

## Walfront XH-A151

# Walfront XH-A151 Bluetooth Digital Amplifier Board User Manual

Model: XH-A151

## 1. INTRODUCTION

This manual provides detailed instructions for the proper installation, operation, and maintenance of your Walfront XH-A151 Bluetooth Digital Amplifier Board. This compact Class D audio amplifier module is designed for various DIY audio projects, offering dual-channel stereo output and Bluetooth connectivity for wireless audio streaming. Please read this manual thoroughly before use to ensure optimal performance and safety.

## 2. SAFETY INFORMATION

- **Power Supply:** Only use a DC 5V power supply. Using an incorrect voltage can damage the module and pose a safety risk.
- **Polarity:** Ensure correct polarity when connecting the power supply and speakers. Incorrect connections can cause damage.
- **Handling:** Handle the circuit board with care to avoid damaging components. Avoid touching exposed circuits while powered.
- **Environment:** Do not expose the module to moisture, extreme temperatures, or static electricity.
- **Ventilation:** Ensure adequate ventilation around the module during operation to prevent overheating.

## 3. PACKAGE CONTENTS

Verify that all items are present in your package:

- 1 x Walfront XH-A151 Bluetooth Digital Amplifier Board

## 4. PRODUCT OVERVIEW

The Walfront XH-A151 is a compact and efficient Class D audio amplifier board featuring Bluetooth connectivity. It provides a maximum output of 10W across two channels, supporting stereo playback. The module is designed for ease of integration into various audio projects, offering a wireless transmission distance of up to 20 meters in non-obstructed environments.

