Retevis RT97L

Retevis RT97L GMRS High-Power Repeater Instruction Manual

Model: RT97L (3rd Gen RT97)

Introduction	**What's in the Box**	**Product Overview**	**Setup**	**Operating Instructions**
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1. INTRODUCTION

The Retevis RT97L is a 3rd generation GMRS high-power repeater designed to extend communication range in various environments. This manual provides essential information for the proper setup, operation, and maintenance of your device, ensuring reliable performance.

Figure 1: Retevis RT97L GMRS High-Power Repeater.

2. WHAT'S IN THE BOX

Upon unpacking, please verify that all items listed below are present and in good condition:

- 1X RT97L mobile radio relay

PACKAGE INCLUDES

Figure 2: Contents of the RT97L package, including the repeater, charger, power supply, car charger cable, data cable, brackets, wall plugs, screws, and user's manual.

3. PRODUCT OVERVIEW

3.1 Key Features

- **Signal Boost:** Extends communication range for large homes, multi-story buildings, outdoor areas, and industrial use.

- **Low-Temperature Mode:** Internal heating system activates at -15°C to prevent freezing and ensure reliable performance in cold weather.

- **Flexible Power Switching:** Allows switching between high and low power modes to optimize signal strength and conserve resources. Consumes 6A DC at high power with a 100% duty cycle.

- **IP66 Weatherproof:** Designed to withstand heavy rain, dust, and other outdoor elements, suitable for outdoor working conditions.

- **Smart Adjustment:** Automatically switches to low power when temperatures exceed 60°C to prevent overheating and ensure reliable operation in hot climates.

- **Raspberry Pi Compatibility:** Features a 9-pin connector for Raspberry Pi integration, offering expanded functionality.

3.2 Component Identification

Familiarize yourself with the repeater's external components:

- **Antenna Interface:** Connects to the external antenna.
- **LCD Screen:** Displays transmit/receive status, channel information, and settings.
- **Up/Volume+/Channel+ Button:** Navigates menus, adjusts volume, and changes channels.
- **Menu/Channel Lock Button:** Accesses menu settings and locks channels.
- **Down/Volume-/Channel- Button:** Navigates menus, adjusts volume, and changes channels.
- **DB9 Data Interface:** 9-pin connector for data communication, including Raspberry Pi compatibility.
- **Power Interface:** Connects to the power supply.

Figure 3: Front view of the RT97L showing the LCD screen and control buttons.

LCD SCREEN

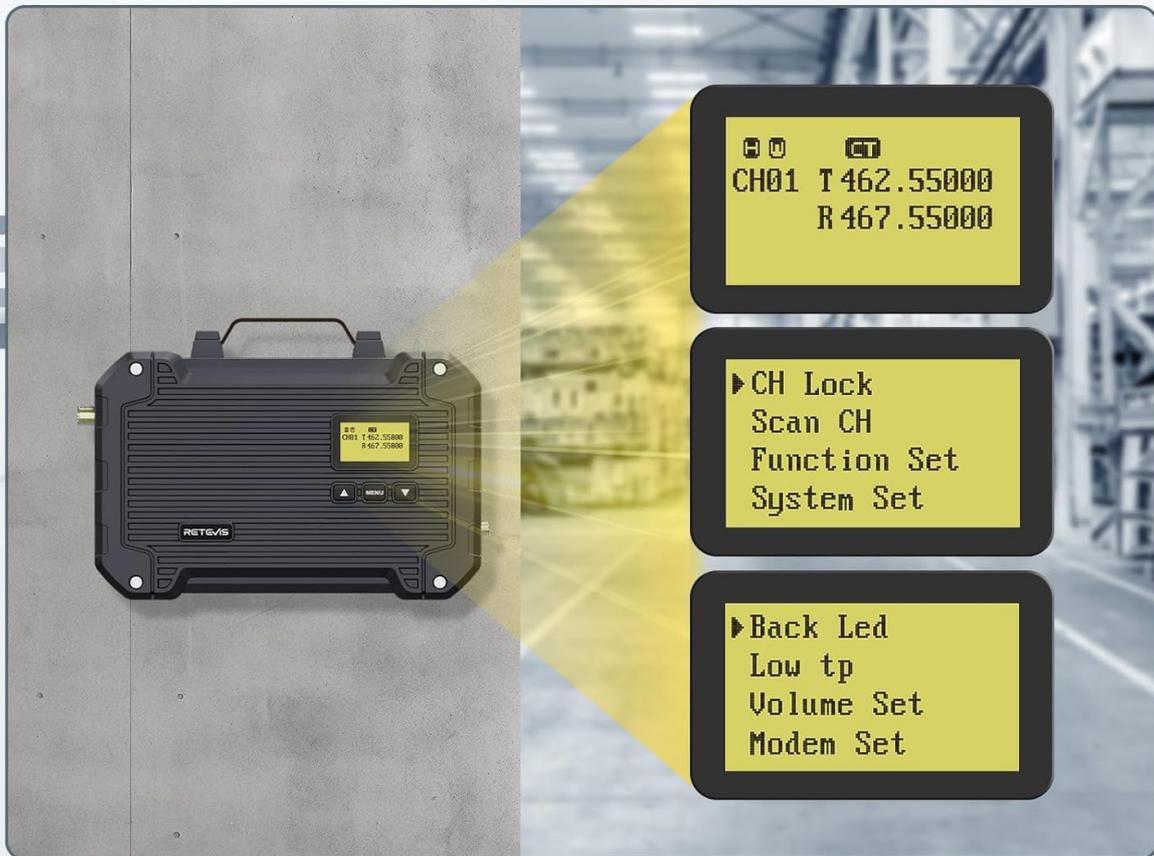The screen displays the current transmit/receive status, channel information, and more

