

Grandstream Networks, Inc.

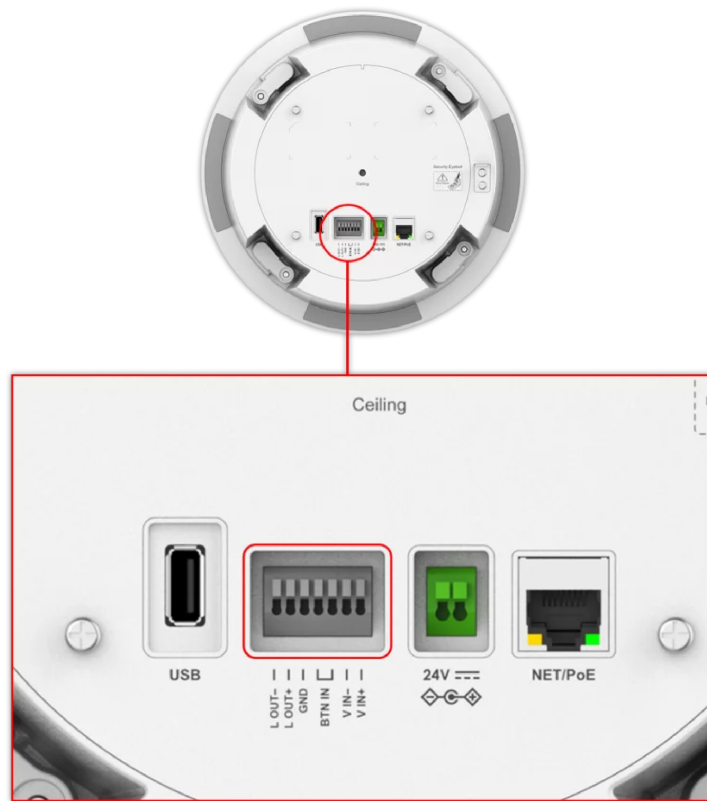
GSC3506 V2 – Auxiliary Ports Instructions Guide



OVERVIEW

The GSC3506 V2 provides multiple auxiliary ports for professional audio signal output and external control signal input applications. These interfaces enable integration with external audio systems and control devices for expanded functionality in various deployment scenarios.

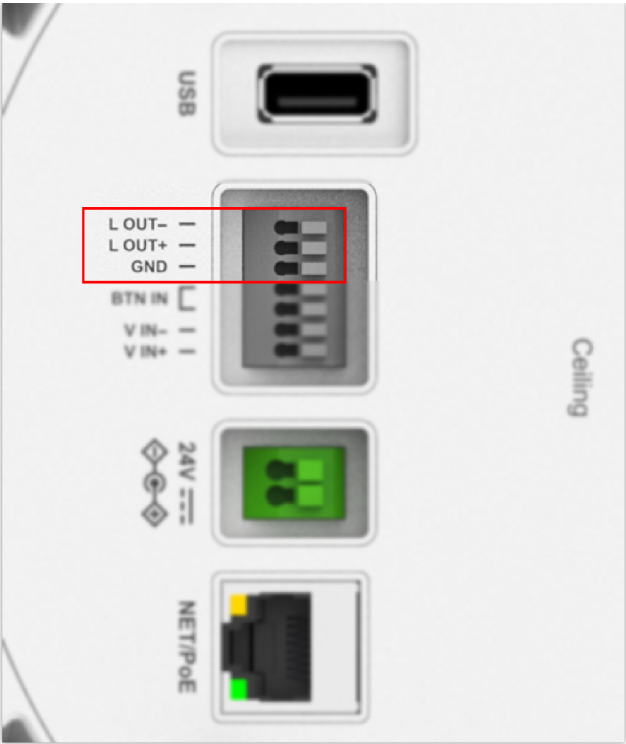
This guide demonstrates the device's capability to function as both a standalone multicast paging unit and an integrated component within a comprehensive building communication infrastructure.



GSC3506 V2 Auxiliary Ports

LINE OUT PORTS

The Line Out ports provide analog audio output capabilities designed for integration with external amplification and sound systems. This interface supports both balanced and unbalanced output configurations, offering flexibility for various installation requirements and operating environments.



