

QCCAN MH-M28 Bluetooth Audio Module Instruction Manual

1. Introduction

The QCCAN MH-M28 is a compact Bluetooth 4.2 audio receiver module designed for integrating wireless audio capabilities into various electronic projects. It supports automatic Bluetooth connection and is compatible with multiple lossless audio formats including WAV, WMA, FLAC, APE, and MP3, providing stereo dual-channel output.

2. Product Overview

The MH-M28 module features a Bluetooth V4.2 version with support for automatic connection technology. Its interface utilizes a semi-hole process, facilitating direct attachment or soldering to a circuit board. A blue indicator light provides visual feedback on the Bluetooth connection status.

Key Features:

- Bluetooth V4.2 for stable wireless connection.
- Supports WAV/WMA/FLAC/APE/MP3 lossless decoding.
- Stereo dual-channel audio output.
- Semi-hole process interface for easy integration.
- Blue LED indicator for Bluetooth status.

Package Contents:

The specific package contents for the MH-M28 module are not detailed in the provided information. Typically, these modules are sold individually or in multi-packs.

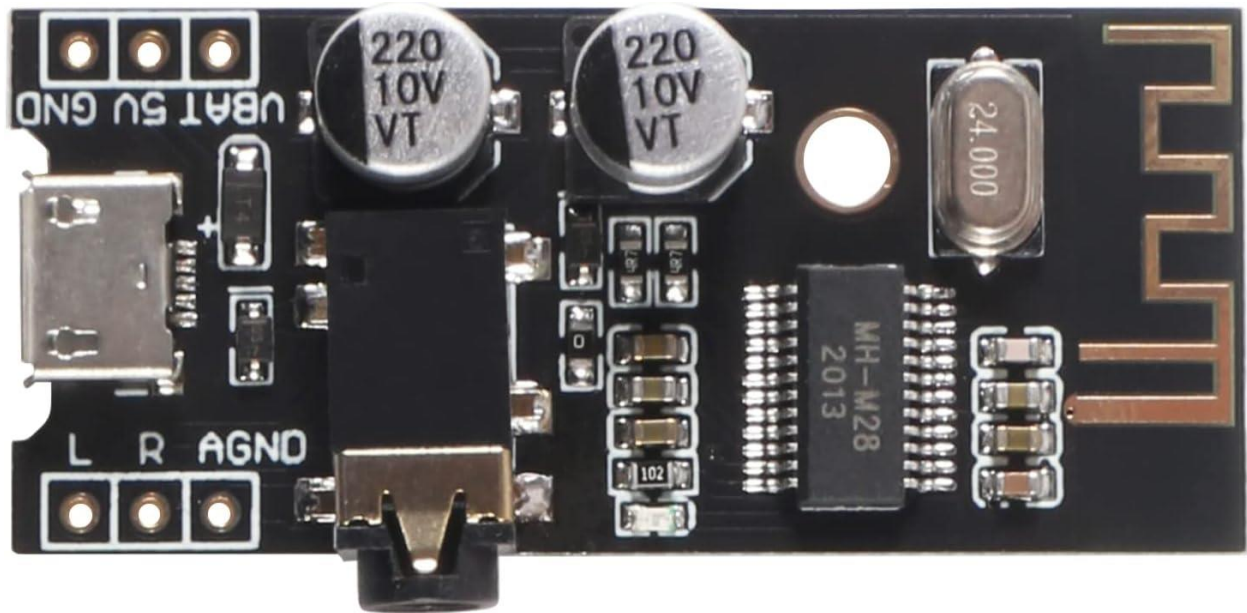


Image 2.1: Top view of the MH-M28 Bluetooth Audio Module, showing components and pin headers.



Image 2.2: Bottom view of the MH-M28 Bluetooth Audio Module, displaying the 'BluetoothAudio MH-M28' label.

3. Setup Instructions

Follow these steps to set up your MH-M28 Bluetooth Audio Module.

3.1 Power Supply Connection

The module can be powered via a 5V DC supply or a 3.7V-4.2V lithium battery. Connect the power source to the appropriate pins as indicated in the pinout diagram.

- **5V:** Connect to a 5V DC power supply positive terminal.
- **VBAT:** Connect to the positive terminal of a 3.7V-4.2V lithium battery.
- **GND:** Connect to the ground (negative) terminal of the power supply.
- Alternatively, power can be supplied via the Micro USB port (5V).

