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FrSky FRS03031804

FrSky R9M 2019 900MHz Long Range Module System Instruction Manual

Model: FRS03031804

1. Introduction

The FrSky R9M 2019 is a 900MHz long-range module designed for use with FrSky R9 series receivers. This system provides extended operating range, low latency, and high precision for remote control applications. The R9M module offers switchable RF power outputs to adapt to various flight situations and supports telemetry data transmission via Smart Port.

This manual provides essential information for the proper setup, operation, and maintenance of your FrSky R9M 2019 module.

2. Features

- 900MHz/868MHz operating frequency.
- Compatible with FrSky R9 series receivers (ACCST/ACCESS protocols).
- Offers long-range, low-latency, and high-precision control.
- Features 4 optional RF power outputs (Non-EU Version).
- Supports Telemetry mode (25mW) and non-telemetry mode (200mW / 500mW) (EU Version).
- Flexible RF Power (Flex version): 10mW/ 100mW/ 500mW/ 1W (telemetry supported for all levels).
- Smart Port enabled for telemetry data transmission and firmware upgrades.
- Input Voltage Range: 6.5V-13V.
- Supports PXX or CPPM modulations (auto-detected).

3. Specifications

Specification	Value
Model Number	FRS03031804
Brand	FrSky
Dimensions	5.28 x 4.09 x 1.61 inches
Weight	3.17 ounces
Voltage Range	6.5V-13V
Telemetry Interface	Smart Port
Upgrade Interface	Smart Port
Modulations	PXX or CPPM (auto-detected)

RF Power Output Details

Image: Detailed specifications including RF power, operating voltage/current, and number of channels for Non-LBT and LBT versions.

4. Setup

4.1 Component Identification

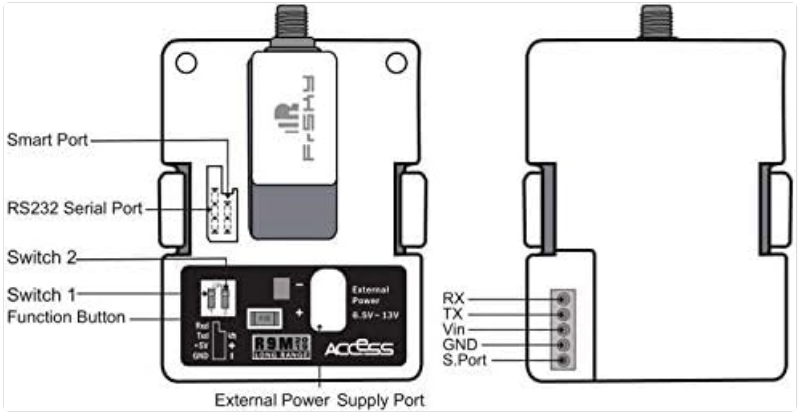

Image: Labeled diagram showing Smart Port, RS232 Serial Port, Switch 1, Switch 2, Function Button, External Power Supply Port, RX, TX, Vin, GND, and S.Port connections on the R9M 2019 module.

4.2 Initial Connection

1. Ensure your FrSky R9M 2019 module is securely inserted into the external module bay of your compatible FrSky transmitter.
2. Connect the R9 series receiver to your aircraft's flight controller or servos as per your aircraft's requirements.
3. Connect the external power supply (6.5V-13V) to the R9M module if required by your transmitter or desired for higher RF power output.
4. Power on your transmitter.

4.3 Binding Procedure

To establish a connection between the R9M module and an R9 series receiver, a binding procedure is necessary. Refer to your specific R9 series receiver manual for detailed binding instructions, as steps may vary slightly depending on the receiver model and firmware (ACCST/ACCESS).

Generally, the process involves putting both the transmitter (with R9M module) and the receiver into bind mode. The R9M module typically has a bind button or a menu option on the transmitter to initiate binding.

4.4 Firmware Updates

The R9M module and R9 series receivers may require firmware updates for optimal performance and compatibility. Firmware updates are performed via the Smart Port interface. Visit the official FrSky website for the latest firmware versions and detailed update procedures.