GSC3506 V2 Line Out Ports

The table below describes the technical specifications of these ports:

Specifications	Description
Connector type	3-pin terminal (LOUT+, LOUT-, GND)
Signal type	Balanced / Unbalanced line-level output
Maximum output level	1.2 Vrms (balanced), 0.6 Vrms (unbalanced)
Output impedance	200 Ω (balanced), 100 Ω (unbalanced)

Wiring Methods

The Line Out port of the GSC3506 V2 supports both balanced and unbalanced audio connections. The choice of wiring method depends on the connected system’s input configuration, cable distance, and installation environment.

- **Balanced connections** are recommended for professional PA systems or long cable runs, where noise immunity is critical.
- **Unbalanced connections** are suitable for short cable distances and consumer-grade amplifiers.

Notes:

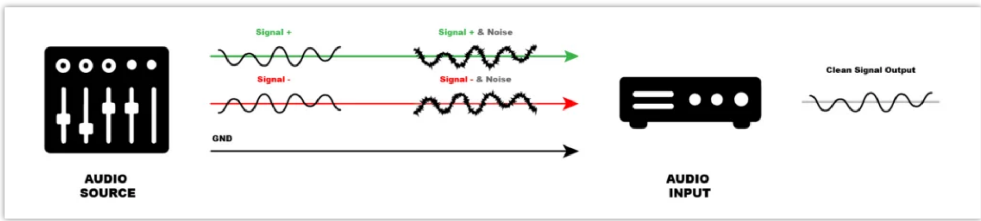
- Always match the output type (balanced or unbalanced) with the receiving device’s input configuration.
- For balanced connections, use shielded twisted-pair cables to minimize noise pickup, especially on runs longer than 5 meters.
- For unbalanced connections, keep cable length below 5 meters to reduce signal degradation.

Balanced Output Wiring

Balanced audio transmission is a professional method for carrying analog line-level signals with minimal noise, especially over long cable runs.

A balanced connection uses two signal conductors that carry identical audio wave forms in opposite polarities.

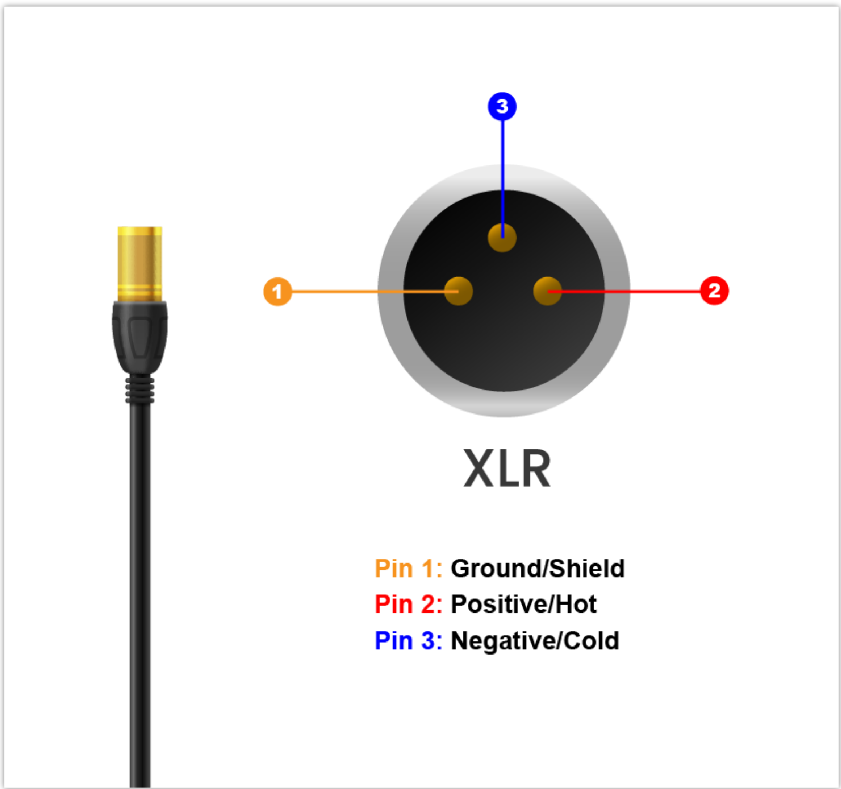
At the receiving device, the inverted signal is flipped back and combined with the original, canceling out any interference that may have been induced equally along both lines.



