IS 1054501

IS Digital FM Receiver Module (Model 1054501) User Manual

Model: 1054501 | Brand: IS

1. Introduction

This manual provides detailed instructions for the IS Digital FM Receiver Module, a compact stereo FM radio module designed for various electronic projects. It incorporates advanced DSP and PLL technology for high-quality broadcast reception. The module features a blue-backlit LCD display and potentiometers for easy adjustment of volume and frequency. An on-board 2x3W stereo audio amplifier chip allows for direct connection to speakers, eliminating the need for an additional amplifier circuit.

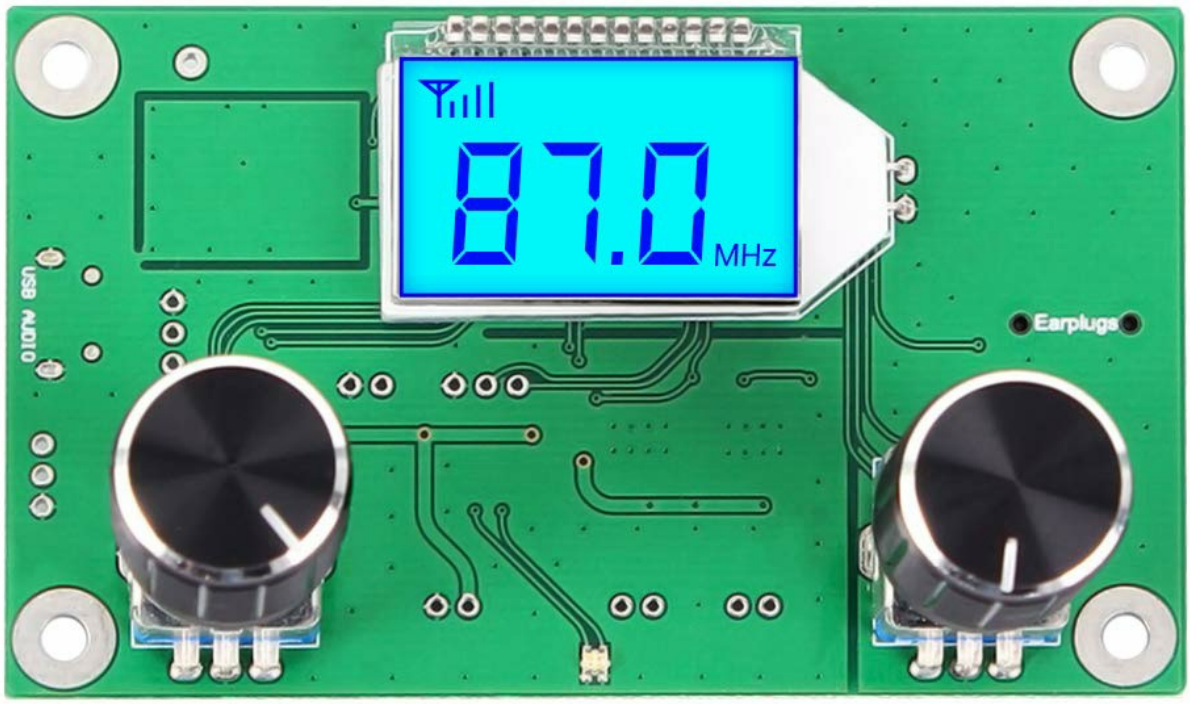

Figure 1: Front view of the IS Digital FM Receiver Module.

2. Safety Information

- Ensure the power supply voltage is within the specified range of DC 3-5V to prevent damage to the module.
- Avoid short-circuiting the power terminals or speaker outputs.
- Handle the module with care to prevent electrostatic discharge (ESD) damage.
- Do not expose the module to moisture, extreme temperatures, or corrosive environments.
- If soldering is required, ensure proper ventilation and use appropriate safety equipment.
- Keep out of reach of children.

3. Package Contents

The package typically includes the following items:

- IS Digital FM Receiver Module
- User Manual (this document)

- *Note: Power cord and power adapter are not always included and may need to be sourced separately.*

4. Product Overview

Familiarize yourself with the components and connections of the FM receiver module.

