

# DS Directional Speaker

## Operator Instruction Manual



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# 1. Product Description

## What is a directional speaker?

A directional speaker is one that people can only hear in a specific area. When somebody walks by, parametric speakers use ultrasonic frequencies, which are extremely directional but are beyond human hearing. Whereas a typical speaker pushes air, parametric speakers generate an audible signal by modulating the air outside of the speaker cabinet, which confines itself to the narrow geography of the ultrasonic beam. The higher the ultrasonic frequencies used, the narrower the beam.

The DS Directional Speaker distributes sound to a specific location while having no effect on any passers by. Many different public applications can benefit from the use of a directional speaker, including museums, heritage sites, audio tours, welcome points, kiosks and video shows.

The following table shows the highlights and business value of the speaker.

Technical Highlights	Business Value
Minimal sized	<ul style="list-style-type: none"> <li>● Suited for various applications.</li> <li>● Easy installation with different support frames.</li> </ul>
Super directional	<ul style="list-style-type: none"> <li>● Sound delivery in a specific zone.</li> <li>● Noninterference to neighboring circumstance.</li> <li>● Lower acoustic attenuation, longer delivery distance.</li> <li>● Reduced acoustic pollution.</li> </ul>
High Reflection	<ul style="list-style-type: none"> <li>● Virtual sound source effect.</li> </ul>
Dual channels	<ul style="list-style-type: none"> <li>● Stereo sound effect.</li> </ul>
Patented DSP Technology	<ul style="list-style-type: none"> <li>● High fidelity and bandwidth for various applications.</li> </ul>

## 2. What's Included?

Directivity:  $-10\text{dB} < 10^\circ$   
 Input Impedance:  $10\text{K}\Omega$   
 SPL:  $85\text{dB}@2\text{m}, 1\text{KHz}$   
 Input: Analog audio with TRS 3.5mm interface  
 Power Consumption:  $22\text{W}$   
 Power Input:  $24\text{VDC}/3\text{A}$   
 Dimensions:  $292 \times 163 \times 23\text{mm}$   
 Weight:  $850\text{g}$   
 Working Temperature:  $-15^\circ\text{C} \sim 45^\circ\text{C}$   
 Humidity:  $0 \sim 95\%$ , non-condensing



Package list		
Description	Specification	Qty.
Main Units	Array Speaker	1
	Amplifier	1
Power Adapter	Input: $110 \sim 220\text{V } 50/60\text{Hz}$	1
	Output: $24\text{VDC}/3\text{A}$	
	Length: $2.5 \sim 2.8\text{m}$	
Audio Cable	3.5mm stereo	1
	Length: $1.8\text{m}$	

An adjustable bracket is also included.



## 2.1.The Amplifier

Parametric speakers are different to traditional speakers, as they need a unique amplifier.

Power Input: 24VDC/3A

Input: 1Vrms with 3.5mm interface

Dimension: 154x110x38mm

Weight: 450g

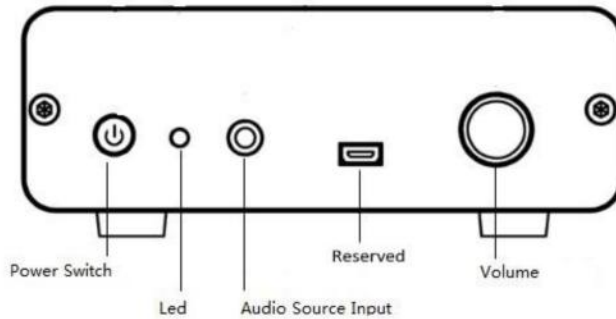
Working Temperature: -15°C~45°C

Humidity: 0~95%, non-condensing

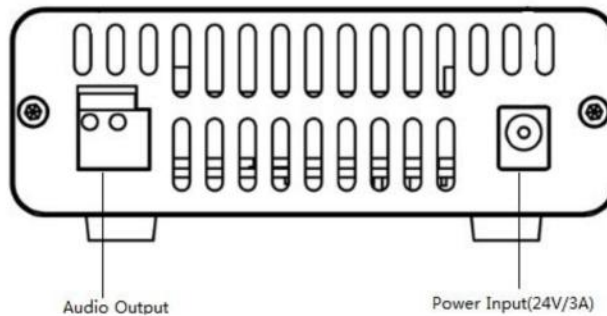


## 3. Operating The Amplifier

### 3.1. Amplifier Connections



PIC 6.1



PIC 6.2

As shown in above pictures:

- 1) Preparation: Make sure the power switch is in OFF status before you connect the power source. The power switch is on when pressed down, off when pressed up.
- 2) Power supply: First connect the 24V/3A DC power source to the amplifier, then connect the power adapter to a 220VAC socket.
- 3) Audio cable connection: Connect one end of the 3.5mm audio cable to the audio input socket of the amplifier, and connect the other end to an audio player, such as a mobile phone, tablet, PC, MP3 or TV, etc.
- 4) Turn on the power switch: the LED located next to the DC power switch will glow in green, indicating the amplifier is on. The amplifier needs 10 seconds for startup before working.