Balanced Audio Signaling

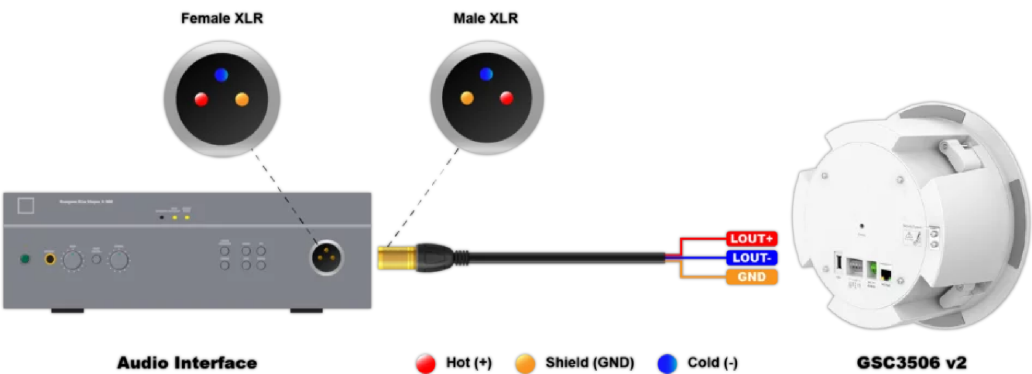
In this step, an **XLR cable** is used to carry the balanced line-level audio signal from the GSC3506 V2 multicast paging speaker to a professional PA amplifier or audio interface.

The XLR cable contains three conductors, corresponding to the balanced signal pair and ground, as illustrated below.



XLR Cable Description

This example demonstrates the correct connection between the GSC3506 V2's balanced line output and a professional audio device equipped with an XLR input.

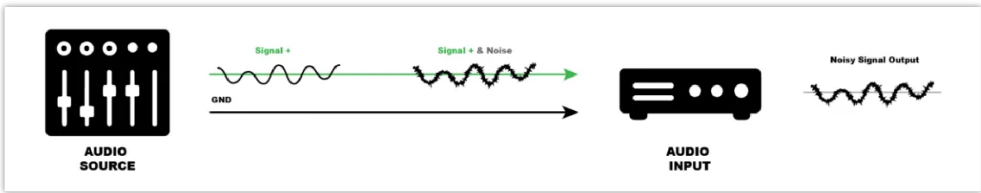


GSC3506 V2 Connected to Audio Interface via XLR Cable

Unbalanced Output Wiring

The unbalanced line-out configuration provides a simplified audio connection method for installations using short cable runs or consumer-grade equipment such as small amplifiers, powered speakers, or audio interfaces with unbalanced inputs.