Figure 4: The LCD screen displays current transmit/receive status, channel information, and menu options.

COMPATIBLE WITH HAND MICROPHONE

The repeater can connect to
a hand microphone, allowing adjustment of the microphone's volume

Figure 5: Side view of the RT97L highlighting the DB9 data interface and power input.

CONNECTABLE TO RASPBERRY PI

Figure 6: The RT97L is connectable to Raspberry Pi for advanced applications.

4. SETUP

4.1 Initial Installation

1. **Mounting the Repeater:**

   - Open the silicone pad on the back of the repeater.
   - Use screws to fix the bracket onto the repeater.
   - Drill a hole in the desired wall location and insert a green wall plug.
   - Secure the repeater to the wall using screws through the bracket.

2. **Antenna Connection:** Connect your GMRS antenna to the antenna interface on the repeater. Ensure a secure connection.

3. **Power Connection:** Connect the provided power supply or car charger cable to the power interface.

Figure 7: Step-by-step installation guide for the RT97L repeater.

4.2 Video Guide: Installation Steps

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Video 1: Official Retevis guide demonstrating the installation steps for the RT97L repeater.

5. OPERATING INSTRUCTIONS

5.1 Powering On/Off

To power on the repeater, ensure it is connected to a power source and press the power button (if available, or refer to specific model instructions for power-on sequence). The LCD screen will illuminate.

5.2 Channel Selection

Use the Up/Down arrow buttons to navigate through the pre-programmed channels. The current channel number will be displayed on the LCD screen.

Figure 8: The RT97L offers 16 channels for communication.

5.3 Volume Adjustment

Press the Up/Down arrow buttons briefly to adjust the volume level. The volume level will be indicated on the screen.

5.4 High/Low Power Switching

The repeater supports flexible power switching. Refer to the detailed programming software manual for instructions on how to configure high and low power modes. This allows you to conserve power when maximum range is not required.
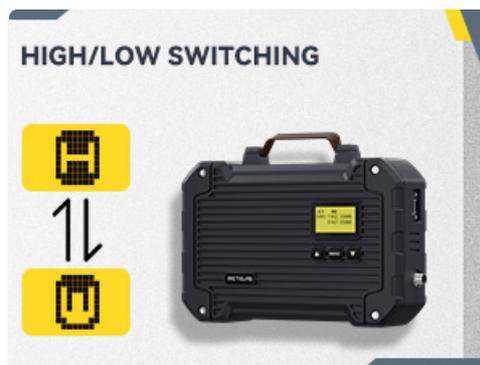

Figure 9: High/Low power switching for efficient operation.