## 3.2. Volume Adjustment

Volume can be controlled by the audio source device, such as a mobile phone, tablet, desktop, MP3 or TV. It is also possible to adjust the volume by the knob at the front of the amplifier.

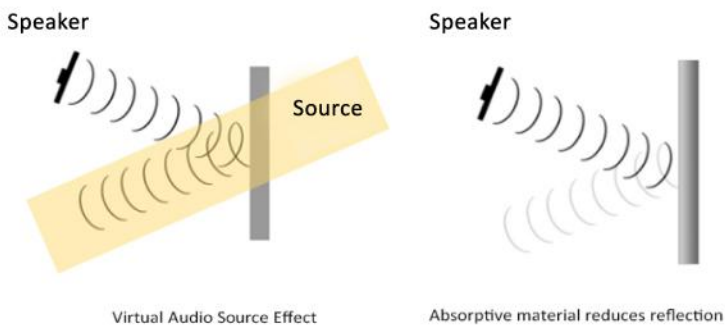
## 3.3. Advised Distance

The speakers are highly directional and suited for precise and long distance sound delivery. We recommend that you keep at least 1 meter away from the speaker in order to get the best audio experience.

## 3.4. Application Solutions

### Virtual Audio Source Effect

The DS Directional speaker can leverage reflective surfaces to act like a virtual audio source. If the listener is not in the area of the sound beam, it will feel like the hard surface is producing the sound. This is particularly obvious when the sound is delivered to a glass panel or a wall. You can use this to make a virtual audio source or a surrounded sound experience. You may need absorbant materials to avoid unwanted sound reflections.



PIC 6.3

### Directional Sound Delivery

Due to the high directivity, the directional speaker has a much narrower sound beam than a traditional speaker, which provides an effective solution to reduce noise pollution.

The following are practical application solutions:

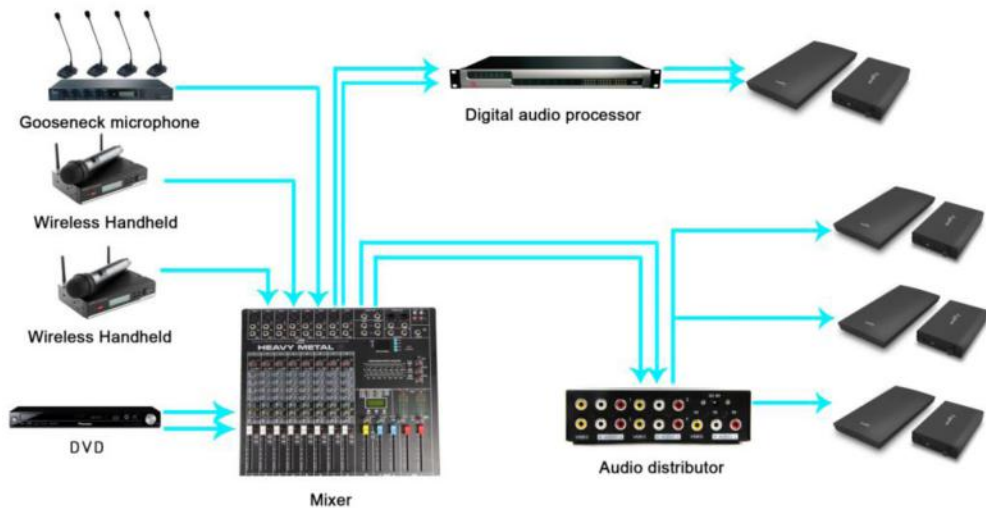
- Sound isolation, play in the specified area, the audio can be controlled, the sound source not influenced by each other.

- Clear sound and loud enough to hear comfortably in a long distance.
- Immersive listening experience.
- Commercial projects like museum, art gallery, library, trade show, meeting room, digital signage, media advertising, retailer store, etc.
- Consumer usage for automobile, home.

### 3.5. Applications with other audio systems

The DS Directional speakers must work with unique amplifiers as they require signal input with 1Vrms (2.8VPP). You can easily integrate our products into existing audio systems by connecting a sound console and audio processors to the amplifier with our speakers, or to audio signal distributors.

**Note:** Due to various output levels of different microphones, we would strongly advise not to connect a microphone to our amplifiers directly, as you may get unnecessary noises.





## 4. Troubleshooting

### 4.1. The Indication LED

1. Indication LED is not on - make sure the power adapter is properly connected and working.
2. The LED blinks every 2 seconds, then off for 1 second - the amplifier is at a high temperature, you will need to turn down the volume or turn it off.
3. The LED turns to red - the device is defective. We recommend turning it off and then on again after 30 seconds. If the amplifier's LED is still red, please get in touch with us.

### 4.2. Low Sound or No Sound

1. Make sure the signal source is connected correctly.
2. Make sure the speaker is pointed to the target area.
3. Make sure the power adapter is plugged in and the LED glows green.
4. Check the amplifier and make sure it is properly connected and turned on.
5. Make sure the audio cables are in working condition.
6. Try to change the position or angle the speaker for the best sound results.

## 5. Contact Information

Portfolio Website: <http://www.blackboxav.co.uk>

Online Shop: <http://www.theinterpretationshop.co.uk>

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