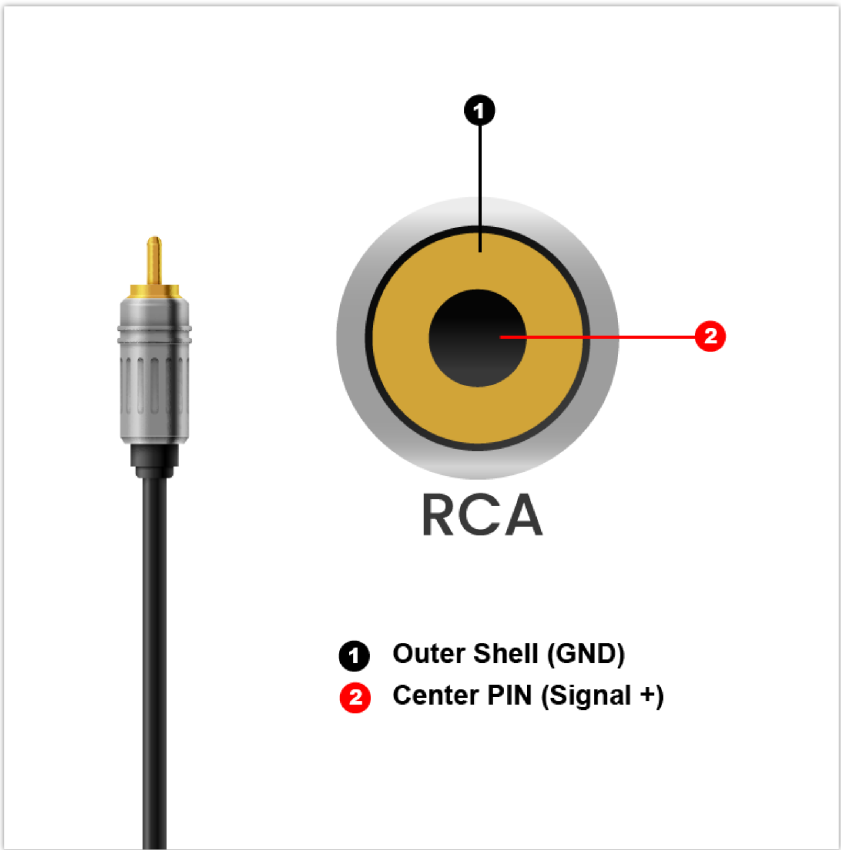
Unlike balanced transmission, an unbalanced signal uses a single active conductor (signal) and a ground reference. While this approach is more cost-effective, it is more susceptible to noise and signal degradation over long distances.



Unbalanced Audio Signaling

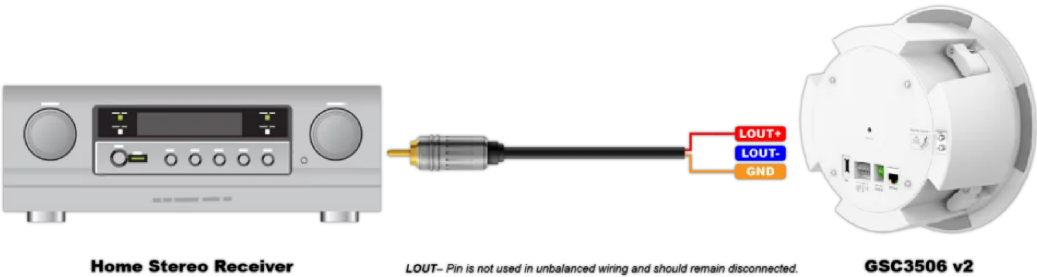
For unbalanced audio connections, an RCA cable transmits the mono line-level audio signal from the GSC3506 V2 to compatible audio equipment such as consumer amplifiers, home stereo systems, or basic audio interfaces.

The RCA cable utilizes a two-conductor design, consisting of a center signal conductor and outer ground shield, as shown below.



RCA Cable Description

This wiring example illustrates the proper connection method between the GSC3506 V2’s unbalanced audio output and consumer-grade audio equipment featuring RCA input interfaces.