5. Operating Instructions

5.1 RF Power Selection

The R9M module allows selection of different RF power outputs. This is typically configured through your transmitter's menu system. Choose an appropriate power level based on your flight environment and range requirements. Higher power levels provide greater range but consume more battery power.

For EU LBT versions, available modes include Telemetry (25mW) and non-telemetry (200mW / 500mW). For Flex versions, options include 10mW, 100mW, 500mW, and 1W, all supporting telemetry.

5.2 Telemetry Functionality

The R9M system supports telemetry, allowing real-time feedback of flight data (e.g., battery voltage, RSSI) to your transmitter. Ensure your R9 series receiver and R9M module are configured for telemetry and that any necessary sensors are connected to the Smart Port.

The following video demonstrates how to display airplane battery voltage telemetry on a compatible RadioLink AT9S Pro transmitter, which uses a similar telemetry concept:

Video: Demonstrates how to view telemetry data, specifically airplane battery voltage, on a RadioLink AT9S Pro transmitter. This illustrates the concept of telemetry feedback in RC systems.

5.3 Simulator Use

The R9M module can be used with flight simulators for practice. This typically involves connecting your transmitter to a computer via a USB dongle or simulator cable. Ensure your transmitter is set to the correct mode for simulator use.

The following video demonstrates the plug-and-play setup for a RadioLink AT9S Pro transmitter with a simulator, which can be adapted for the FrSky R9M system:

Video: Shows the process of connecting a RadioLink AT9S Pro transmitter to a computer for simulator use, highlighting the plug-and-play functionality with a dongle and simulator cable.

6. Compatibility

The FrSky R9M 2019 module is compatible with FrSky R9 series receivers. It supports both ACCST and ACCESS protocols. Ensure that your transmitter's firmware and receiver's firmware are compatible with the chosen protocol.

6.1 Transmitter Compatibility

The R9M 2019 module is designed to work with FrSky transmitters that have an external module bay. Examples include:

- X9D Plus / SE 2019
- Q X7 ACCESS / Q X7S ACCESS
- X10 / X10S Express
- X12S
- X9E

For a detailed compatibility matrix, refer to the image below:

Image: A table detailing compatibility between different FrSky transmitters (X9D Plus, Q X7, X10, X12S, X9E, X-Lite series) and various R9M module versions (R9M 2019 ACCESS, R9M 2019 ACCST, R9M Lite, R9M Lite Pro).

7. Maintenance

- **Firmware Updates:** Regularly check the FrSky website for the latest firmware updates for both your R9M module and R9 series receivers to ensure optimal performance and access to new features.

- **Physical Inspection:** Periodically inspect the module and its connections for any signs of wear, damage, or loose contacts.
- **Storage:** Store the module in a dry, cool environment away from direct sunlight and extreme temperatures.
- **Cleaning:** Use a soft, dry cloth to clean the module. Avoid using solvents or abrasive cleaners.

8. Troubleshooting

- **No Link/Binding Issues:**
  - Ensure both transmitter and receiver are powered on and in bind mode.
  - Verify that the R9M module and receiver are running compatible firmware versions (ACCST/ACCESS).
  - Check for proper connection of the R9M module to the transmitter's external module bay.
  - Ensure the receiver is correctly connected to its power source.
- **No Telemetry Data:**
  - Confirm that telemetry is enabled in your transmitter settings.
  - Verify that the receiver is a telemetry-capable R9 series receiver.
  - Check all Smart Port connections for proper wiring.
  - Ensure any external telemetry sensors are correctly connected and configured.
- **Reduced Range:**
  - Check the selected RF power output on your transmitter; ensure it is set to an appropriate level for your flight conditions.
  - Inspect antennas on both the transmitter and receiver for damage or improper orientation.
  - Avoid flying in areas with high RF interference.

9. Warranty and Support

For warranty information, technical support, and further assistance, please visit the official FrSky website or contact your authorized FrSky dealer. Keep your proof of purchase for warranty claims.

Official FrSky Website: www.frsky-rc.com

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