory Reset returns the controller to the default settings that were present when you first received the device. Third-party API control keys will be lost as a result of this process.

Firmware Update

For firmware update instructions for both the controllers and transmitter(s), see “Firmware Updates” on page 17.

Front Panel Lock
When selected, the front panel controls are locked so that the device is secure from unwanted changes.

Front Panel Screen Timeout
The screen will automatically go dark after the timeout selected to protect the long-term performance of the OLED display.

Admin Password
Change Administrator password from this setting.

API Key
API key is used when 3rd party devices are allowed programming access to various control features. See “Infinium REST API” on page 11 for more information.

Transmitter Management

Use the Transmitter Management tab to view and change transmitter arrays, broadcast configuration, spaces, channel configuration and device settings that apply to the transmitter. All transmitters on the same subnet or VLAN as the controller will be automatically discovered and displayed. Each transmitter can be managed and configured from this section.

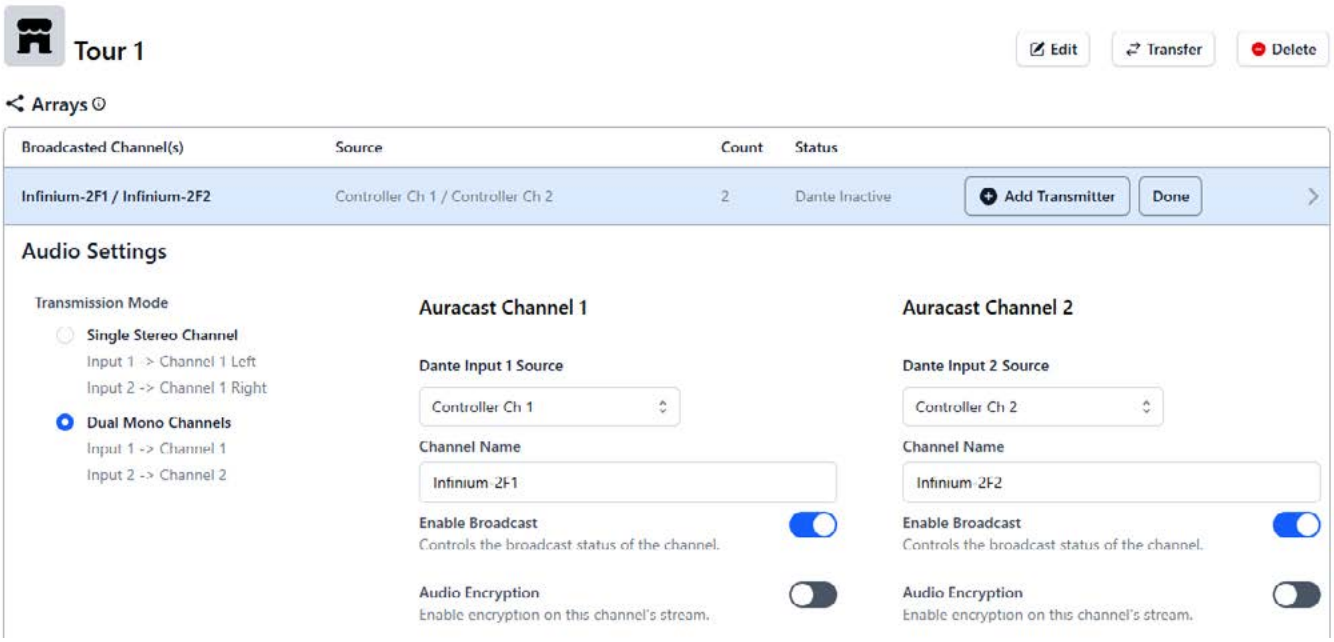
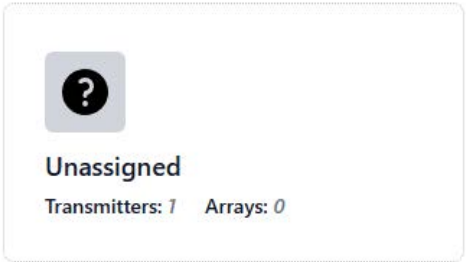


Figure 16: The Infinium WCI transmitter management section

Spaces



Spaces are an organizational tool for when multiple transmitters are set up. Venues with a large network of transmitters in different locations such as campuses, office environments, transportation areas, retirement homes, and hospitals can use this feature to make it easier to organize their transmitters and arrays.

The **unassigned space** contains the transmitters and arrays that are not linked to a space.

Figure 17: Unassigned space

An **assigned space** contains transmitters or arrays that have been actively added to it and are associated with that specific space. You can add/remove individual transmitters and arrays to space at any given point in time. Once a device is assigned to a space, it will be removed from the unassigned space.

To create a space:

1. At the top of the Transmitter Management screen, click **Create Space**.
2. In the window that opens, enter the name of the space and select an icon. When finished, click **Continue**.