GSC3506 V2 Connected to Home Stereo Receiver via RCA Cable

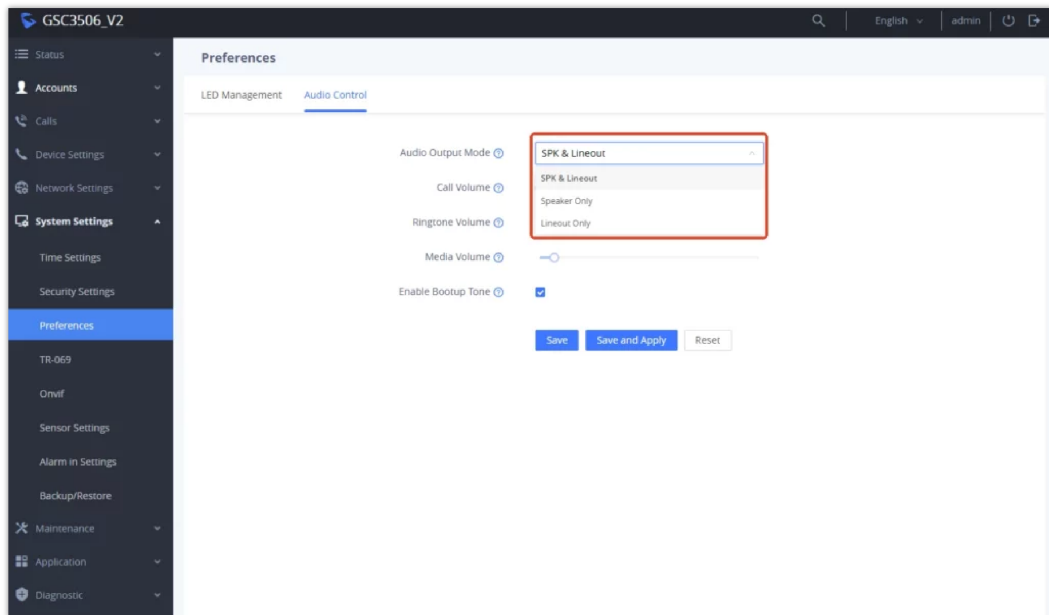
Audio Output Mode Configuration

After completing the Line Out wiring configuration, the audio output mode must be set according to the desired operation of the GSC3506 V2.

This configuration determines whether the device outputs audio through its internal speaker, the Line Out port, or both simultaneously.

To access audio output settings, please follow the steps below:

1. Log in to the GSC3506 V2 Web UI using a web browser.
2. Navigate to **System Settings** → **Preferences** → **Audio Control**.
3. Locate the **Audio Output Mode** drop-down menu.



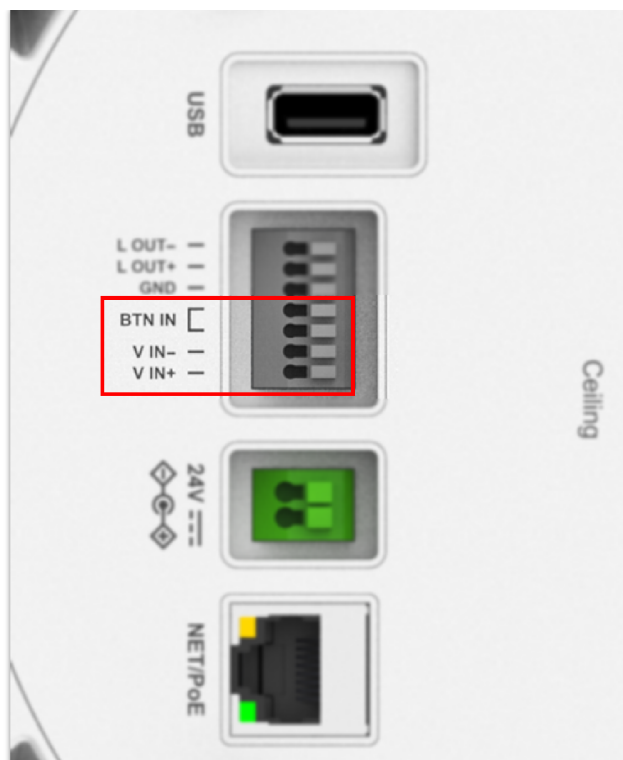
Audio Output Mode Setting

4. Select the desired operating mode from the available options.
 - **Speaker Only:** Audio is played only through the built-in speaker. The Line Out port remains inactive.
 - **Lineout Only:** Audio is output exclusively through the Line Out port to an external amplifier, mixer, or sound system. The internal speaker is muted.
 - **SPK & Lineout:** Audio is played simultaneously through both the internal speaker and the Line Out port. This mode is useful for local monitoring while also feeding external systems.
5. Click **Save** and **Apply** to activate the new configuration.

CONTROL INPUT PORTS

In addition to output interfaces, GSC3506 V2 provides two control input ports for external trigger and alarm integration:

- **BTN IN (Switch Input):** Dry contact input used for external buttons or switches.
- **VIN+ / VIN- (Alarm Input):** Voltage input (5–12 V DC) for connecting external alarm systems.