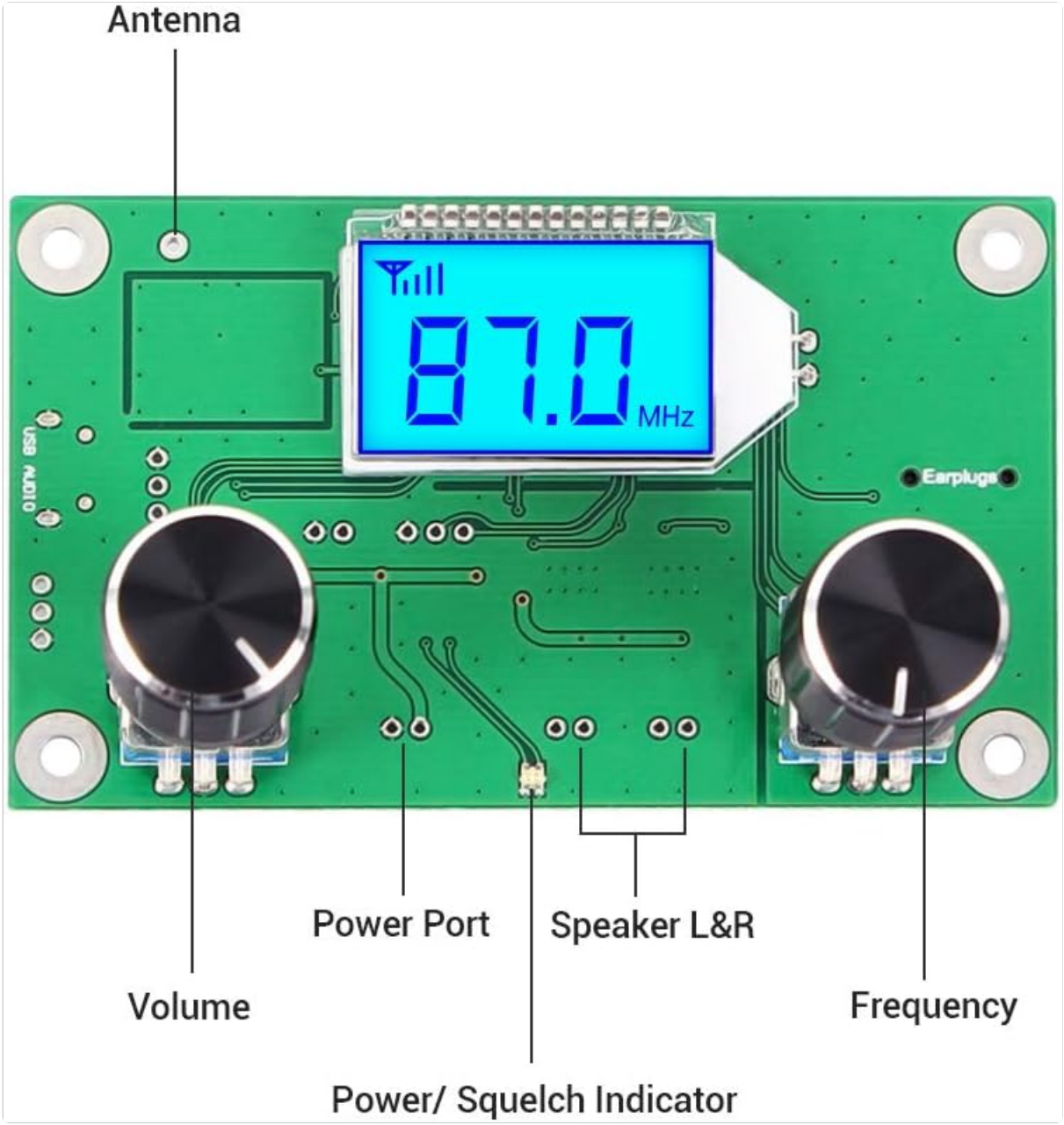

Figure 2: Top view of the module with key components labeled.