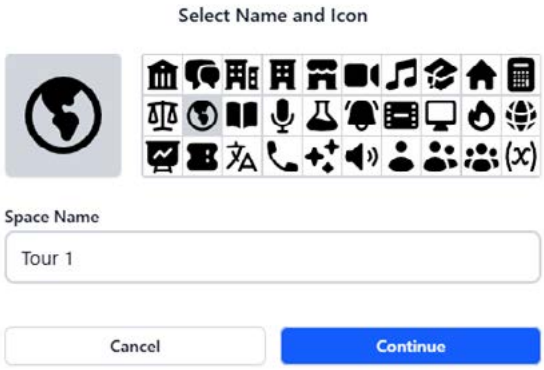
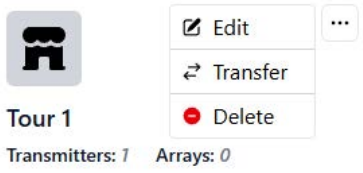


Figure 18: Create space

3. Select the transmitter(s), arrays, or spaces to add to the new space.
   - Selecting an existing space will transfer everything in that space to the new space.
   - To add an item, click the + symbol.
   - To remove an item, click the – symbol.
   - While creating a space, a light bulb symbol is shown. This icon is used to blink the LED of the transmitter. This can be helpful when working with many transmitters to ensure that the correct transmitter is added to the space.
4. Click Apply when done editing.

Figure 19: Add transmitters to space



To modify an existing space:
Click the … icon to open the drop down list and select one of the following options:

- **Edit**: Rename your space and change the icon.
- **Transfer**: Remove transmitters or arrays or add unassigned transmitters or arrays to the space.

Figure 20: Spaces ... menu

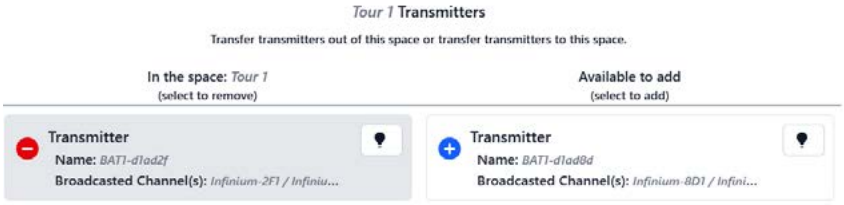


Figure 21: Transfer transmitters

Note: Transferring a transmitter to a new space does not remove a transmitter from an array. Remove the transmitter from the array before transferring it to a new space, if needed.

- **Delete**: Delete the entire space and return all components to the unassigned pool.

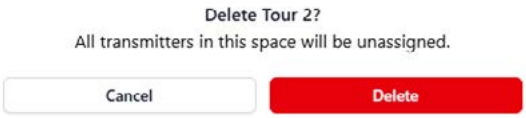


Figure 22: Delete space

Transmitter Arrays

Transmitter arrays link transmitters together so that they can share settings and provide greater coverage in a large area. Transmitters combined in an array enable BA R1 receivers to seamlessly transfer between transmitters based on signal strength.

Every transmitter array has a leader transmitter. Any transmitter added to the leader's array will automatically inherit all audio settings from the leader, which will include Transmission Mode, Channel 1 and Channel 2 configurations, and Dante subscriptions.

On the Transmitter Management page, Transmitter Arrays have a drop down menu that lists every transmitter included.

To create a brand-new Transmitter Array
Select the Create Array button next to one transmitter that should lead the array.

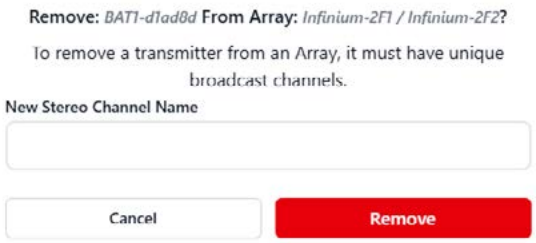
To add a transmitter to an existing or new array:

1. Select the blue + button to add your desired transmitter(s) to the array.
2. Repeat as necessary.
3. To remove transmitters from this screen, click the red – button.
4. When you are done adding transmitters, hit **confirm.**

Figure 23: Create New Array Screen

When transmitters are in an array, they share the same broadcast channels. If a transmitter is removed from an array, it will need to be given a new, unique broadcast channel name.

While creating an array, a light bulb symbol is shown. This icon is used to blink the LED of the transmitter. This can be helpful when working with many transmitters to ensure that the correct transmitter is added to the array.



To remove a transmitter from an array:

1. In the list of transmitters, click the remove button in the same row as the transmitter.
2. In the window that opens, give the transmitter's broadcast channel a name.
3. Click the remove button at the bottom of the broadcast renaming window.

Note: Transferring a transmitter to a new space does not remove a transmitter from an array. Remove the transmitter from the array before transferring it to a new space, if needed.

