

# kwmobile 433 MHz Transmitter and Receiver Module Kit

## User Instruction Manual

### 1. INTRODUCTION

This manual provides detailed instructions for the setup, operation, and maintenance of your kwmobile 433 MHz Transmitter and Receiver Module Kit. This kit is designed for various wireless remote control applications, compatible with platforms such as Raspberry Pi and Arduino.

The kwmobile 433 MHz wireless transceiver modules are versatile components for electronic projects, enabling wireless communication for applications like remote control mechanisms, wireless outlets, alarm systems, and lighting controls.

### 2. SAFETY INFORMATION

Please read and understand all safety instructions before using the modules. Improper handling can lead to damage to the modules or connected devices.

- Ensure correct voltage supply (Transmitter: 3.5 - 12V DC / Receiver: 5V DC) to prevent damage.
- Observe proper pin configuration (Data, VCC, Mass) when connecting to microcontrollers or power sources.
- Avoid short circuits.
- Handle components with care to prevent electrostatic discharge (ESD) damage.
- Do not expose modules to moisture or extreme temperatures.

### 3. PACKAGE CONTENTS

Your kwmobile 433 MHz Transmitter and Receiver Module Kit includes:

- 3x kwmobile 433 MHz Transmitter Modules (MX-FS-03V)
- 3x kwmobile 433 MHz Receiver Modules (MX-05V)

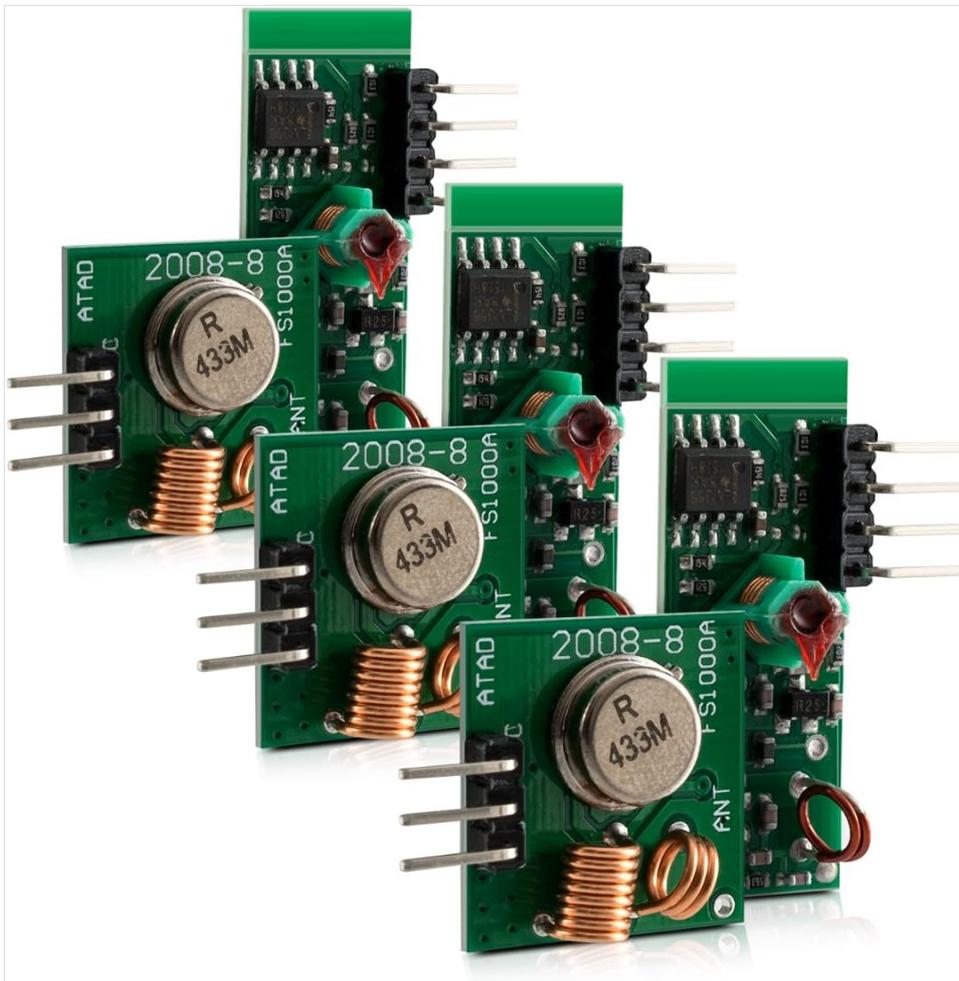


Figure 3.1: Contents of the kwmobile 433 MHz Transmitter and Receiver Module Kit.

## 4. PRODUCT OVERVIEW

The kit consists of two types of modules: the transmitter (MX-FS-03V) and the receiver (MX-05V). Both operate at a frequency of 433 MHz.

### 4.1. Receiver Module (MX-05V)

The receiver module is responsible for receiving 433 MHz radio signals. It typically has three pins: Data, VCC (power supply), and GND (ground).