3.2 Audio Output Connection

Connect your audio output device (e.g., headphones, amplifier input) to the module using either the 3.5mm audio port or the dedicated L/R/AGND pins.

- **L:** Left audio channel output.
- **R:** Right audio channel output.
- **AGND:** Audio ground.

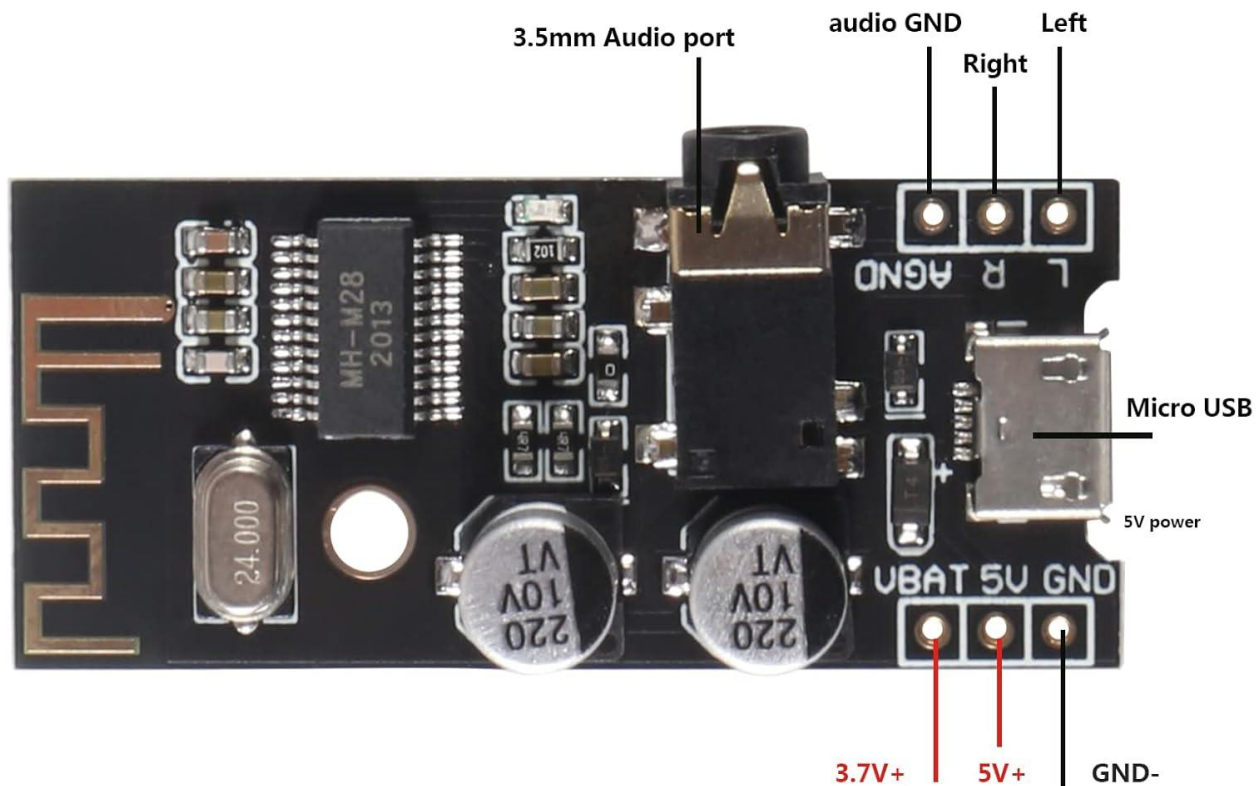


Image 3.1: Pinout diagram for the MH-M28 module, showing power, audio, and USB connections.

	PIN	Description
1	5V	5V
2	GND	GND
3	VBAT	lithium battery 3.7V power supply 3.7V-4.2V
4	L	Left channel
5	R	Right channel
6	AGND	Audio GND