Figure 24: Remove from array

Broadcast Configuration

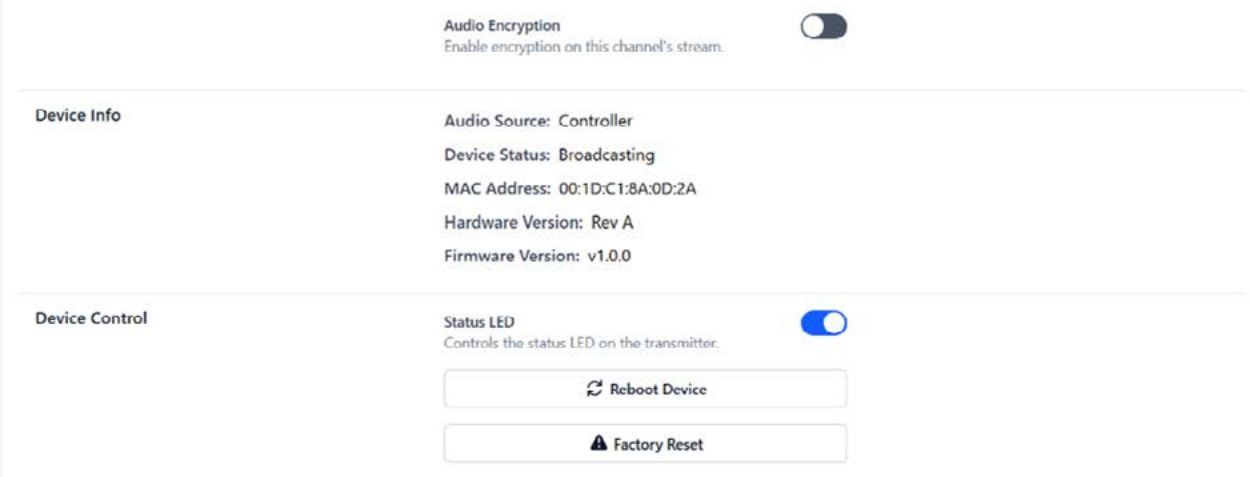


Figure 25: The Broadcast Configuration Section

Transmission Mode: Specify whether the transmitter broadcasts a single stereo channel or two mono channels.

Single Stereo Channel:

- Both channels are used as one stereo channel that can be selected and heard in the receiver.
- Use this setting for applications like musicals or theater venues where true stereo is desired.

Dual Mono Channels:

- Select for the receiver to have two channels to choose from. Each channel has independent audio from the source selected for that channel.
- Use this setting for applications that include someone speaking.

Transmit Power: Specify the signal strength of the transmitter.

- Adjust the transmitter power output to correspond with the proximity of transmitters to each other. If many transmitters on different channels are used in the same building, it may be necessary to reduce transmitter power to avoid interference.
- Based on the environment, some experimentation with these settings may be necessary for optimization.

Sample Rate: Specify the output sample rate being sent to receiving devices. Sample rates include:

- 16 kHz, 24 kHz (Auracast Standard)
- 48 kHz (Auracast High)

Note: support for the 48kHz sample rate is receiver dependent. Hearing aids typically do not support 48kHz.In order to achieve better accessibility, the Auracast Standard sample rate is recommended. For high interference environments, a lower sample rate can help avoid dropouts and provide a more consistent audio stream.

Channel Configuration

Channel 1 and Channel 2 are set independently to allow maximum flexibility.

Channel Name: Specify the channel name displayed on the receiver.

- The channel name must be 4-30 characters long.
- Avoid special characters
- If the entered text does not fit this rule, a warning is displayed.
- The following names are used by default: Infinium-XX1 and Infinium-XX2.

Enable Broadcast: If desired, turn OFF the broadcast for each channel independently. This may be useful when:

- No audio source is present.
- A space has open microphones that are always ON and the broadcast needs to be turned OFF. For example, situations where a confidential meeting is occurring.

Audio Encryption: Enable to use a 6-digit PIN Code to secure the channel from unauthorized use. Click the  random PIN code generator button to create a randomized code. Users must enter the PIN codes on the receiver to hear the audio from that channel.

Device Info

View the status of the Transmitter:

- **Audio Source**: Shows which controller is managing this transmitter.
- **Device Status**: shows whether this transmitter is active (broadcasting) or disabled (not broadcasting). This status reflects **Enable Broadcast** switch selected in Channel Configuration
- **MAC Address** displays the MAC address for this transmitter.
  - **Note**: this address is assigned by the manufacturer and cannot be changed.
- **Hardware Version:** Displays the main circuit board revision level.
- **Firmware Version:** Displays the firmware version of the controller.

Device Control

- **Status LED:** Whether the status LED on the unit is active or OFF. Switching the status LED off may be useful if the transmitter is in a dark room and the status LED could be distracting.
- **Reboot Device:** Cycles the power of the device. Use Reboot Device to reboot device when not in the same location as the device.
- **Factory Reset**: Reverts most user configuration settings back to the default state. Please note that a factory reset leaves IP Settings unchanged, so the unit can still be accessed remotely after this function is executed. All other user settings will be returned to the out-of-the-box state.

