Banshee
User Manual

Product Overview

The Banshee requires **12-24V DC** for power.

Power can be supplied using the barrel jack or the + and – on the INPUT terminal block.

The Banshee is a dedicated audio player with 6 isolated inputs and an internal 60W stereo amplifier.

Actual amplifier power and output volume level will vary based on your speakers and audio file.

Volume Adjustments

The Banshee has a dial to adjust the volume on the left-side of the controller, turning this dial clockwise will increase the volume. This dial is the default volume, you can also set the volume of the input and ambient sounds separately using the Banshee Configuration Utility.

Playing Output

The Playing Output is a solid-state output that is configurable via the Banshee Configuration Utility. It operates the same way as "Output 0" on our prop controllers. There are 5 different modes:

Default Mode

The Playing Output is on for the entire length of the sound.

Start Mode

The Playing Output is on for 1 second at the beginning of the sound.

End Mode

The Playing Output is on for 1 second after the sound.

Start and End Mode

The Playing Output is on for 1 second at the beginning of the sound, and for 1 second after the sound.

Strobe Mode

The Playing Output will strobe instead of being steady.

Off Mode

The Playing Output will not be on during a specific input.

⚠ The Playing Output is solid-state, meaning it will output the same voltage that the controller is powered with. If powering with 24V it will output 24V, which may damage 12V electronics hooked up to it.

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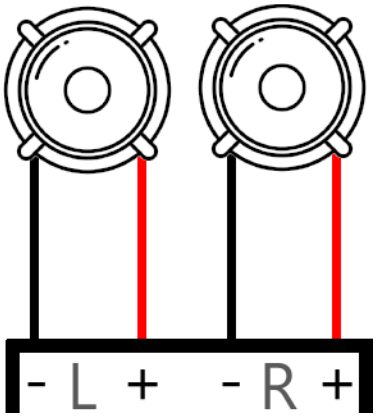
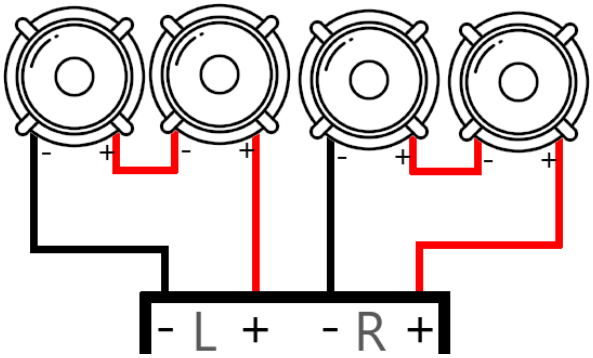
Speaker Wiring

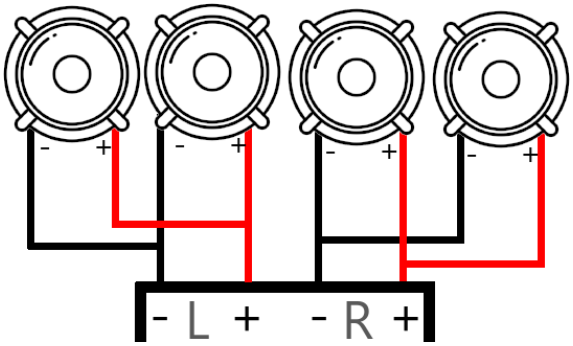
The Banshee supports both 4 and 8 Ohm speakers, it can play at full volume using both. Speakers should be rated for at least 100W. Speaker wiring diagrams:



Two 4-8 Ohm Speakers

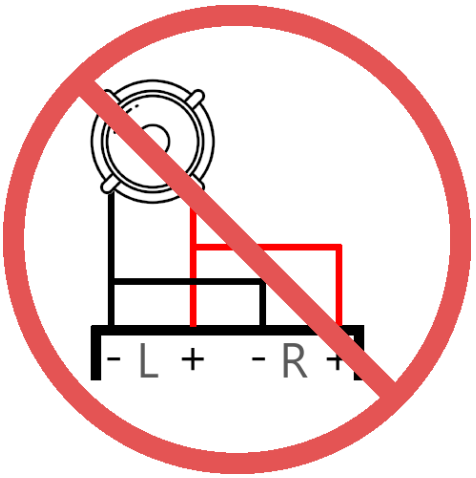


Four 4 Ohm Speakers in Series



Four 8 Ohm Speakers in Parallel

DO NOT CONNECT A SPEAKER ATTEMPTING TO MAKE A MONO MODE!