- **Antenna:** Connection point for an external FM antenna.
- **Volume Knob:** Adjusts the audio output level.
- **Frequency Knob:** Tunes the FM frequency.
- **Power Port:** Micro USB port for power input (DC 3-5V).
- **Speaker L&R:** Output terminals for connecting left and right speakers.
- **Power/Squelch Indicator:** LED indicating power status and squelch activation.

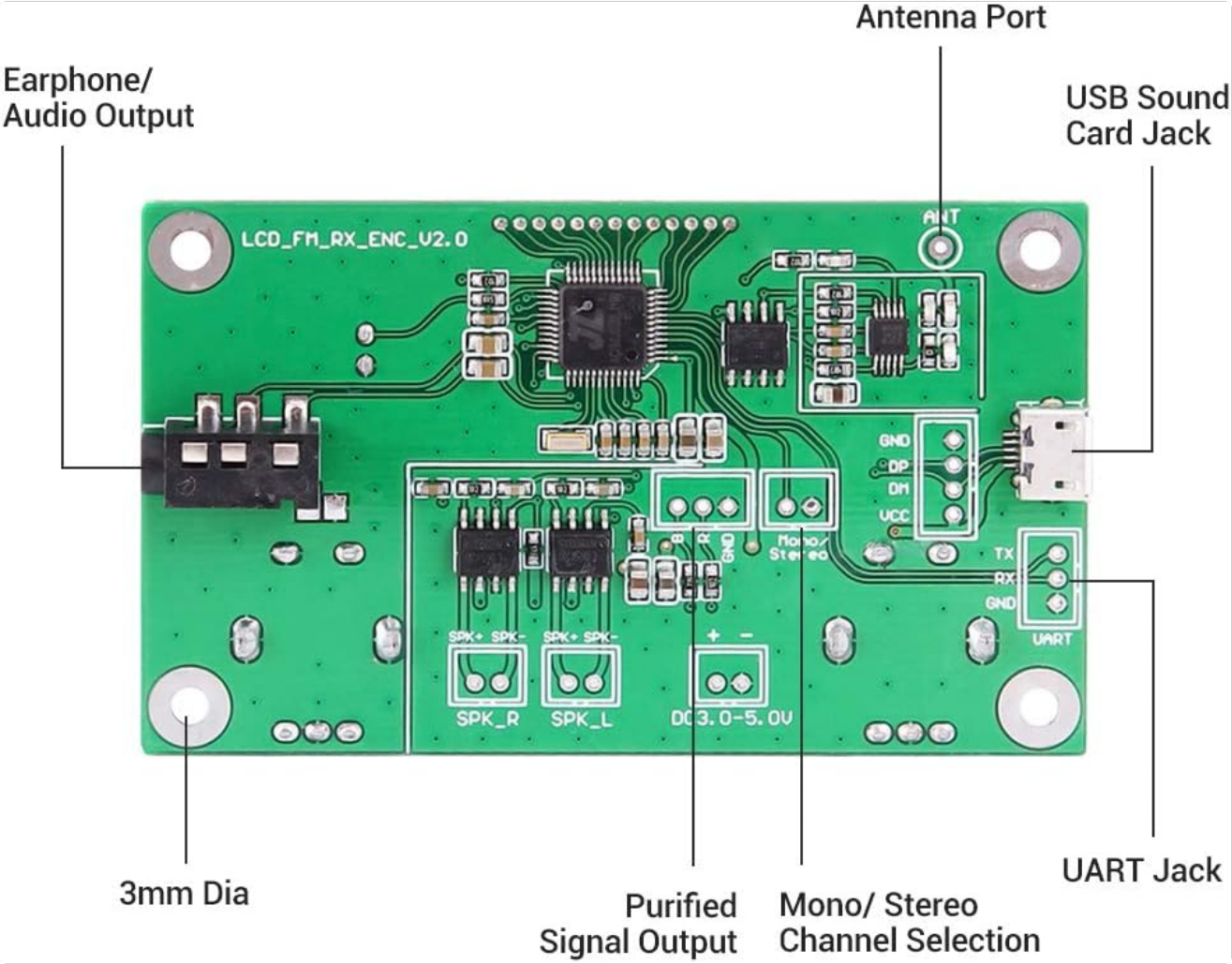

Figure 3: Bottom view of the module with additional connections.