Firmware Update

For firmware update instructions for the controller and transmitter(s), see “Firmware Updates” on page 17.

Logout

Click **Logout t**o end the session.

Front Panel Control Interface

The BA C1 Front Panel Control Interface (FCI) provides quick access to basic settings such as audio input configuration, transmitter management, basic network configuration, and general settings. The FCI is located on the front of the controller and includes an OLED display, four navigation arrow buttons and one menu / select button (signified by three lines and a checkmark).

Figure 26: Front panel control interface

Use and the arrows to navigate within the menu. Up, down, left and right navigation buttons (^ v < >) navigate between the options and may be used to change values. Use the right button (>) to advance from a menu category deeper into the category settings. Use the left button (<) to exit the settings and return to navigating the menu categories. Use to select after navigation.

To enter the settings for a category, tap > while the category is highlighted.

Home Screen

The home screen displays the status of the most often required controller and transmitter attributes.

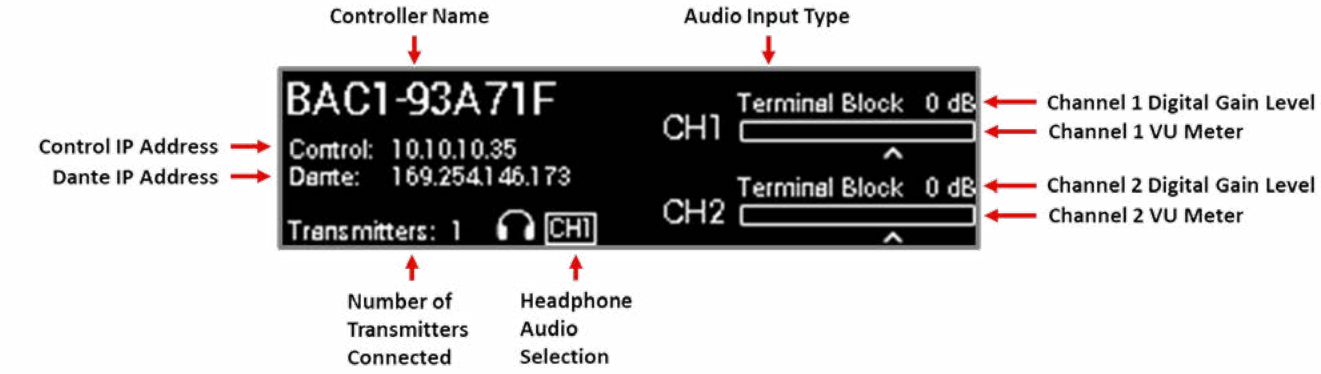


Figure 27: Controller home screen

- The **Controller Name** of the BA C1 controller is displayed in large text on the upper, left side of the FCI. Change this name by using the WCI (see “Network Settings” on page 21).
- The **Controller IP address** and the network connection status are displayed on the left side of the FCI.
- The **Dante IP Address** and current network connection status are displayed on the left side of the FCI.
- **Channel 1 Audio Type** selected, Digital **Gain** setting and **VU Meter** are displayed in the upper, right side of the FCI. These can be accessed and changed via the FCI or the WCI.
- The **Headphone Audio Status** is displayed in the lower, middle of the FCI. This can be accessed and changed via the FCI or the WCI.
- **Front Panel Lock** can be locked or unlocked by pressing and holding the left and right keys simultaneously until the screen shows a message that the state is now active.

Main Menu

The Main Menu screen allows the user to view and modify the detailed parameter settings available in the Infinium system.

Figure 28: Controller main menu

The Main Menu provides access to the following configuration categories:

- Audio
- Transmitter
- Network
- General

Figure 29: Main Menu Options

Audio Settings

The Audio category is used to configure the audio attributes for each channel. The category includes:

- **Channel** is where you select which audio channel you want to configure.
- **Audio Source** is used to define the input format for the selected audio channel.
- **MIC Gain** is used for additional gain as needed. Mic Gain adds an additional 40 dB for low amplitude signals.
- **Phantom Power** applies a bias voltage for use with a condenser microphone.
- **Gain** (or Digital Gain) adjusts the incoming audio level received at the controller input from your external source.
- **DSP Preset** offers several common broadcast modes with pre-settings for High Pass Filter (HPF), Low Pass Filter (LPF) and Compression

Implementation Instructions:

1. Use the up and down navigation buttons (˅ ˄) to highlight **Audio**. To access the configurable audio settings, press the right navigation buttons (˂ ˃).
2. Use the left and right navigation buttons (˂ ˃) to toggle between Channel 1 and Channel 2. When the desired channel is highlighted, use the up and down navigation buttons (˅ ˄) to scroll through the various settings for that channel.
3. When the targeted area is highlighted on the screen, press ⓔ to access the various configuration options.
4. When **Audio Source** is selected, use the left and right navigation buttons (˂ ˃) to view the available options.
   - Channel 1 options include XLR – 1/4”, Terminal Block, Dante, Test Tone or Disabled.
   - Channel 2 options include Terminal Block, Dante, Test Tone and Disabled.