5.5 Backlight Adjustment

The backlight of the LCD screen can be adjusted for optimal visibility in different lighting conditions. Access this setting through the menu using the Menu button and navigate with the Up/Down arrows.

Figure 10: Backlight adjustment for improved screen visibility.

5.6 Usage Scenarios

The RT97L repeater is suitable for a variety of applications:

- **Outdoor Adventures:** Enhances communication for hiking, camping, and other outdoor activities.
- **Agriculture/Farming:** Provides reliable communication across large farm properties.
- **Emergency Response:** Critical for maintaining communication during emergencies.
- **Commercial/Industrial Use:** Improves coordination in warehouses, construction sites, and other industrial settings.

Figure 11: Diverse applications of the RT97L repeater.

5.7 Video Guide: Usage Scenarios

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Video 2: Official Retevis video showcasing various scenarios where the RT97L repeater can be effectively used.

6. MAINTENANCE

6.1 Cleaning

Regularly clean the exterior of the repeater with a soft, damp cloth. Avoid using harsh chemicals or abrasive

materials that could damage the casing or screen.

6.2 Environmental Protection

Despite its IP66 rating, it is recommended to protect the repeater from extreme conditions when possible to prolong its lifespan. Ensure all port covers are securely closed when not in use to maintain water and dust resistance.

Figure 12: The RT97L is IP66 waterproof, suitable for use in dusty and rainy environments.

6.3 Temperature Management

The repeater features automatic temperature management. In cold conditions (below -15°C), an internal heater activates. In hot conditions (above 60°C), the unit automatically reduces power output to prevent overheating. Ensure adequate ventilation around the unit.
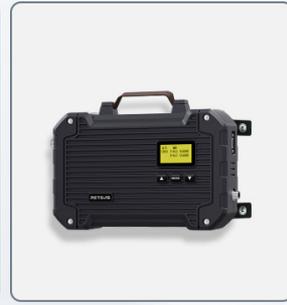
INSTALLATION STEPS

1. Open the silicone pad on the back

2. Use screws to fix the bracket onto the repeater

3. Drill a hole in the wall and insert a green wall plug

4. Use screws to secure the relay to the wall

Figure 13: Low-temperature mode ensures operation down to -15°C.

HIGH POWER

Equipped with high power for extended range and performance

Figure 14: High-temperature protection automatically reduces power above 60°C.

6.4 Video Guide: IP66 Waterproof Feature

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Video 3: Official Retevis video demonstrating the IP66 waterproof capabilities of the RT97L repeater.

7. TROUBLESHOOTING

Problem	Possible Cause	Solution

Problem	Possible Cause	Solution
No power	Power cable disconnected; Power supply failure.	Check power connections; Test power supply.
Poor signal range	Antenna not properly connected; Antenna not optimized; Obstructions.	Ensure secure antenna connection; Use an optimized antenna; Relocate repeater to a higher, less obstructed position.
Repeater not transmitting	Incorrect frequency/tone settings; Repeater in receive-only mode.	Verify frequency and tone settings; Check repeater mode (RELAY ON).
Overheating	High ambient temperature; Insufficient ventilation.	Ensure proper ventilation; Relocate to a cooler area. Repeater will automatically reduce power.

8. SPECIFICATIONS

- **Product Dimensions:** 2.68 x 7.28 x 11.22 inches
- **Item Weight:** 10.89 pounds
- **Brand:** Retevis
- **Wireless Communication Standard:** Radio Frequency
- **Special Feature:** Full Duplex, high power
- **Color:** Black
- **Manufacturer:** Retevis
- **IP Rating:** IP66 (Waterproof and Dustproof)
- **Output Power:** Up to 25W (actual output after duplexer may be lower, e.g., 5W-10W depending on configuration)
- **Duty Cycle:** 100% at high power (6A DC consumption)
- **Temperature Modes:** Low-temperature heating (-15°C), High-temperature power reduction (60°C)

9. WARRANTY & SUPPORT

For warranty information and technical support, please refer to the official Retevis website or contact their customer service directly. Keep your purchase receipt for warranty claims.
Optional protection plans are available:

- **4-Year Protection Plan:** One-time payment of $84.99.
- **Asurion Complete Protect:** Monthly billing of $16.99, covers all eligible past and future purchases.