Figure 4.1.1: kwmobile 433 MHz Receiver Module (MX-05V).

- **Model:** MX-05V
- **Voltage Supply:** 5V DC
- **Operating Mode:** AM (Amplitude Modulation)
- **Sensitivity:** -105dB
- **Dimensions:** Approximately 30 x 14mm
- **Pin Configuration:** Data, VCC, Mass (from left to right when looking at the pins)

#### 4.2. Transmitter Module (MX-FS-03V)

The transmitter module is used to send 433 MHz radio signals. It also typically features pins for Data, VCC, and GND, along with an antenna connection point.

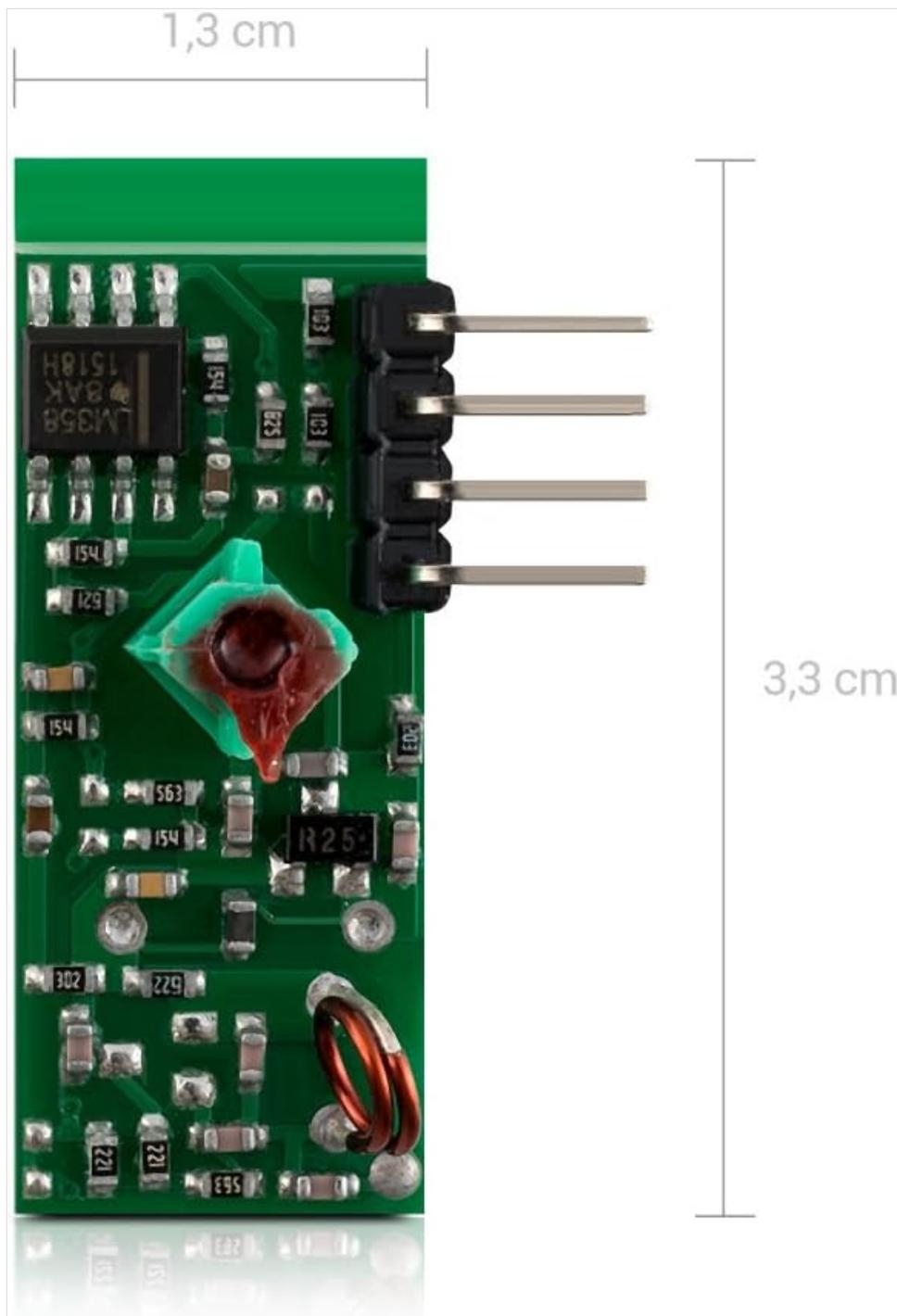


Figure 4.2.1: kwmobile 433 MHz Transmitter Module (MX-FS-03V).

- **Model:** MX-FS-03V
- **Voltage Supply:** 3.5 - 12V DC
- **Transmitting Power:** 10mW
- **Dimensions:** Approximately 19 x 19mm
- **Pin Configuration:** Data, VCC, Mass (from left to right when looking at the pins)



Figure 4.2.2: kwmobile 433 MHz Receiver and Transmitter Modules side-by-side.