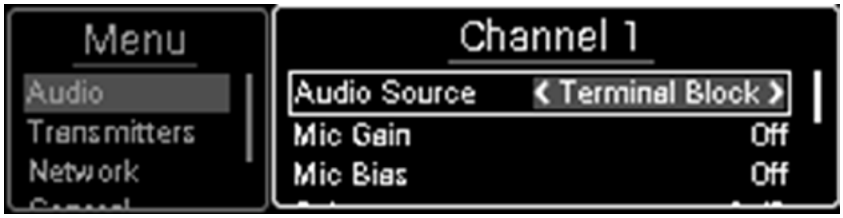


Figure 30: Channel 1 Audio Source configuration

5. When the desired input source is highlighted, press ⓔ to confirm the selection.
6. Set the audio volume level on your external audio source so that it enters the BA C1 controller input as close to unity gain as possible or slightly below the 0 dB level as seen on the VU meter.
7. Use the up and down navigation buttons (˅ ˄) to highlight **Gain**. To access the Gain settings, press ⓔ .
8. Use the left and right navigation buttons (˂ ˃) to view the available Gain levels. Use the slider to adjust Digital Gain as necessary using the VU meter.
   - Ideally, the audio level should be set so it averages slightly below the 0 dB level as shown on the VU Meter.
   - The digital gain setting is shown on the VU Meter.
   - Digital Gain adjusts the controller gain immediately, without needing to confirm the setting.
9. If you select terminal block or XLR – ¼” as the source, **Mic Gain** becomes an available setting. Turn **Mic Gain** to **ON** for additional gain as needed.
10. If you select terminal block or XLR – ¼” as the source for Input 1, **Phantom Power** becomes an available setting. Turn **Phantom Power** to **ON** to apply bias power to a condenser microphone.
11. Use the up and down navigation buttons (˂ ˃) to highlight **DSP Preset**. To access the **DSP Preset** settings, press ⓔ.
12. Use the left and right navigation buttons (˂ ˃) to view the available **DSP Preset** options. When the desired option is highlighted, press ⓔ to confirm the selection. The **DSP Preset** options include:
    - **Flat**: No eq or compression are applied,
    - **Music**: Applies HPF at 31Hz, LPF at 16kHz and 1:1 or no compression
    - **Voice**: Applies HPF at 125Hz, LPF at 6.3kHz and 1:1 or no compression
    - **Hearing Assist**: Applies HPF at 500Hz, LPF at 8kHz, and 2:1 compression
    - **Custom**: Makes the HPF, LPF and compression value available to adjust.

13. If you select **DSP Preset/Custom** option, the HPF, LPF and compression parameters will become available on the screen. Use the up and down navigation buttons (˅ ˄) to highlight **each parameter.** To access the setting variables, **press the menu/select button.**
14. Use the left and right navigation buttons (< >) to view the available options for each parameter. The parameter ranges are:
    - **HPF**: Value options between 31Hz and 630Hz
    - **LPF**: Value options between 3.5kHz and 16kHz
    - **Compression**: Value options between 1:1 (aka off), 1.5:1 and 2:1.
15. When complete with the Audio category settings, use left navigation button (< >) to return to the Main Menu.
16. When complete with all Categories, return to the Main Menu. Highlight and press **Exit** to return to the unit to the Home Screen.

Transmitter Settings

Use the **Transmitter** category to view and change various settings that apply only to the transmitter. The Infinium transmitter houses the Bluetooth LE Auracast radio and is responsible for broadcasting audio to an Infinium Auracast receiver.

A warning screen appears when no transmitter is connected. If transmitters are connected and this error is showing, and the controller has been rebooted or powered on recently, wait a few minutes for initialization to complete.

When multiple transmitters are present, each transmitter can be viewed by paging through then at the top of the LCI screen. Arrays, spaces and other advanced features can only be managed through the WCI (see “Transmitter Management” on page 24).

The **Transmitter** category includes the following parameters**:**

- **MAC:** The transmitter MAC address is displayed here.
- **Status:** The transmitter status is displayed here as **Broadcasting**.
- **FW/HW Version**: The firmware and hardware versions of the transmitter.
- **Transmit Power**: Transmit Power is the broadcast power of a connected transmitter.
- **LED:** The status of the transmitter LED is displayed on the screen. The LED can be Enabled (ON) or Disabled (OFF) here.
- **Dante Subscription**: The Dante subscription of the transmitter will be displayed here. The transmitter is subscribed to the controller by default. Multiple Dante channels may be available.
- **Channel Mode**: The channel mode is displayed on the screen. The channel mode can be configured here as Mono or stereo.
- **CH 1 Name:** The name of broadcast channel 1 is displayed on the screen. The channel name can only be modified using the Web Control Interface.
- **CH 1 Enable:** Channel 1 status is displayed on the screen. Channel 1 can be configured here as Enable or Disabled
- **CH 2 Name:** The name of broadcast channel 2 is displayed on the screen. The channel name can only be modified using the Web Control Interface.
- **CH 2 Enable**: Channel 2 status is displayed on the screen. Channel 1 can be configured here as Enable or Disabled
- **Indicate with LED**: Select this option to flash the LED on the transmitter. This helps identify which physical transmitter is associated with these settings. To stop flashing the LED, return to the FCI and select Stop.
- **Reboot**: Select this option to reboot the transmitter.