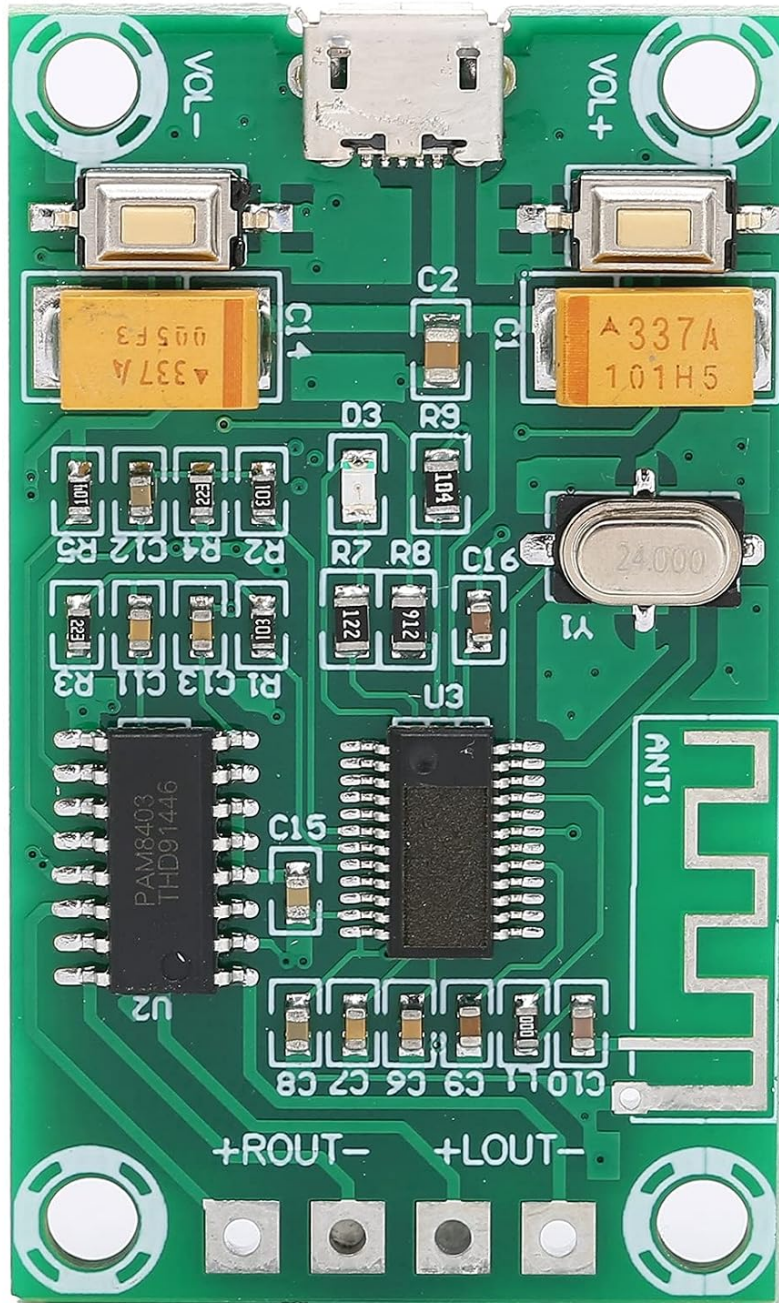


Figure 4.1: Top-down view of the Walfront XH-A151 Bluetooth Digital Amplifier Board, showing the Micro USB port, volume buttons, and speaker output terminals.

**DUAL CHANNEL DESIGN  
SUPPORT STEREO PLAYBACK, BRINGS  
BETTER ACOUSTIC ENJOYMENT  