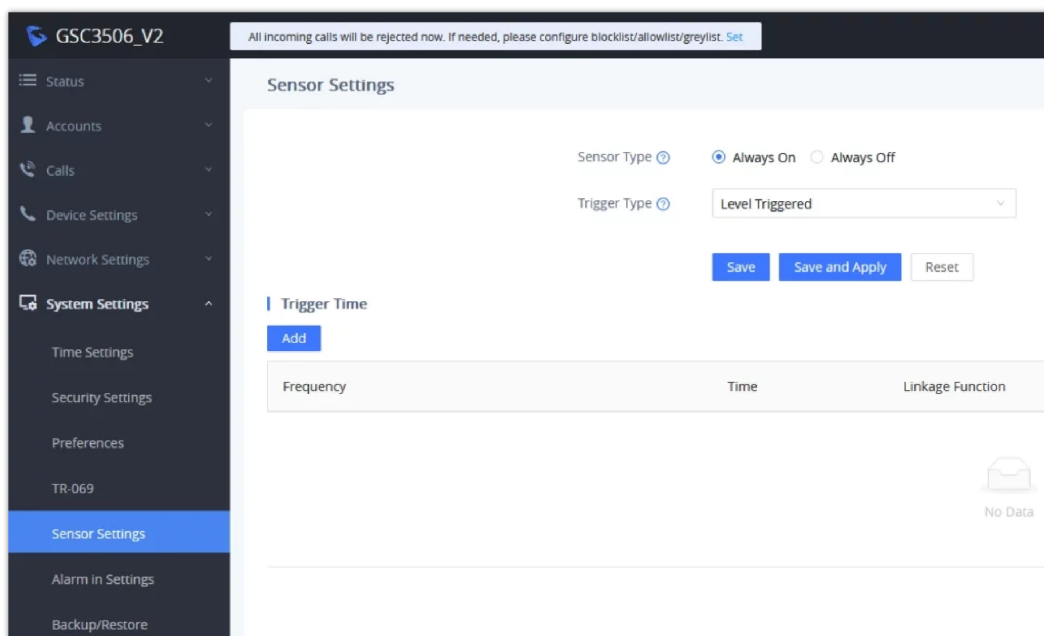


GSC3506 V2 Control Input Ports

BTN IN (Switch Input)

The **BTN IN** port provides a dry contact input for connecting external buttons or switches. When the switch is activated, the GSC3506 V2 can perform configurable actions, enabling notifications or audio prompts.

The behavior of the BTN IN port can be adjusted via the GSC3506 V2 Web UI under **System Settings** → **Sensor Settings**. These settings determine how the device responds when the external switch is activated:



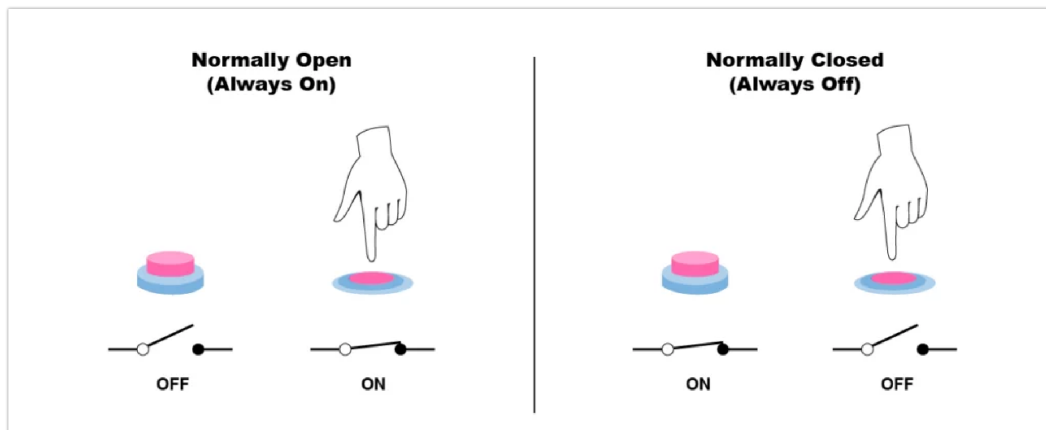
GSC3506 V2 Sensor Settings

Sensor Type

The sensor type option can be configured as **Always On** / **Always Off** to define how the device interprets the switch signal. This is important in the context of the type of switch used (Normally Open or Normally Closed) to ensure the correct trigger behavior. These settings are configurable via the Web UI.