Implementation Instructions:

For multiple transmitters, the web interface is recommended and may be required for certain features. See "Transmitter Management" on page 24.

1. From the Main Menu, use the up and down navigation buttons (˅ ˄) buttons to highlight **Transmitter**. When **Transmitter** is highlighted, press the menu/select button or right navigation button (˂ ˃) to access the transmitter settings.
2. When the targeted area is highlighted on the screen, press ⊜ to access the various configuration options.
3. Use the up and down navigation buttons (˅ ˄) to scroll through the various displayed categories.
4. When **desired setting** is highlighted selected, use the left and right navigation buttons (˂ ˃) to toggle through the available values.
5. Press ⊜ the to confirm the desired value.
6. The controller will display "Settings Successully Applied." Press ⊜ to confirm "OK."
7. The new setting is now saved and active.
8. When complete with the **Transmitter** category settings, use left navigation button (˂ ˃) to return to the Main Menu. When complete with all Categories, return to the Main Menu. Highlight and press **Exit** to return to the unit to the Home Screen.

Network Settings

Network Settings allow you to review and configure various parameters of the network interfaces. There are two network interfaces configurable by the controller - the Control Interface and the Dante Interface.

The **Control Interface** includes the following parameters**:**

- **Status:** Transmitter status displayed.
- **MAC:** Control MAC address displayed.
- **DHCP**: DHCP status displayed.
  - DHCP can be turned ON or OFF from here.
- When DHCP is set to **ON**, the IP Address, Subnet Address and Gateway Address are automatically assigned and will be displayed as grayed out numbers on the screen. This means they cannot be modified.
- When DHCP is set to **OFF**, the IP Address, Subnet Address and Gateway Address can be entered manually on the screen. If this parameter is changed, the user will be asked to Save and Restart the controller to confirm the new setting. This may take around 10-15 seconds to complete.

The **Dante Interface** includes the following parameters**:**

- **Status:** Transmitter status displayed.
- **MAC:** Control MAC address displayed.
- **DHCP**: DHCP status displayed.
  - DHCP can be turned **ON** or **OFF** from here.
  - If this parameter is changed, the user will be asked to Save and Restart the controller to confirm the new setting. This may take around 10-15 seconds to complete.
- **POE:** PoE (Power over Ethernet) is generated from this port to power the transmitter.
  - The controller PoE can be Enabled or Disabled from here if desired. When enabled (default setting), The controller follows all the appropriate PoE guidelines and is available to the transmitter on demand.

Implementation Instructions:

1. From the Main Menu, use the up and down navigation buttons (˅ ^) to highlight Network. When **Network** is highlighted, press ⓔ or right navigation button (˂ ˃) to access the Network settings.
2. Use the up and down navigation buttons (˅ ^) to scroll to the Control Interface/Dante Interface setting at the top of the screen.
3. When the **Control Interface** is highlighted on the screen, use the up and down navigation buttons (˅ ^) to scroll through the available setting categories.
4. When the targeted setting category is highlighted on the screen, press the **menu/select button** to access the various configuration settings options.
5. Use the left and right navigation buttons (˂ ˃) to toggle through the available settings options.
6. When desired setting value is highlighted, press ⓔ to confirm the desired value**.** The new setting is now live.
7. Use the up and down navigation buttons (˅ ^) to scroll to the next displayed settings category and repeat steps 4 – 6 for each.
8. Use the up and down navigation buttons (˅ ^) to scroll to the **Control Interface/Dante Interface** setting at the top of the screen.
9. When the **Dante Interface** is highlighted on the screen, use the up and down navigation buttons (˅ ^) to scroll through the available Dante Interface setting categories.
10. When the targeted setting category is highlighted on the screen, press ⓔ to access the various configuration settings options.
11. Use the left and right navigation buttons (˂ ˃) to toggle through the available settings options.
12. When desired setting value is highlighted, press ⓔ or to confirm the desired value**.** The new setting is now live.
13. Use the up and down navigation buttons (˅ ^) to scroll to the next displayed settings category and repeat steps 10-12 for each.
14. When complete with the **Network** category settings, use left navigation button (˂ ˃) to return to the Main Menu.
15. When complete with all Categories, return to the Main Menu. Highlight and press **Exit** to return the unit to the Home Screen.

General Settings

The **General** screen (“Figure 31: General Configuration screen” on page 36) provides important device information, settable parameters and the ability reset the controller to the original factor settings.

Use the navigation keys (**˅ < > ^**) to view or select the desired general settings.