- **Earphone/Audio Output (3mm Dia):** Standard 3.5mm jack for headphones or external audio input.
- **Purified Signal Output:** Output for a cleaner audio signal, typically for further processing.
- **Mono/Stereo Channel Selection:** Jumper or switch to select between mono and stereo output.
- **UART Jack:** Serial TTL interface for advanced control and configuration.
- **USB Sound Card Jack:** Micro USB port that can function as a USB sound card.
- **Antenna Port:** Alternative or additional connection point for an external FM antenna.

5. Specifications

Voltage Range	3.0-5.0V
Current	1A (max value)
Output Power	500mW (drive headphones), 3Wx2 (drive speakers)
Frequency Response Range	50Hz-18KHz
Receiving Frequency Range	Turn off campus broadcast 87.0MHz-108.0MHz, Open campus broadcast 76.0MHz-108.0MHz
Equivalent Noise	≥30dB
Channel	Stereo

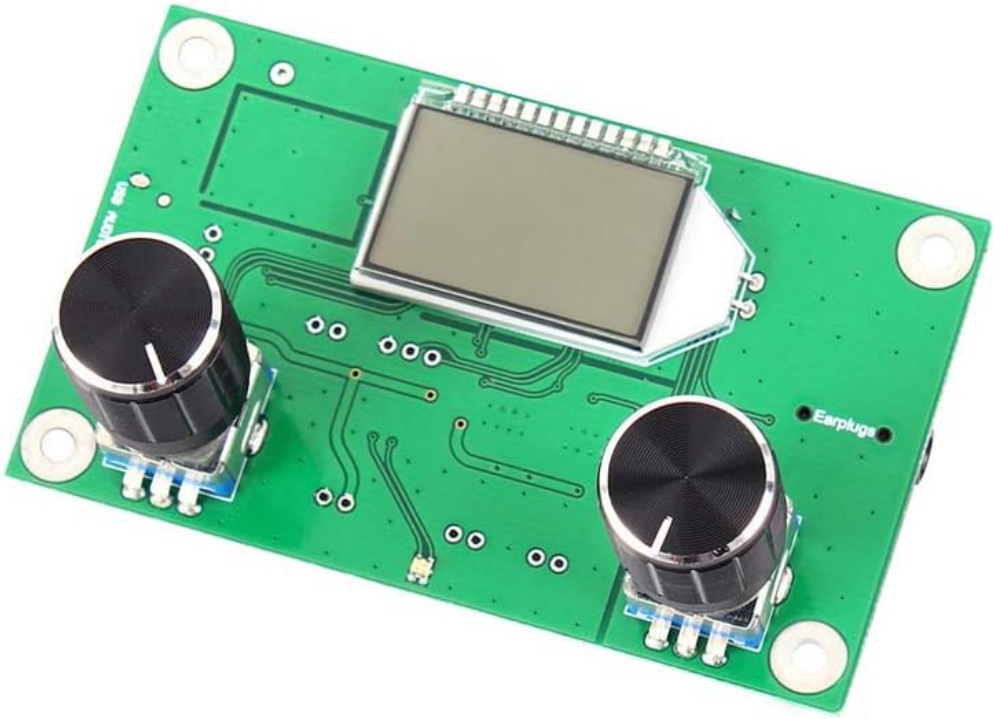

Figure 4: Detailed technical specifications.