## 5. SETUP

This section outlines the basic steps for setting up your kwmobile 433 MHz modules with compatible microcontrollers like Raspberry Pi or Arduino.

### 5.1. Pin Connections

Both modules typically have three pins: Data, VCC, and GND. Ensure these are connected correctly to your microcontroller or power supply.

- **VCC:** Connect to the appropriate power supply voltage (5V for Receiver, 3.5-12V for Transmitter).
- **GND (Mass):** Connect to the ground of your circuit.

- **Data:** Connect to a digital I/O pin on your microcontroller for sending/receiving data.

*Note:* The pin configuration is typically Data, VCC, Mass (GND) from left to right when viewing the pins.

## 5.2. Antenna Connection

To optimize the reception and transmission range, it is highly recommended to attach an antenna to the modules. A simple copper wire can be used.

- For the **Transmitter (MX-FS-03V)**, solder or plug a copper wire to the "ANT" contact point (often labeled XY-FST).
- For the **Receiver (MX-05V)**, solder or plug a copper wire to the "ANT" contact point.

A common length for a 433 MHz quarter-wave antenna is approximately 17.3 cm (6.8 inches).

## 5.3. Compatibility

These modules are compatible with a wide range of microcontrollers and single-board computers, including but not limited to:

- Raspberry Pi (all models)
- Arduino (Uno, Mega, Nano, etc.)
- ESP32, ESP8266

Specific libraries or code examples may be required for integration with your chosen platform. Refer to online resources and community forums for detailed programming guides.

## 6. OPERATING INSTRUCTIONS

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Once connected and powered, these modules facilitate one-way wireless communication. The transmitter sends data, and the receiver listens for it.

- **Data Transmission:** The transmitter module sends digital data (e.g., ON/OFF signals, sensor readings) via Amplitude Modulation (AM) at 433 MHz.
- **Data Reception:** The receiver module picks up these 433 MHz AM signals and outputs the corresponding digital data to its data pin.
- **Applications:** These modules are commonly used for simple remote control applications such as controlling wireless outlets, activating alarm systems, or switching lights.

For successful communication, ensure that both the transmitter and receiver are configured to use the same data protocol (e.g., Manchester encoding) and that the data rate is within the module's capabilities (Transfer Rate: 4 KB/S).

## 7. MAINTENANCE

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The kwmobile 433 MHz modules are low-maintenance components. Follow these guidelines to ensure their longevity:

- Keep the modules clean and free from dust and debris.
- Store in a dry environment, away from direct sunlight and extreme temperatures.
- Avoid physical stress or bending of the pins.
- Regularly inspect soldered connections for integrity, especially for the antenna.

## 8. TROUBLESHOOTING

If you encounter issues with your kwmobile 433 MHz modules, consider the following troubleshooting steps:

- **No Communication:**
  - Verify all pin connections (VCC, GND, Data) are correct and secure.
  - Check power supply voltage for both modules.
  - Ensure both modules have an antenna connected.
  - Confirm that your code/software is correctly implementing the data protocol and sending/receiving data.
- **Poor Reception Range:**
  - The reception range (20 - 200m) is highly dependent on the environment and power supply.
  - Ensure a proper antenna is attached to both transmitter and receiver. A longer or better-tuned antenna can significantly improve range.
  - Obstacles like walls, metal objects, and other radio frequency interference can reduce range. Test in an open area.
  - Increase the voltage supply to the transmitter (up to 12V DC) to potentially increase transmitting power and range.
- **Intermittent Data:**
  - Check for noise on the power lines. Add decoupling capacitors (e.g., 0.1uF and 10uF) near the VCC pin of the modules.
  - Ensure the data rate is not too high for the modules.
  - Consider implementing error checking in your data protocol.

## 9. SPECIFICATIONS

Feature	Specification
Transmitter Model	MX-FS-03V
Receiver Model	MX-05V
Operating Frequency	433 MHz
Transmitter Voltage Supply	3.5 - 12V DC
Receiver Voltage Supply	5V DC
Operating Mode	AM (Amplitude Modulation)
Receiver Sensitivity	-105dB
Transmitting Power	10mW
Transfer Rate	4 KB/S
Bias Current	4 mA
Range	20 - 200m (depending on voltage supply and environment)

Feature	Specification
Transmitter Dimensions	19 x 19mm
Receiver Dimensions	30 x 14mm
Compatible Devices	Raspberry Pi, Arduino
Product Dimensions (Pack)	1.3 x 0.51 x 0.08 inches
Item Weight (Pack)	0.352 ounces
Item Model Number	38819_m000523

## 10. WARRANTY AND SUPPORT

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kwmobile products are designed for reliability and performance. For specific warranty information, please refer to the purchase documentation or contact your retailer.

For technical support, troubleshooting assistance, or further inquiries, please visit the official kwmobile website or contact their customer service. Online resources and community forums for Raspberry Pi and Arduino also offer extensive support for integrating these types of modules into your projects.

**kwmobile Store:** [Visit the kwmobile Store on Amazon](#)