The Banshee *does not support a mono mode*, hooking speakers up in this configuration may damage the internal amplifier. If you need mono audio hook up one speaker, which will only output 30 watts.

Diagrams in the left column are the only valid speaker configurations supported by the Banshee.

Sound Issues

If you experience audio clipping, or distorted audio try increasing your power supply current (12V 5A or 24V 3A are recommended).

If you continue to experience clipping or distortion your audio may be too loud playing from the MicroSD card. This can be solved by lowering the volume on the controller or lowering the amplification of the audio file on a computer.

If you experience audio cutting out after extended periods of time, try lowering the volume on the controller just slightly.

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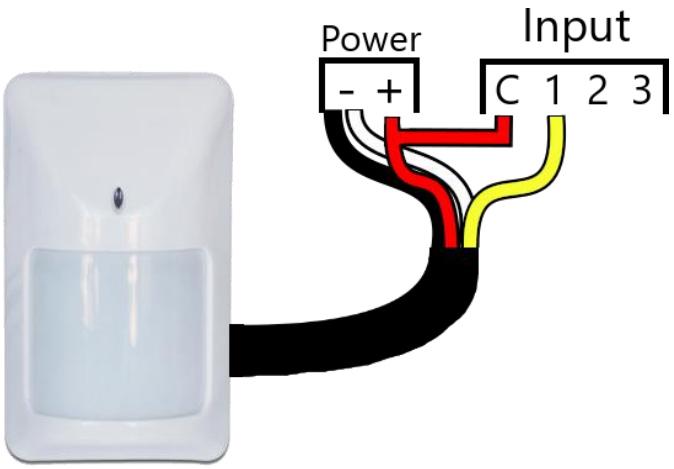
Trigger Wiring

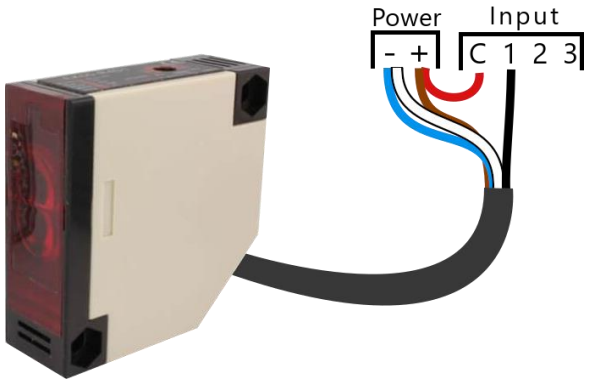
The Banshee has 6 isolated inputs and will trigger when there is between 5-24V between C and an input number (C must be on the same connector).

Isolated inputs allow the banshee to be as robust as possible, allowing you to trigger the controller using almost anything.

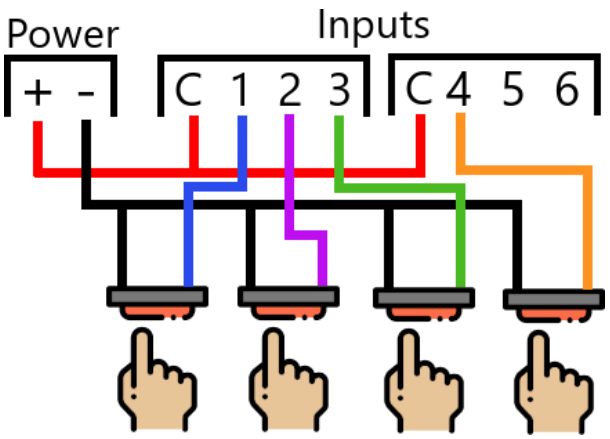
*For additional diagrams, see the user manual for your sensor. The Banshee has **Isolated Inputs**.*