Figure 31: General Configuration screen

The General category includes the following information and parameters**:**

- **Manufacturer:** Williams AV
- **Software Version:** This is the firmware version of the controller.
- **Hardware Version**: This is the hardware version of the controller boards.
- **Screen Timeout**: The controller screen can be set to go dark to extend screen life and save power from here. Available settings include **Never**, **1 min**, **5 min**, **30 min** and **60 min.**

Implementation Instructions:

1. From the Main Menu, use the up and down navigation buttons (**˅ ^**) to highlight **General**. When **General** is highlighted, press ⓔ or right navigation button (**< >**) to access the General settings.
2. Use the up and down navigation buttons (**˅ ^**) to scroll to the desired setting.
3. When the targeted setting category is highlighted on the screen, press ⓔ to access the various configuration settings options.
4. Use the left and right navigation buttons (**< >**) to toggle through the available settings options.
5. When desired setting value is highlighted, press ⓔ to confirm the desired value**.**
6. The new setting is now live.
7. When complete with the **General** category settings, use left navigation button (**< >**) to return to the Main Menu.
8. When complete with all Categories, return to the Main Menu. Highlight and press **Exit** to return the unit to the Home Screen.

Product Specifications

INFINIUM SPECIFICATIONS	BA CT1 - INFINIUM AURACAST TRANSMITTER SYSTEM
System Components	Controller Transmitter Ethernet Cable
Network Connection	Ethernet with digital audio, control and PoE. Supports direct or network connection with transmitter.

GENERAL	
Wireless Connection	Bluetooth Auracast™
Bluetooth Version	5.4 LE
Codec	LC3
Operating Frequencies	2400 to 2483.5 MHz
Range	Up to 328 ft (100 m) using the Infinium BA R1 Receiver
Latency (System)	< 40 ms using Infinium BA-R1. Other receivers may vary
Channels	2 Mono or 1 Stereo
Channel Security	Open or Password protected
Encryption	AES128-CCM with 128 bit key

BA CT1 CONTROLLER	
User Interfaces	(1x) Hosted Web page via Ethernet Control Port (1x) 3.12” Front Panel OLED Display with selections via buttons.
Audio Input Types	Mic In (Combination XLR & 1/4", Terminal Block) Line In (Terminal Block x 2, Combination XLR & 1/4") Dante (Dante Source)
Audio Output	(1x) 1/4" Headphone/Audio TRS Output jack
Sample rates	16 kHz (Auracast™ Standard) 24 kHz (Auracast™ Standard) 48 kHz (Auracast™ High)
DSP Programmable Audio Processor Functions	Compression High-pass Filter Frequency Low-pass Filter Frequency Audio Presets

INFINIUM SPECIFICATIONS	BA CT1 - INFINIUM AURACAST TRANSMITTER SYSTEM
Compression	Off, 1:1, 1.5:1, 2:1
High-pass Filter Frequency control	Adjustable Step functions
Low-pass Filter Frequency control	Adjustable Step functions
Audio Presets	Music, Voice, and Hearing Assistance
Dimensions	8.45" W x 5.75" D x 1.72"H (21.5 cm x 14.6 cm x 4.4 cm)
Weight	2.3 lbs (1.04 kg)
Color	Black
Installation Configurations	**Rack Mount**: Standard 19” Rack, one EIA rack space high, 1/2 space wide. 1–2 units can be mounted in a single rack space with optional RPK 005 (single) or RPK 006 (double) Rack Mount Kits **Shelf**: Can sit on shelf, table, podium, etc.
Temperature Range - Operating	+32° F to +122° F (0° C to 50° C)
Temperature Range - Storage	-4° F to +158° F (-20° C to 70° C)
Power Button	Push On/Push Off latching power button.
Ethernet Control Port	(1x) RJ-45 used for web UI, programming, and status display. Supports CAT 5e (or newer) cable lengths up to 328 feet (100 meters); 10/100 Base-T IEEE 802.3 compliant
Front Panel Display	3.12” High Resolution OLED Direct Entry UI with button entry programming and status indicator selections.
Dante	(1x) PoE RJ-45 jack
Power Supply	Desktop Power Supply (TFP 062); Input: 100-240 VAC, 50/60 Hz. Output: 24 VDC, 750 mA, 18W. 2.5mm ID center positive barrel connector
Power Out	48V PoE
Compliance Approvals	FCC, RoHS3, WEEE, Industry Canada/ISED, CE, UKCA, RCM, CB Scheme
Warranty	2-year parts and labor

INFINIUM SPECIFICATIONS	BA CT1 - INFINIUM AURACAST TRANSMITTER SYSTEM
BA T1 TRANSMITTER	
Dimensions	4.7" W x 5.0" D x 1.19"H (11.9 cm x 12.7 cm x 3 cm)
Weight	0.4 lbs (0.18 kg)
Color	White
Installation Configurations	Ceiling Mount Wall Mount Shelf
Temperature Range - Operating	+32° F to +122° F (0° C to 50° C)
Temperature Range - Storage	-4° F to +158° F (-20° C to 70° C)
Power	PoE (Input)
Connection	RJ-45 (1x) for audio, control and PoE
Power ON Indicator	Toggleable LED
Transmitter Power Output	Programmable
Compliance Approvals	FCC, RoHS3, WEEE, Industry Canada/ISED, CE, UKCA, RCM, CB Scheme, Giteki (Japan)
Warranty	2-year parts and labor
WCA 158 CABLE	
Ethernet Cable	10' - CAT 6 Ethernet; 10/100 Base-T IEEE 802.3 compliant

Regulatory Statements

FCC

Compliance Statement

The BA T1 transmitter complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interference that may cause undesired operation.