CLASS D STRUCTURE  
MORE STABLE WORKING, AND  
HIGH WORKING EFFICIENCY**

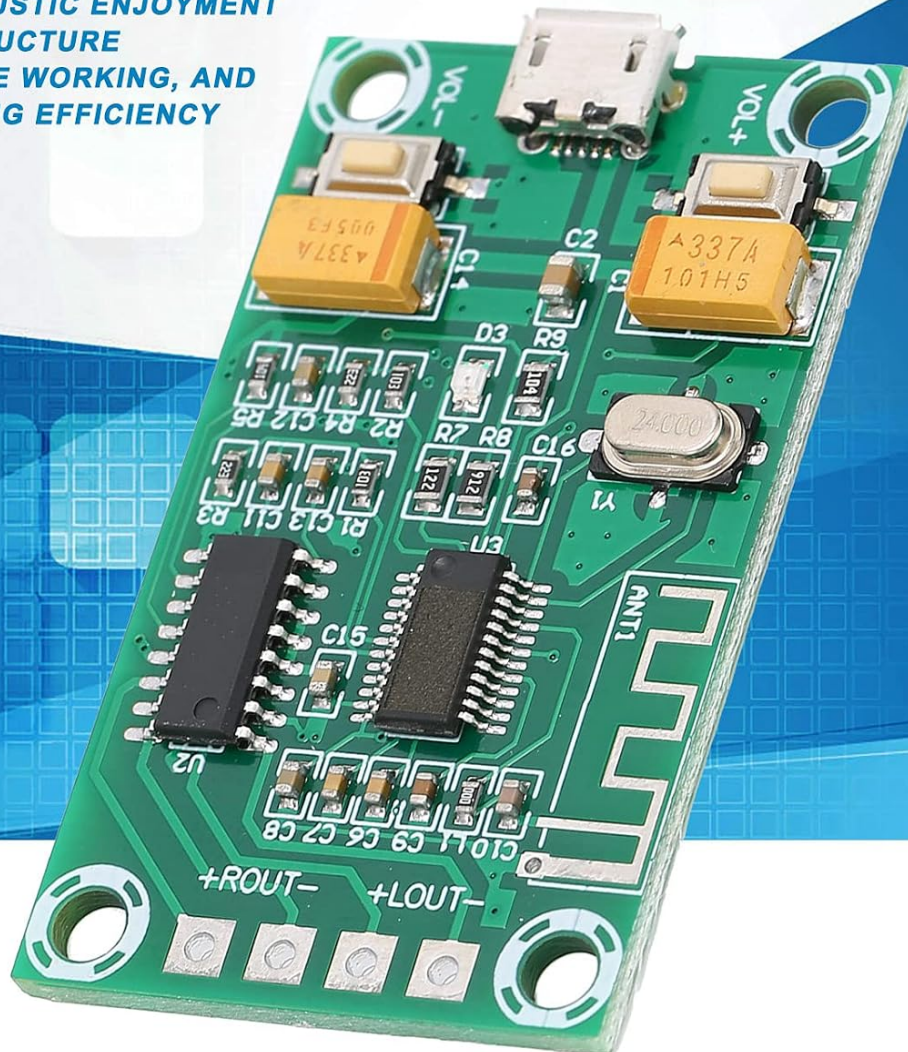


Figure 4.2: Angled view of the amplifier board, illustrating its compact design and highlighting its dual-channel Class D architecture for efficient stereo audio.