Technical Specifications

Feature	Value
Brand	IS
Model Number	1054501
Working Voltage	DC 3-5V
Current	1A (max)
Output Power	500mW (drive headphones), 3W x 2 (drive speakers)
Frequency Response Range	50Hz-18KHz
Receiving Frequency Range	76.0MHz-108.0MHz (Open campus broadcast), 87.0MHz-108.0MHz (Turn off campus broadcast)

Feature	Value
Equivalent Noise	≥30dB
Channel	Stereo
Board Size (L x W x H)	75 x 45 x 30mm (2.95 x 1.77 x 1.18 inches)
Item Weight	32 Grams
Display Type	LCD (Blue Backlight)
Tuner Technology	DSP, PLL

6. Setup Instructions

1. **Power Connection:** Connect a DC 3-5V power supply to the Micro USB power port on the module. A standard phone charger or USB battery pack can be used. The blue backlight LCD display should illuminate upon successful power-up.
2. **Antenna Connection:** For optimal reception, connect an external FM antenna to the "Antenna" port. A simple 75cm (approximately 30 inches) wire can serve as an effective antenna. Without an antenna, reception may be poor or non-existent.
3. **Audio Output:**
    - **Headphones:** Plug 3.5mm headphones into the "Earphone/Audio Output" jack.
    - **Speakers:** Connect 4-ohm speakers directly to the "Speaker L&R" terminals. The module's integrated 2x3W amplifier can drive these speakers. Ensure correct polarity (+/-) when connecting speakers.
4. **Initial Power On:** Once power, antenna, and audio output are connected, the module is ready for operation.

