

## RADIOMASTER R86

# RadioMaster R86 6CH Receiver User Manual

Model: R86

## 1. INTRODUCTION

The RadioMaster R86 is a compact and versatile 6-channel receiver designed for remote control (RC) applications, particularly suitable for FPV drones and other RC models. It supports both PWM and SBUS output formats and is compatible with the FrSky D8 protocol, making it suitable for use with various RadioMaster transmitters and other D8 compatible systems.

Key features include:

- **Channels:** 6 channels (PWM), 8 channels (SBUS)
- **Frequency Range:** 2400-2483.5Mhz
- **Output Format:** PWM / SBUS
- **Power Input Range:** 4.5-8.4V



Image 1.1: The RadioMaster R86 6CH Receiver, showing its compact design and pin layout.

## 2. SETUP AND INSTALLATION

### 2.1 Physical Installation

Install the R86 receiver in your RC model, ensuring it is securely mounted and protected from vibrations and moisture. Position the antennas away from carbon fiber, metal, or other conductive materials to maximize signal reception. For optimal performance, ensure the antennas are oriented at a 90-degree angle to each other.



Image 2.1: RadioMaster R86 receiver with its dual antennas extended, illustrating proper antenna placement for optimal signal.

## 2.2 Wiring Connections

Connect the receiver to your flight controller or servos according to your model's requirements. The R86 provides both PWM and SBUS outputs.

- **PWM Output:** Channels 1-6 are available as individual PWM outputs. Connect your servos or ESCs directly to these pins.
- **SBUS Output:** The SBUS output provides all 8 channels over a single wire. Connect this to the SBUS input of your flight controller.
- **Power Input:** The receiver operates on a voltage range of 4.5V to 8.4V. Ensure your power source (e.g., BEC from ESC, flight controller) provides power within this range.



Image 2.2: Close-up view of the R86 receiver's pin headers, labeled CH1 through CH6, for PWM and SBUS connections.

## 2.3 Binding Procedure (FrSky D8 Mode)

To establish communication between your RadioMaster R86 receiver and your transmitter, follow these binding steps:

1. Power on your RadioMaster R86 receiver. The LED indicator on the receiver will begin to flash slowly, indicating it is not bound.
2. Press and hold the **BIND** button on the receiver.
3. While holding the BIND button, power on your transmitter.
4. On your transmitter, navigate to the model setup menu and select the FrSky D8 protocol.
5. Initiate the binding process on your transmitter. Refer to your transmitter's manual for specific instructions on how to enter bind mode.
6. The LED on the R86 receiver should change from slowly flashing to solid, indicating a successful bind.
7. Once bound, power cycle both the receiver and the transmitter to exit bind mode and confirm the connection.

*Note: If binding fails, ensure your transmitter is set to the correct D8 protocol and repeat the steps. Some transmitters may require specific firmware versions for D8 compatibility.*

## 3. OPERATING INSTRUCTIONS

After successful binding, the receiver will establish a connection with your transmitter upon power-up. The solid LED on the receiver indicates a stable link. Always perform a range check before flying, especially with new setups or in new environments.

### 3.1 Range Check

With your model powered on and the receiver linked, activate the range check mode on your transmitter (refer to your transmitter's manual). Walk a reasonable distance away from your model (e.g., 30-50 meters) while observing control surface responses. Ensure consistent control throughout the range check area. If control is lost or intermittent, re-evaluate antenna placement and check for potential interference sources.

### 3.2 Failsafe Configuration

It is critical to configure failsafe settings on your transmitter to ensure your model reacts predictably in case of signal loss. Common failsafe options include holding the last known positions or setting channels to specific positions (e.g., throttle to zero, control surfaces neutral). Consult your flight controller and transmitter manuals for detailed failsafe setup procedures.

## 4. MAINTENANCE

The RadioMaster R86 receiver is designed for durability, but proper care will extend its lifespan and ensure reliable operation.

- **Protection:** Keep the receiver protected from physical impact, moisture, and extreme temperatures. Consider using heat shrink or a protective case if operating in harsh environments.
- **Antennas:** Regularly inspect antenna wires for damage (cuts, kinks). Damaged antennas can significantly reduce range and signal quality. Ensure they are securely attached to the receiver.
- **Connections:** Verify all wiring connections are secure and free from corrosion. Loose connections can lead to intermittent signal loss.
- **Cleaning:** If necessary, gently clean the receiver with a soft, dry brush to remove dust or debris. Avoid using liquids or solvents.

## 5. TROUBLESHOOTING

Problem	Possible Cause	Solution
Receiver LED not solid after binding attempt	<ul style="list-style-type: none"><li>• Transmitter not in D8 bind mode.</li><li>• Incorrect protocol selected on transmitter.</li><li>• Receiver not in bind mode.</li><li>• Too far from transmitter during binding.</li></ul>	<ul style="list-style-type: none"><li>• Ensure transmitter is in D8 bind mode.</li><li>• Verify D8 protocol is selected.</li><li>• Press and hold BIND button on receiver before powering on transmitter.</li><li>• Keep transmitter close to receiver during binding.</li></ul>
Intermittent signal loss or poor range	<ul style="list-style-type: none"><li>• Damaged or poorly positioned antennas.</li><li>• Interference from other electronic components.</li><li>• Low power to receiver.</li><li>• Environmental interference.</li></ul>	<ul style="list-style-type: none"><li>• Check antenna integrity and reposition for optimal orientation (90 degrees).</li><li>• Relocate receiver or other components to minimize interference.</li><li>• Verify power input is within 4.5-8.4V range.</li><li>• Perform range check in a different location.</li></ul>

Problem	Possible Cause	Solution
No control output (PWM/SBUS)	<ul style="list-style-type: none"><li>Receiver not bound.</li><li>Incorrect wiring to flight controller/servos.</li><li>Flight controller not configured for correct input (PWM/SBUS).</li></ul>	<ul style="list-style-type: none"><li>Perform binding procedure.</li><li>Double-check all wiring connections.</li><li>Configure flight controller to accept PWM or SBUS input as appropriate.</li></ul>

## 6. SPECIFICATIONS

Feature	Detail
Model	R86
Channels	6 (PWM), 8 (SBUS)
Frequency Range	2400-2483.5Mhz
Output Format	PWM / SBUS
Power Input Range	4.5-8.4V
Dimensions (Approx.)	28.2mm x 17mm x 12.5mm (1.11in x 0.67in x 0.49in)
Weight	4.4g (0.155 oz)
Manufacturer	RADIOMASTER



Image 6.1: Dimensions of the RadioMaster R86 receiver, showing its compact size.



Image 6.2: The RadioMaster R86 receiver on a digital scale, indicating its light weight of 4.4 grams.

## 7. WARRANTY AND SUPPORT

Information regarding specific warranty terms and direct customer support channels for the RadioMaster R86 receiver was not available in the provided product data. For warranty claims or technical assistance, please refer to the official RadioMaster website or contact your point of purchase.



© 2024 RADIOMASTER. All rights reserved.