## 5. SPECIFICATIONS

<b>Model</b>	XH-A151
<b>Power Supply Voltage</b>	DC 5V
<b>Output Power</b>	Maximum 10W
<b>Bluetooth Transmission Distance</b>	Approx. Maximum 20 meters / 65.6 feet (non-blocking)
<b>Channels</b>	Dual Channel (Stereo)
<b>Amplifier Type</b>	Class D
<b>Product Dimensions (L x W x H)</b>	0.39 x 0.39 x 0.39 inches (approximate)

Product Weight

0.46 ounces (approximate)

## 6. SETUP

### 6.1 Power Connection

The XH-A151 module requires a DC 5V power supply. You can power the board using one of the following methods:

- **Micro USB Port:** Connect a standard Micro USB cable to the port labeled on the board and to a 5V USB power source (e.g., a phone charger, power bank, or computer USB port).
- **Direct Power Pads:** Alternatively, you can solder 5V DC power wires directly to the 'VOL+' and 'VOL-' pads located near the Micro USB port. Ensure correct polarity (+ to VOL+, - to VOL-).

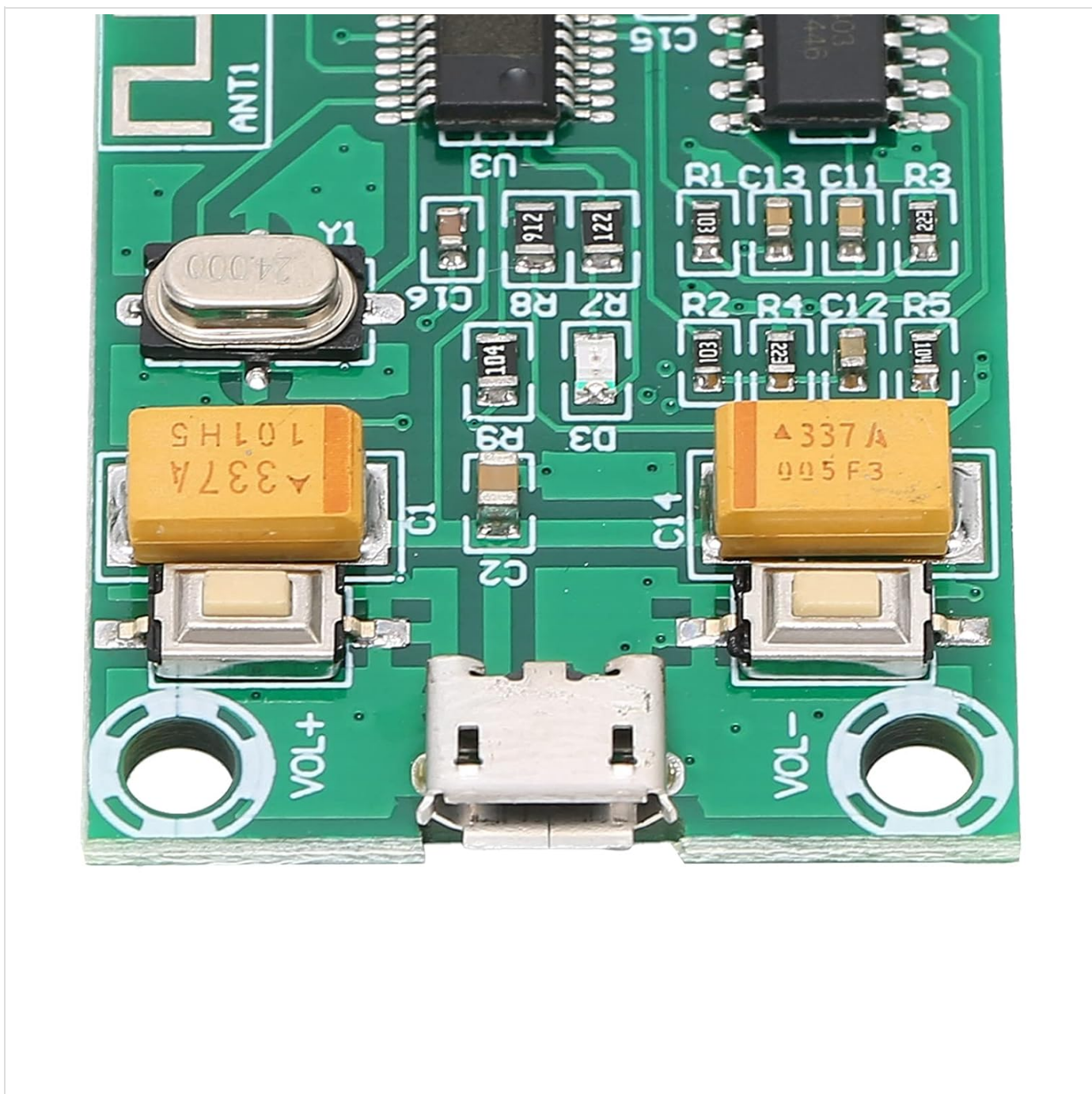


Figure 6.1: Close-up view showing the Micro USB power input and the 'VOL+' and 'VOL-' buttons for volume control.

### 6.2 Speaker Connection

Connect your passive speakers to the designated output terminals on the board. The module supports dual-channel stereo output.

- Connect the positive (+) terminal of your right speaker to the **+ROUT** pad.
- Connect the negative (-) terminal of your right speaker to the **-ROUT** pad.
- Connect the positive (+) terminal of your left speaker to the **+LOUT** pad.
- Connect the negative (-) terminal of your left speaker to the **-LOUT** pad.

Ensure all speaker connections are secure and have correct polarity to prevent damage and ensure proper audio output.