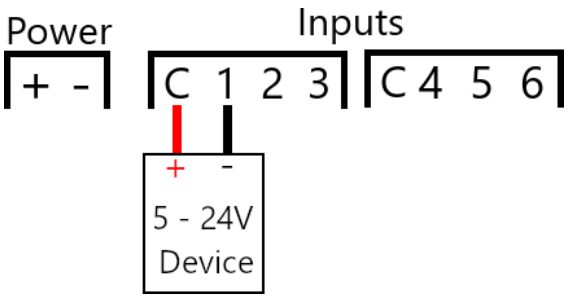
PIR Motion Sensor Wiring



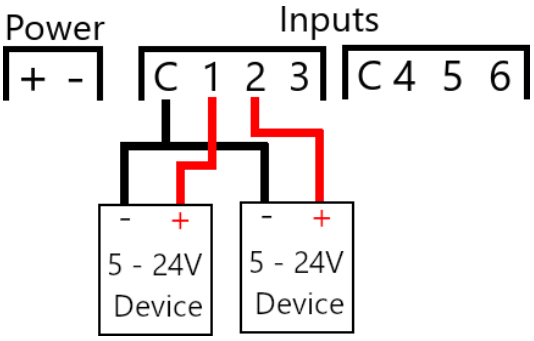
Reflective/Diffused Beam Sensor Wiring



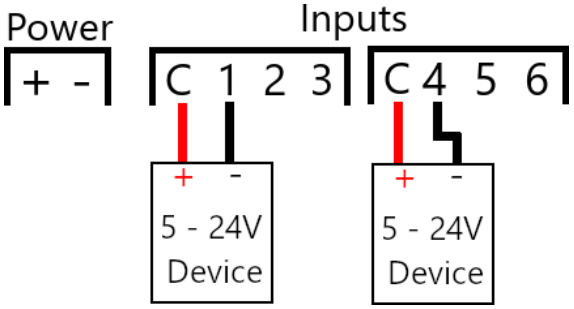
4 Push Button/Step Pad Wiring



Single Solid-State Device



Multiple Solid-State Devices (Common GND)



Multiple Solid-State Devices (No Common GND)

Controller Configuration

Configuring your Banshee should be done using the **Banshee Configuration Utility** (Windows PC only) included on the MicroSD card or available on our website. It is possible to do by hand, but the configuration utility makes it easy.

Configuration is loaded from the `config.txt` files, one global file, one ambient file, and a file for each input. Below shows the folder structure and placement of the config files.

```
MicroSD Card/
├── config.txt  (global)
├── AMB/
│   └── config.txt
├── IN1/
│   └── config.txt
├── IN2/
│   └── config.txt
├── IN3/
│   └── config.txt
├── IN4/
│   └── config.txt
├── IN5/
│   └── config.txt
└── IN6/
    └── config.txt
```

Each line in a config file is a number that represents a setting, see the table to the right for all settings.

Configuration in the global `config.txt` file will apply to all inputs. Settings in input/ambient specific config files will override the global configuration. Some values do not affect inputs/ambient, so entering that value in an input/ambient specific config file will do nothing.

For details on using the Banshee Configuration Utility, see the Banshee Configuration Utility User Manual, or our provided videos.

Value	Configuration Setting
1	No Mute (global only)
2	Ambient Resume (global only)
20	No Loop Mode
21	Interruptible
22	Self-Interruptible
23	Hierarchy Interrupts
24	Momentary Input
25	Normally-Closed Input
26	Loop Input Until Next Trigger
27	Play All Sounds
101	Playing Output *Start Mode*
102	Playing Output *End Mode*
103	Playing Output *Strobe Mode*
104	Playing Output Off
200-300	Volume Level Minimum: 200 (lowest volume) Maximum: 300 (highest volume)

Detailed explanations on the next page.

No Mute (global only)

By default, the amp will only mute when there are no ambient sounds. This may cause popping noise when the amp unmutes during a trigger. Setting this mode forces the controller to never mute, eliminating the popping noise, but may cause speaker static when nothing is playing.

No effect in ambient
No effect in inputs

Ambient Resume (global only)

By default, when going back to the ambient sound(s) after a trigger, the controller plays the next ambient sound file (or restart if there is only one). This mode will make the controller resume at the exact location in the sound file where it was interrupted by the trigger.