These limits are designed to provide reasonable protection against harmful interference in a residential installation.

For BA T1 transmitter only: Contains FCC ID: XPYNORAB12

Caution: Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

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. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

ISED

Innovation, Science and Economic Development Canada Statement

Per RSS-Gen, Section 8.4, this device complies with Innovation, Science and Economic Development Canada license-exempt RSS standard(s). Operation is subject to the following two conditions:

1. This device may not cause interference, and
2. This device must accept any interference, including interference that may cause undesired operation of the device.

For BA T1 transmitter only: Contains IC: 8595A-NORAB12

CAN ICES-003 (B) / NMB-003 (B)

Par RSS - Gen, Section 8.4 Cet appareil est conforme à Innovation, Sciences et Développement économique Canada exempts de licence standards RSS. Le fonctionnement est soumis aux deux conditions suivantes:

ce dispositif ne peut pas provoquer d'interférences et

cet appareil doit accepter toute interférence , y compris les interférences qui peuvent causer un mauvais fonctionnement de l'appareil.

Pour émetteur BA T1 uniquement: Contient IC: 8595A-NORAB12

CAN ICES-003 (B) / NMB-003 (B)

2-Year Warranty

Williams AV products are engineered, designed, and manufactured under carefully controlled conditions to provide you with many years of reliable service.

Williams AV warrants the Infinium controller and Infinium transmitter against defects in materials and workmanship under normal use and conditions for the 2-years from the product from date of purchase.

This warranty is available to the original end purchaser of the product and CAN BE transferred to subsequent purchasers of the product. Microphones, earphones, headphones, batteries, chargers, cables, carry cases, and most other accessory products carry a 90-day warranty.

Williams AV has no control over the conditions under which this product is used. Williams AV, therefore, disclaims all warranties not set forth above, both express and implied, with respect to the Infinium controller or Infinium transmitter, including but not limited to, any implied warranty of merchantability or fitness of use of such equipment including, without limitation, any warranty that the use of such equipment for any purpose will comply with applicable laws and regulations. Williams AV shall not be liable to any person or entity for any medical expenses or any direct, incidental or consequential damages caused by any use, defect, failure or malfunctioning of the product, whether a claim for such damages is based upon warranty, contract, tort or otherwise.

The sole remedy for any defect, failure or malfunction of the products is replacement of the product. No person has any authority to bind Williams AV to any representation or warranty with respect to the Infinium controller and Infinium transmitter System. Unauthorized repairs or modifications will void the warranty. This warranty is void if damage occurred because of misuse, or if the product has been repaired or modified by anyone other than a factory authorized service technician. Warranty does not cover normal wear and tear on the product or any other physical damage unless the damage was the result of a manufacturing defect. Williams AV is not liable for consequential damages due to any failure of equipment to perform as intended. Williams AV shall bear no responsibility or obligation with respect to the manner of use of any equipment sold by it.

This warranty does not cover reimbursement for your costs of removing and transporting the product for warranty service evaluation or installation of any replacement product provided under this warranty.

The exclusions and limitations set out above are not intended to, and should not be construed so as to contravene mandatory provisions of applicable law. If any part or term of this Disclaimer of Warranty is held to be illegal, unenforceable, or in conflict with applicable law by a court of competent jurisdiction, the validity of the remaining portions of this Disclaimer of Warranty shall not be affected, and all rights and obligations shall be construed and enforced as if this warranty did not contain the particular part or term held to be invalid. The terms of the warranty are governed by the laws of the State of Minnesota.

Prices and the specifications of the products are subject to change without notice.

For Complete Warranty Statement go to: www.williamsav.com/warranty-statement

NOTICE: Williams AV products are NOT designed for use in extreme temperature, humidity or chemical environments. The introduction of chemicals such as chlorine, salt water or human sweat into the product will cause damage to the circuitry. Damage due to these causes is NOT covered under the Product Warranty.

If you experience difficulty with your system, call Toll-Free for Customer Assistance

1-800-843-3544 (U.S.A.) or +1 952 943 2252 (Outside the U.S.A.)

If it is necessary to return the system for service, your Customer Service Representative will give you a Return Authorization Number (RA) and shipping instructions.

Pack the system carefully and send it to:

Williams AV Attn: Repair Dept. 10300 Valley View Road Eden Prairie, MN 55344