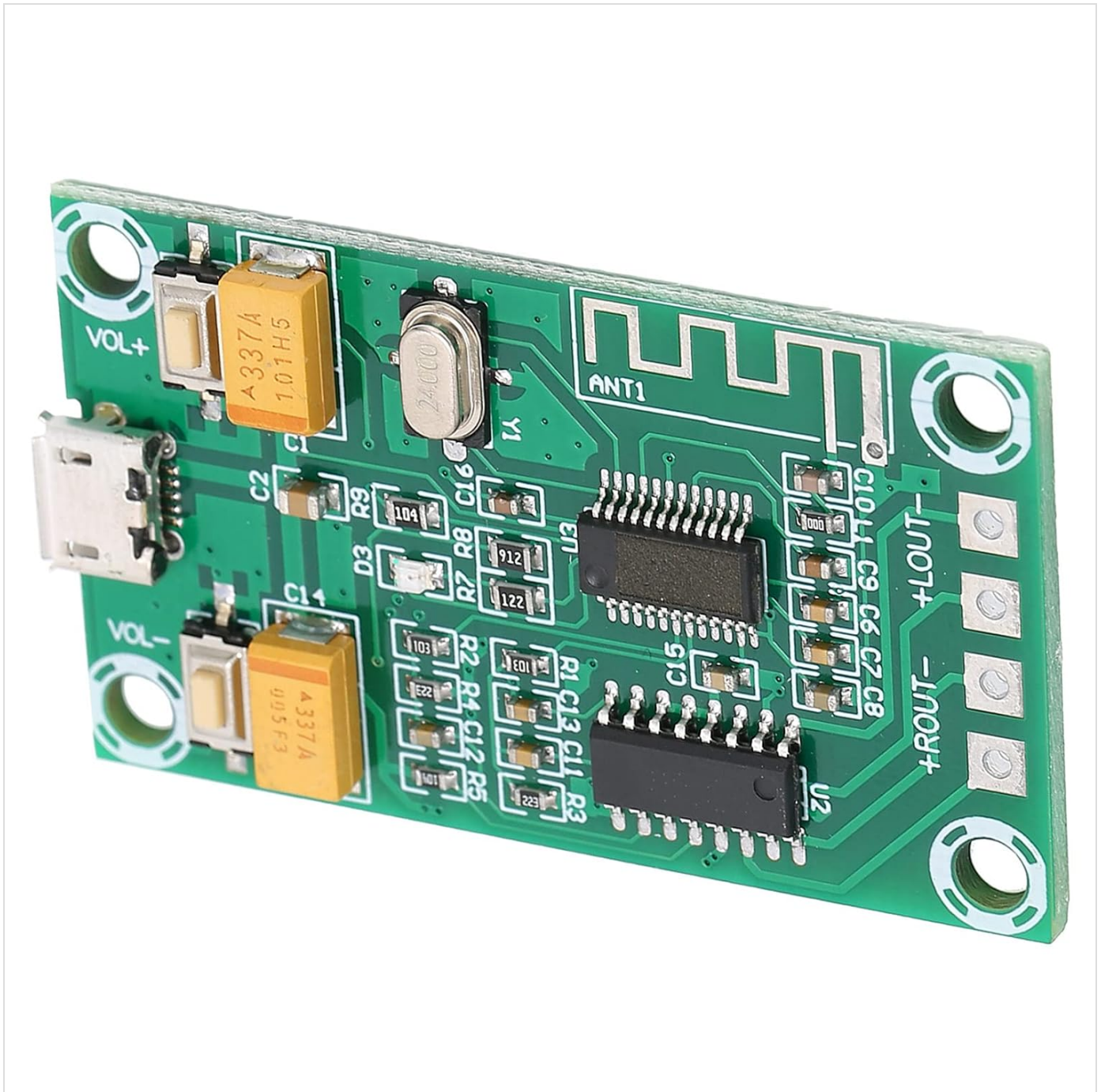


Figure 6.2: Angled view of the amplifier board, clearly showing the speaker output terminals (+ROUT, -ROUT, +LOUT, -LOUT) and power input options.

## 7. OPERATING INSTRUCTIONS

### 7.1 Power On

Once the power supply and speakers are correctly connected, apply 5V DC power to the module. The module will automatically

power on and enter Bluetooth pairing mode.

## 7.2 Bluetooth Pairing

- On your Bluetooth-enabled device (e.g., smartphone, tablet, computer), navigate to the Bluetooth settings.
- Scan for available devices. The amplifier board will typically appear as a device named **'Bluetooth Audio'** or similar.
- Select the amplifier board from the list to initiate pairing. Once paired, a confirmation sound or indicator may be heard/seen.

The effective Bluetooth transmission distance is approximately 20 meters in an open, unobstructed environment. Obstacles can reduce this range.