No effect in ambient
No effect in inputs

No Loop Mode

By default, if after triggered an input remains active, the controller will loop the input. In No Loop Mode, the controller will go back to the ambient sound, and will not trigger that input again until that input has been cleared.

No effect in ambient

Interruptible

By default, if an input is playing and another trigger occurs it will finish playing the current input before continuing. This mode will allow an input to be interrupted by other inputs triggered when it is playing. The controller will switch to the new input.

No effect in ambient

Self-Interruptible

When an input is playing, and is triggered again it will begin playing the next sound in the input (or restart the sound if only one).

No effect in ambient

Hierarchy Interrupts

Same as making an input interruptible, but only inputs of a lower number can interrupt.

No effect in ambient
No effect in IN1

Momentary Input

In this mode, a trigger sound will only play while the input is active. Once the input is released the sound will stop and go back to ambient.

No effect in ambient

Normally-Closed Input

Set this mode for inputs hooked up to normally-closed sensors/triggers.

No effect in ambient

Loop Input Until Next Trigger

In this mode, once an input is triggered it will play forever until a new input is triggered.

No effect in ambient

Play All Sounds

By default, the controller will only play a single sound for each trigger. In this mode, an input will play all the sounds in the folder before returning to ambient.

No effect in ambient

Playing Output Settings

You can manually set the playing output mode for the inputs as well as ambient. Global settings for the playing output do not apply to the ambient folder.

End Mode has no effect in ambient
Start + End has no effect in ambient

Volume Level

By default, the controller will use the volume set by the dial. Use this setting to set different volume levels for each input.

Setting the volume level in the global config file will disable the volume level. This is a great way to prevent unwanted volume changes.

Updating Firmware

The Banshee can update the internal firmware using the MicroSD card. This allows you to get the latest features and bug fixes to your existing controllers.

Download the latest firmware file from the Banshee support page and place it on the MicroSD card. The file will be named `SC-60.BIN` and should not be renamed.

Put the MicroSD card back in the Banshee and turn it on, this will automatically load the updated firmware. The controller will automatically delete the firmware file once booted.

If your controller misbehaves after a firmware update, re-download the firmware and try again.

See table at end of manual for version changes, release dates, and release notes.

Identifying Firmware Version

On boot, the Banshee will create a `version.txt` file on the MicroSD card that contains relevant firmware versioning information. If you feel it is out of date, delete the file and turn the Banshee back on, this will create a new file.

MicroSD Card Format/Structure

The Banshee accepts a MicroSD card up-to 32GB that is formatted with FAT32. If you insert a blank formatted MicroSD card into the controller it will automatically create all the folders for you. Here is the expected folder structure of the MicroSD card:

Folder Name	Folder Contents
AMB	Ambient Audio Files
IN1	Input 1 Audio Files
IN2	Input 2 Audio Files
IN3	Input 3 Audio Files
IN4	Input 4 Audio Files
IN5	Input 5 Audio Files
IN6	Input 6 Audio Files

Audio files should be named with numbers starting at 000 and ending at 255 in the format of `###.mp3`

If you skip a number, the controller will not continue past that number, it will loop back to 000.mp3.

Troubleshooting

Follow these steps if you have no audio:

1. Make sure the controller volume is turned up
2. Turn the controller off and back on after putting in a MicroSD card (or have the controller off when inserting)
3. Make sure your file is a MP3 file, if not it needs to be converted to MP3 (using a program like Audacity or a free online website)

Factory Reset

To factory reset your Banshee, remove the MicroSD card, go to a computer, and delete all `config.txt` files on the MicroSD card. Alternatively, you can delete all files (after backing up audio files). Switching to a new MicroSD card (with no files) will also result in factory default settings.

The Banshee Configuration Utility has an option to restore SD cards to factory settings.

LED Error Codes

Error conditions are shown when the LED flashes according to the table below followed by turning off for 3 seconds then flashing the same pattern again.

Number of Flashes	Error
3	Controller damaged
5	No Mono Mode
7	No SD Card

Firmware/Hardware Update History

Date	Hardware Version	Firmware Version	Description
March 2024	A (SC-60)	1	Initial Release
October 2024		2	Added flashing indicator for playing ambient vs input