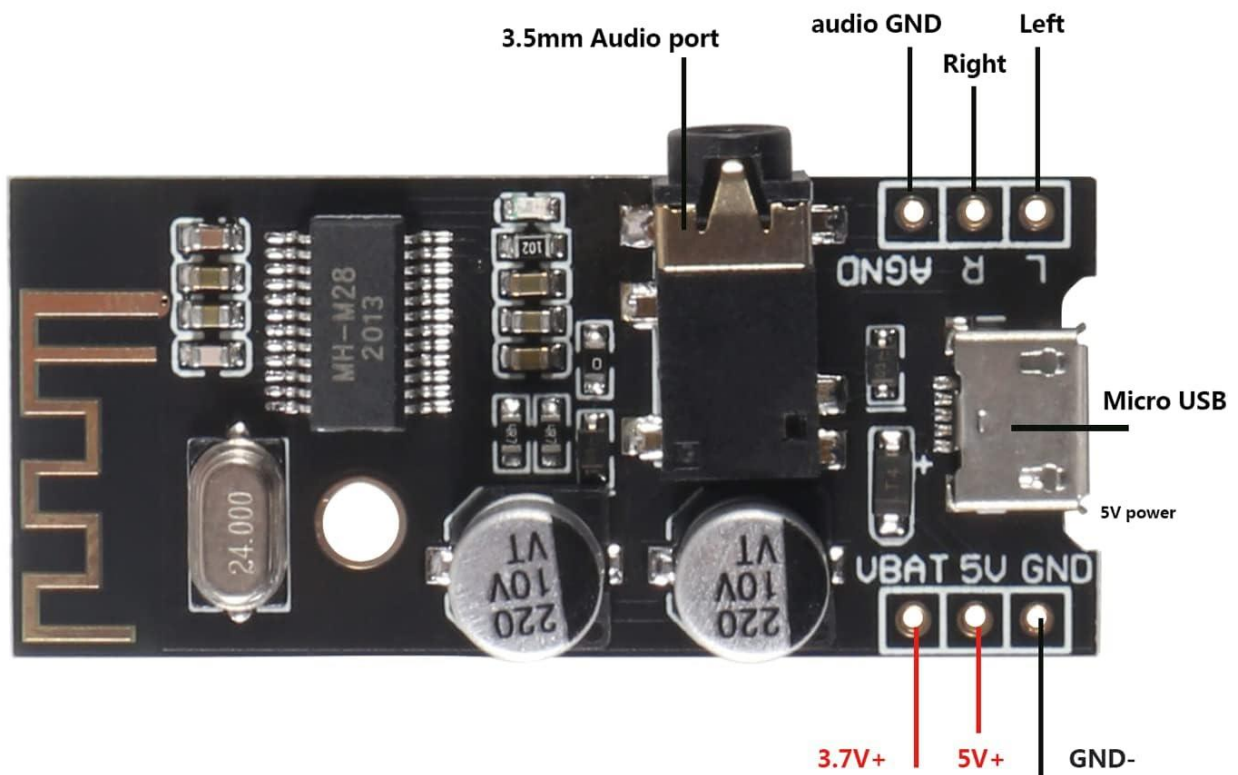


Image 3.2: Table detailing the function of each pin on the MH-M28 module.

4. Operating Instructions

4.1 Power On and Bluetooth Pairing

1. Ensure the module is correctly powered as described in the Setup section.
2. Upon power-on, the blue indicator light on the module will flash quickly, indicating it is in pairing mode.
3. On your mobile phone or Bluetooth-enabled device, search for Bluetooth devices.

4. Select the device named "MH-M28" from the list to connect.
5. Once connected, the blue indicator light will remain steadily on. You can now play audio through the module.

4.2 Audio Playback

After successful pairing, any audio played on your connected device will be transmitted wirelessly to the MH-M28 module and output through its audio ports.

5. Maintenance

To ensure the longevity and optimal performance of your QCCAN MH-M28 module, observe the following general maintenance guidelines:

- Keep the module in a dry environment and protect it from moisture and liquids.
- Avoid exposing the module to extreme temperatures or direct sunlight.
- Handle the module with care to prevent physical damage to components or solder joints.
- Do not attempt to modify the module unless you have advanced electronics knowledge, as this may void any implied warranty and could damage the device.

6. Troubleshooting

If you encounter issues with your MH-M28 module, refer to the following troubleshooting tips:

6.1 Bluetooth Connection Issues

- **Module not appearing in device list:** Ensure the module is powered on and the blue indicator light is flashing quickly. If it's solid, it might be connected to another device.
- **Unable to connect:** Try restarting both the module (by cycling power) and your Bluetooth device. Ensure your device is within the maximum transmission distance (up to 20 meters).
- **Intermittent connection:** Reduce the distance between the module and your device, and remove any obstructions.

6.2 Audio Output Problems

- **No sound:** Verify that the module is successfully connected via Bluetooth (solid blue light). Check all audio wiring connections (L, R, AGND, or 3.5mm jack) to your output device. Ensure the volume on your source device is turned up.