**Transmission Distance: Approx. Maximum 20metre / 65.6ft**

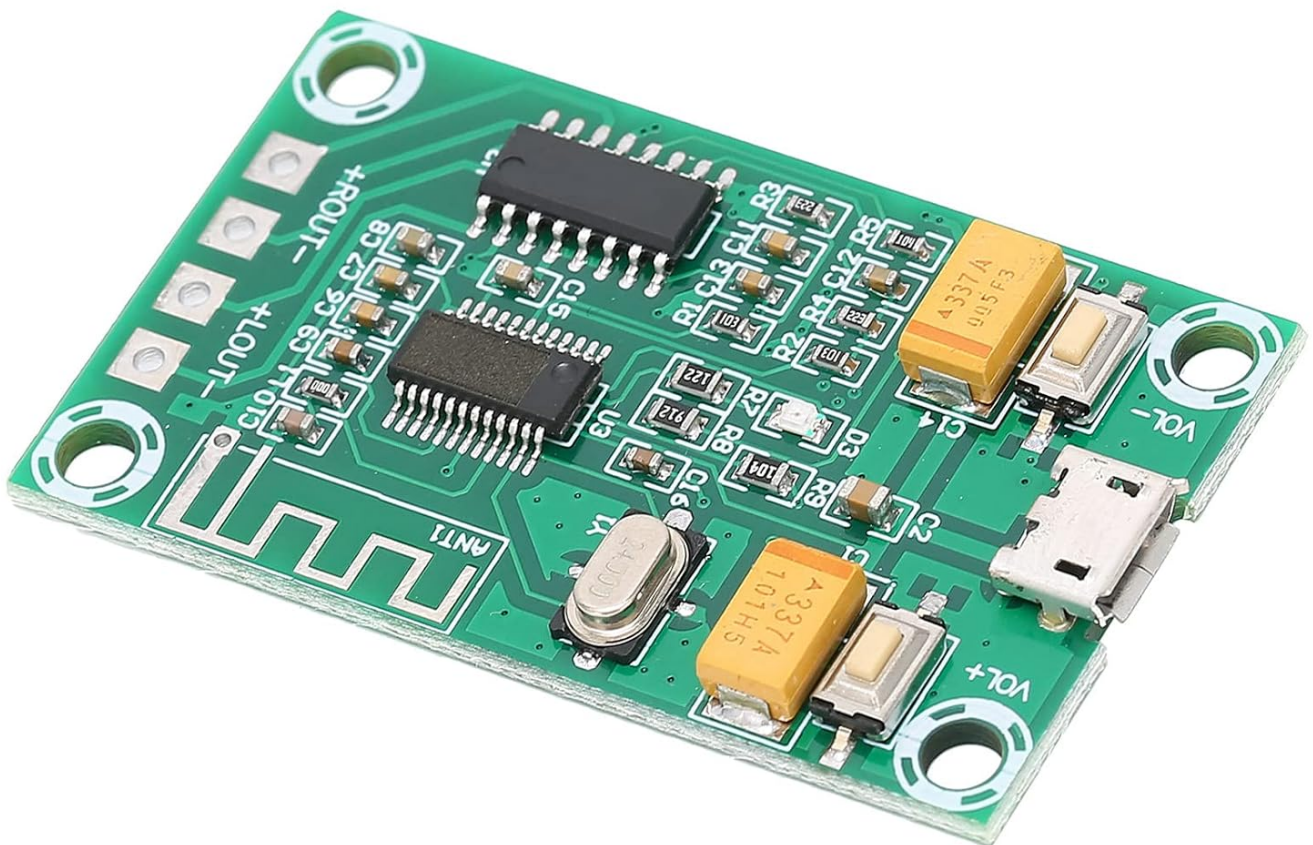


Figure 7.1: The amplifier board, illustrating its wireless capabilities with a maximum transmission distance of 20 meters.

## 7.3 Audio Playback

After successful pairing, you can play audio from your connected device. The sound will be amplified and output through the connected speakers.

## 7.4 Volume Adjustment

The module features onboard buttons for volume control:

- Press the **VOL+** button to increase the volume.
- Press the **VOL-** button to decrease the volume.

## 8. TROUBLESHOOTING

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- **No Power:**
  - Check if the 5V DC power supply is connected correctly to the Micro USB port or the direct power pads.
  - Ensure the power source is active and providing 5V.
- **No Sound Output:**
  - Verify that the speakers are correctly wired to the +ROUT/-ROUT and +LOUT/-LOUT terminals with correct polarity.
  - Confirm that the Bluetooth device is successfully paired and playing audio.
  - Check the volume level on both the amplifier board (using VOL+ button) and the connected Bluetooth device.
- **Bluetooth Disconnection or Poor Range:**
  - Ensure the Bluetooth device is within the 20-meter range and there are no significant obstructions (walls, large metal objects) between the device and the amplifier board.
  - Reduce interference from other wireless devices (Wi-Fi routers, other Bluetooth devices).
  - Ensure the power supply is stable; an unstable power supply can affect Bluetooth performance.
- **Distorted Audio:**
  - Reduce the volume on both the amplifier board and the connected device to prevent clipping.
  - Ensure the speakers are compatible with the 10W output of the amplifier.

## 9. MAINTENANCE

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To ensure the longevity and proper functioning of your Walfront XH-A151 amplifier board, follow these maintenance guidelines:

- **Cleaning:** Use a soft, dry cloth to gently clean the board. Avoid using liquids or abrasive cleaners.
- **Storage:** Store the module in a dry, dust-free environment away from direct sunlight and extreme temperatures.
- **Handling:** Always handle the board by its edges to avoid touching components, especially when powered.

## 10. WARRANTY AND SUPPORT

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Walfront products are manufactured to high-quality standards. For any technical support, warranty inquiries, or assistance with your XH-A151 Bluetooth Digital Amplifier Board, please refer to the seller's return policy or contact Walfront customer service through the platform where the product was purchased. Please retain your proof of purchase for warranty claims.