- **Always On:**
 - By default, during the inactive state, the switch contact is open.

- Pressing the switch closes the contact, which triggers an active event.
- **Typical Use Cases:** Normally-open buttons such as doorbells, call buttons, or panic buttons that keep an alarm active while pressed.
- **Always Off:**
 - By default, during the inactive state, the switch contact is closed.
 - Pressing the switch opens the contact, which triggers an active event.
 - **Typical Use Cases:** Normally-closed switches, emergency pull cords, or fail-safe circuits where breaking the connection triggers an alert.



Normally Open NO vs Normally Closed NC Switch

Trigger Type

The Trigger Type parameter determines how the device reacts when the switch becomes active. There are two options for GSC3506 V2:

- **Level Triggered:** Executes the action as long as the switch remains active. For example, holding a panic button so the alarm continues while pressed.
- **Edge Triggered:** Executes the action once at the moment the switch changes state (press or release). For example, a doorbell press that triggers a single audio prompt or SIP call, regardless of hold duration.

Trigger Actions

Once the switch is activated, the GSC3506 V2 can perform multiple configurable actions, allowing flexible integration into audio and communication workflows.

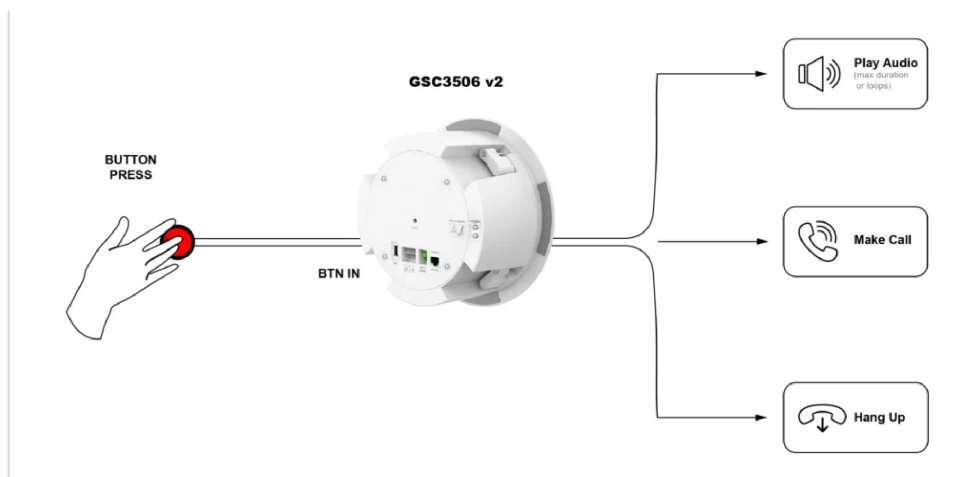
The screenshot shows a 'Trigger Action Settings' dialog box. It has a close button (X) in the top right corner. The settings are as follows:

- Cycle Time**: ☒ Daily, ☐ Period of Time
- Play Audio**: ☐
- Make Call**: ☐
- Hang Up**: ☐

At the bottom right, there are 'Cancel' and 'OK' buttons.

Trigger Action Settings

These actions can be active all the time or restricted to a specified period (for example, every Monday at 7 PM the button will trigger actions). The available actions include:



GSC3506 V2 BTN IN Trigger Actions Diagram

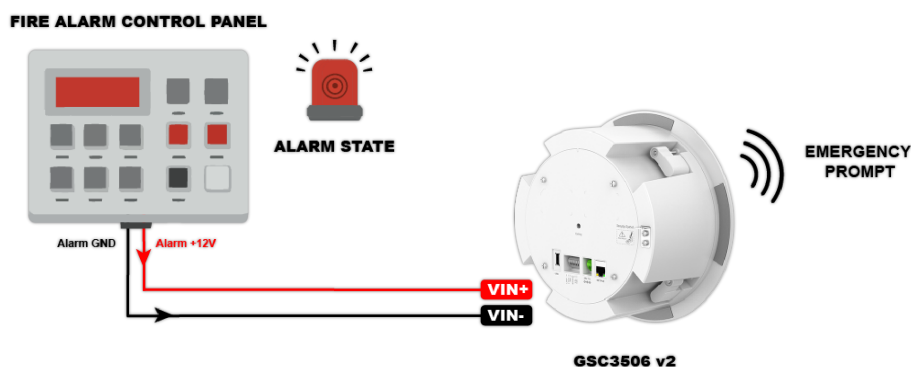
1. **Play Audio:** Play a built-in or custom audio prompt (.wav/.mp3/.ogg). The prompt can be played for a maximum duration or looped a set number of times.
2. **Make Call:** Configure one or two extensions that will be dialed when the switch is activated.
3. **Hang Up:** Hang up an ongoing call during trigger.

ALARM INPUT (VIN+ / VIN-)

The **VIN+ / VIN-** (Alarm Input) ports on the GSC3506 V2 are designed to receive external voltage trigger signals from third-party alarm systems or sensors. This interface allows the device to respond automatically to alarm events, such as fire alarms, door sensors, or motion detectors, by performing predefined actions.

When a DC voltage between **5V and 12V** is applied across VIN+ and VIN-, the GSC3506 V2 detects this as an active alarm state. When the voltage is removed, the state returns to inactive.

This example illustrates how the GSC3506 V2 connects to an external fire alarm system:

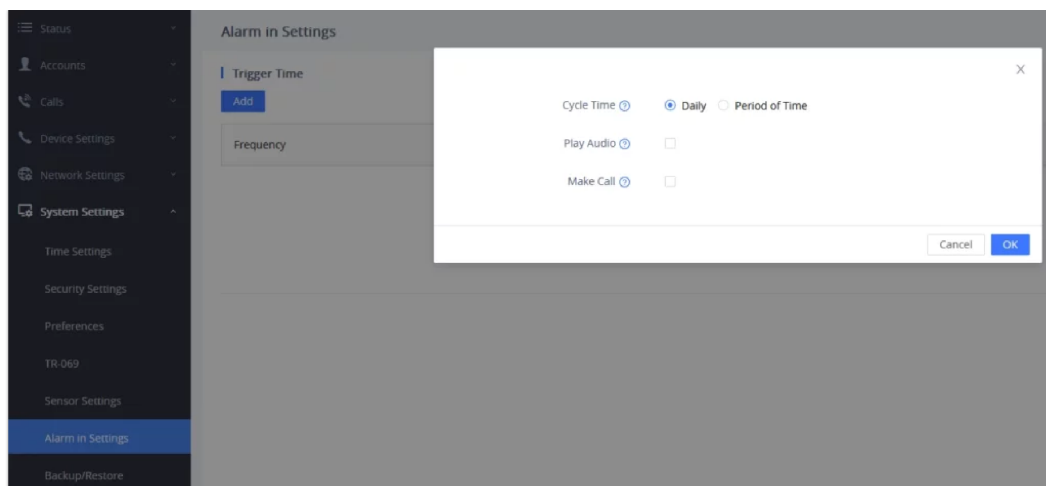


GSC3506 V2 Alarm Input Integration with Fire Alarm System

Note:

Please verify that the external alarm signal voltage is within 5–12 V DC before connection.

Configuration of the Alarm Input behavior is available through the Web UI, under the **System Settings → Alarm In Settings**.



GSC3506 V2 Alarm In Settings

The following parameters can be configured:

- **Cycle Time:** Defines when the alarm input is active.
 - **Daily:** The alarm input triggers actions at any time of the day.
 - **Period of Time:** Restricts the input to trigger only during a specified time.
- **Play Audio:** When enabled, the GSC3506 V2 plays a built-in or user-uploaded audio prompt (.wav/.mp3/.ogg) whenever the alarm input is triggered. The prompt can be configured to loop a set number of times or play for a defined duration.
- **Make Call:** Allows the device to automatically dial one or two pre-configured extensions when the alarm input is triggered.