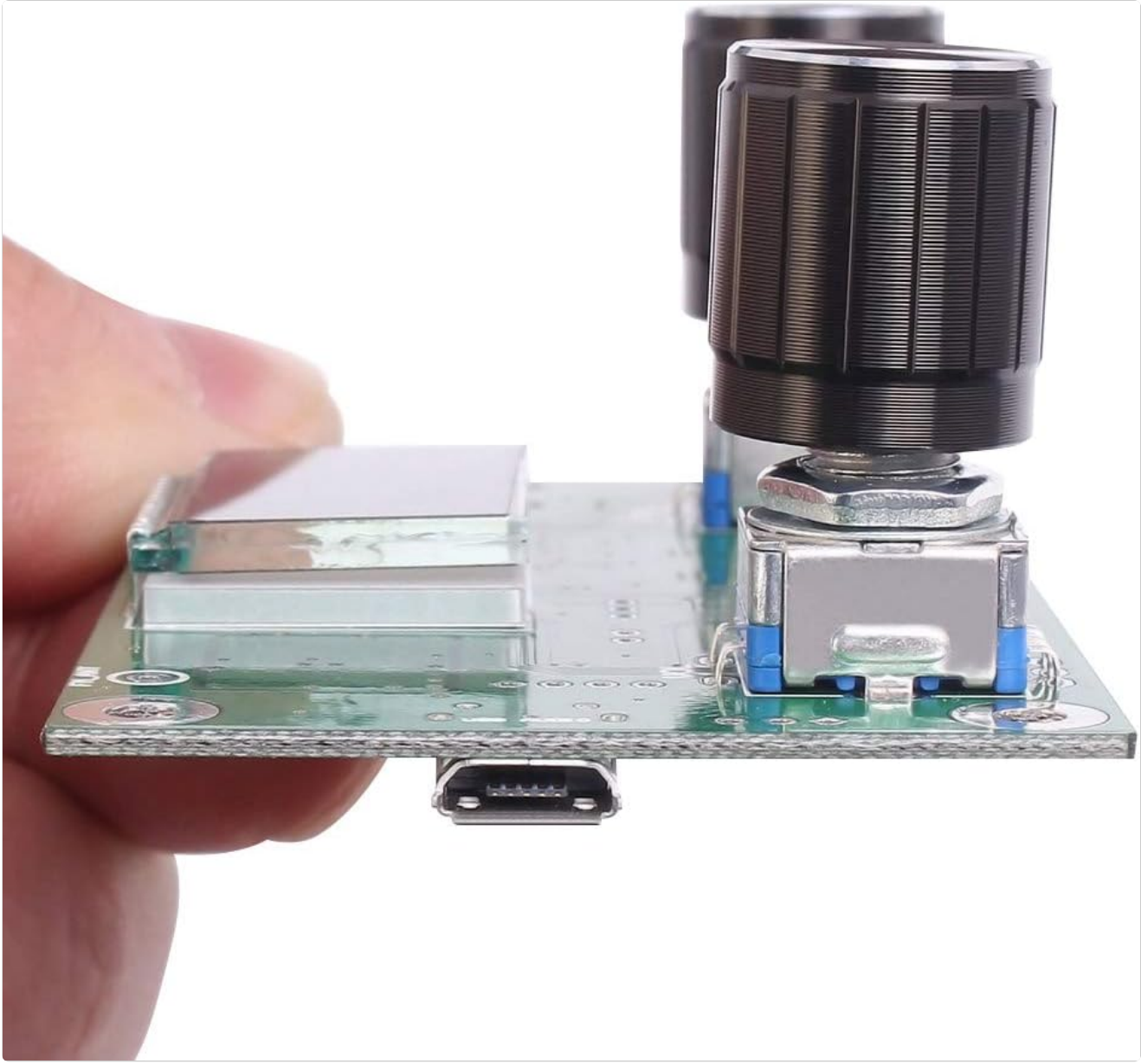

Figure 5: Side view showing the Micro USB power input.

7. Operating Instructions

1. **Adjusting Volume:** Rotate the **Volume knob** (left knob) clockwise to increase volume and counter-clockwise to decrease it.
2. **Tuning Frequency:** Rotate the **Frequency knob** (right knob) to scan and select your desired FM station. The current frequency will be displayed on the LCD.
3. **Squelch Function (AMCAP):** The module includes a squelch function to mute static when no strong station is tuned.
    - To activate squelch: Perform a **long press** on the Frequency knob. The Power/Squelch Indicator LED may change or a symbol on the LCD may appear.
    - To deactivate squelch: Perform another **long press** on the Frequency knob.
4. **Mono/Stereo Selection:** If available, adjust the jumper or switch on the bottom of the board (refer to Figure 3) to select between mono and stereo audio output. Stereo provides a richer sound experience, while mono can improve reception in weak signal areas.
5. **Advanced Control (UART):** For advanced users, the UART interface allows for serial communication to control various settings and functions. Refer to the detailed PDF manual (if provided by the manufacturer) for

specific commands and protocols.

8. Maintenance

- **Cleaning:** Use a soft, dry cloth to gently wipe the module. Avoid using liquid cleaners or solvents.
- **Storage:** Store the module in a dry, dust-free environment when not in use.
- **Inspection:** Periodically inspect connections for any signs of wear or damage.

9. Troubleshooting

Common Issues and Solutions

Problem	Possible Cause	Solution
No power/LCD not lighting up	Incorrect voltage, loose power connection, faulty power supply.	Verify power supply is DC 3-5V. Check Micro USB connection. Try a different power supply.
Only static/Poor reception	No antenna connected, weak signal, squelch active.	Connect an external FM antenna. Extend the antenna wire. Deactivate the squelch function (long press Frequency knob). Try tuning to a stronger station.
No sound from headphones/speakers	Volume too low, incorrect audio connection, faulty headphones/speakers.	Increase volume using the Volume knob. Check headphone/speaker connections. Test with different headphones/speakers. Ensure speaker polarity is correct.
Sound distorted	Volume too high, poor signal, incorrect speaker impedance.	Reduce volume. Improve antenna reception. Ensure speakers are 4-ohm impedance.

10. Warranty and Support

For warranty information and technical support, please contact the manufacturer, IS (Icstation), directly through their official website or the platform where the product was purchased. Keep your purchase receipt as proof of purchase.
Manufacturer: ICStation
Brand Store: Icstation Amazon Store

11. DIY Project Examples

The IS Digital FM Receiver Module is ideal for various DIY audio projects. Below are some examples of how this module can be integrated into custom radio builds.

Figure 6: Examples of custom radio builds utilizing the module.

- **Custom Enclosures:** The compact size allows for integration into custom-designed enclosures made from wood, plastic, or 3D-printed materials.
- **Portable Radios:** Combine with a battery pack and small speakers to create a portable FM radio.
- **Integrated Audio Systems:** Use the module as the FM tuner component in larger audio systems.