- **Low volume or poor quality:** The MH-M28 is a receiver module and does not include a built-in amplifier. For driving speakers, an external amplifier is required. Direct connection to low-impedance speakers (e.g., 4-ohm, 5W) may result in very low volume. Consider using an impedance matching circuit or a dedicated amplifier.
- **Popping sound on power-up:** This can be a characteristic of some audio modules without inrush protection. It is generally not indicative of a fault but can be mitigated with external circuitry if desired.

7. Specifications

The following table outlines the technical specifications for the QCCAN MH-M28 Bluetooth Audio Module:

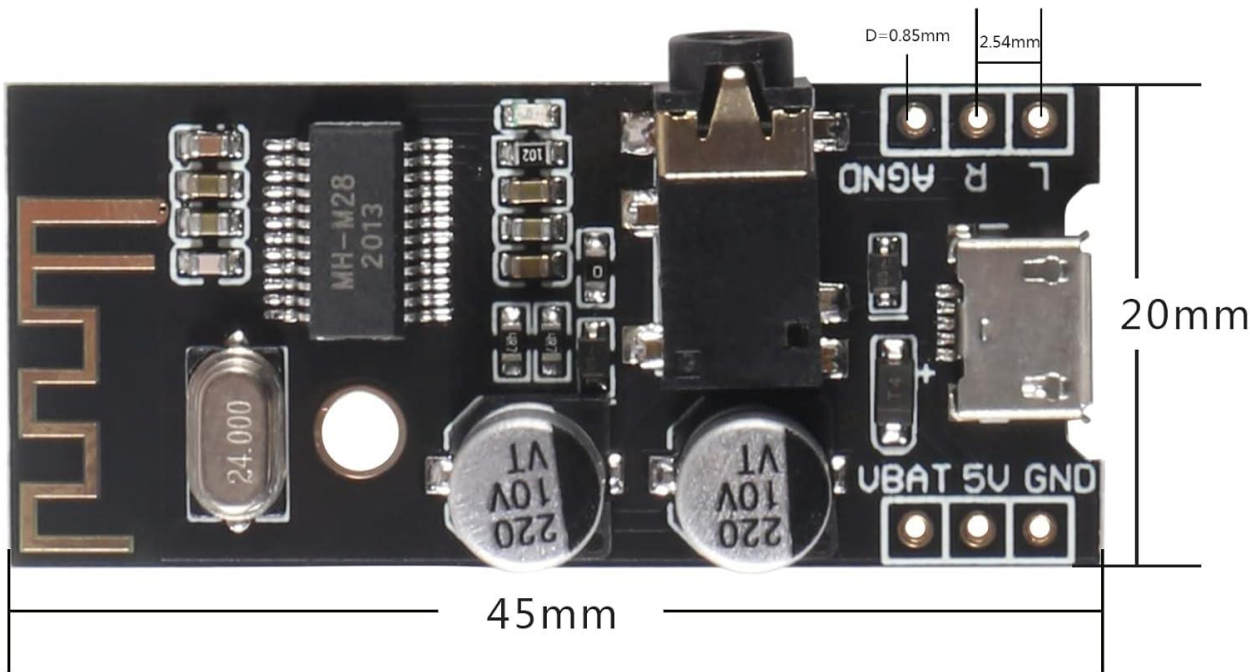


Image 7.1: MH-M28 module showing physical dimensions (45mm x 20mm).

Feature	Specification
Model	MH-M28
Bluetooth Version	V4.2
Supported Bluetooth Protocols	HFPV1.7, A2DPV1.2, AVRCPV1.5, AVCTPV1.2, AVDTPV1.2

Feature	Specification
Supported Audio Formats	WAV/WMA/FLAC/APE/MP3 (lossless decoding)
Audio Output Mode	Stereo Dual Channel
Operating Voltage	5V DC or 3.7V-4.2V Lithium Battery
Current (Not Connected)	5.5mA
Current (Connection Work)	20mA
Deep Sleep Current	3uA
Transmission Distance	Up to 20M (MAX)
Operating Temperature	-40°C ~ +85°C
Sensitivity	-87dbm
Dimensions	45mm x 20mm (approx. 1.77 x 0.79 inches)
Item Weight	0.634 ounces / 0.02 Kilograms

8. Warranty and Support

Specific warranty information and direct support contact details for the QCCAN MH-M28 module are not provided in the available product data. For warranty claims or technical assistance, please refer to the retailer or point of purchase for their respective policies and support channels.