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## REWMTRIRETEN MQ-6

# REWMTRIRETEN MQ-6 LPG Gas Sensor Module User Manual

Model: MQ-6

## 1. INTRODUCTION

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The REWMTRIRETEN MQ-6 LPG Gas Sensor Module is designed for the detection of Liquefied Petroleum Gas (LPG), including propane and butane. This module is highly sensitive to LPG and also responds to natural gas. It is suitable for detecting gas leaks in homes and industrial applications. The sensor provides both analog and digital output, making it versatile for various microcontroller-based projects.

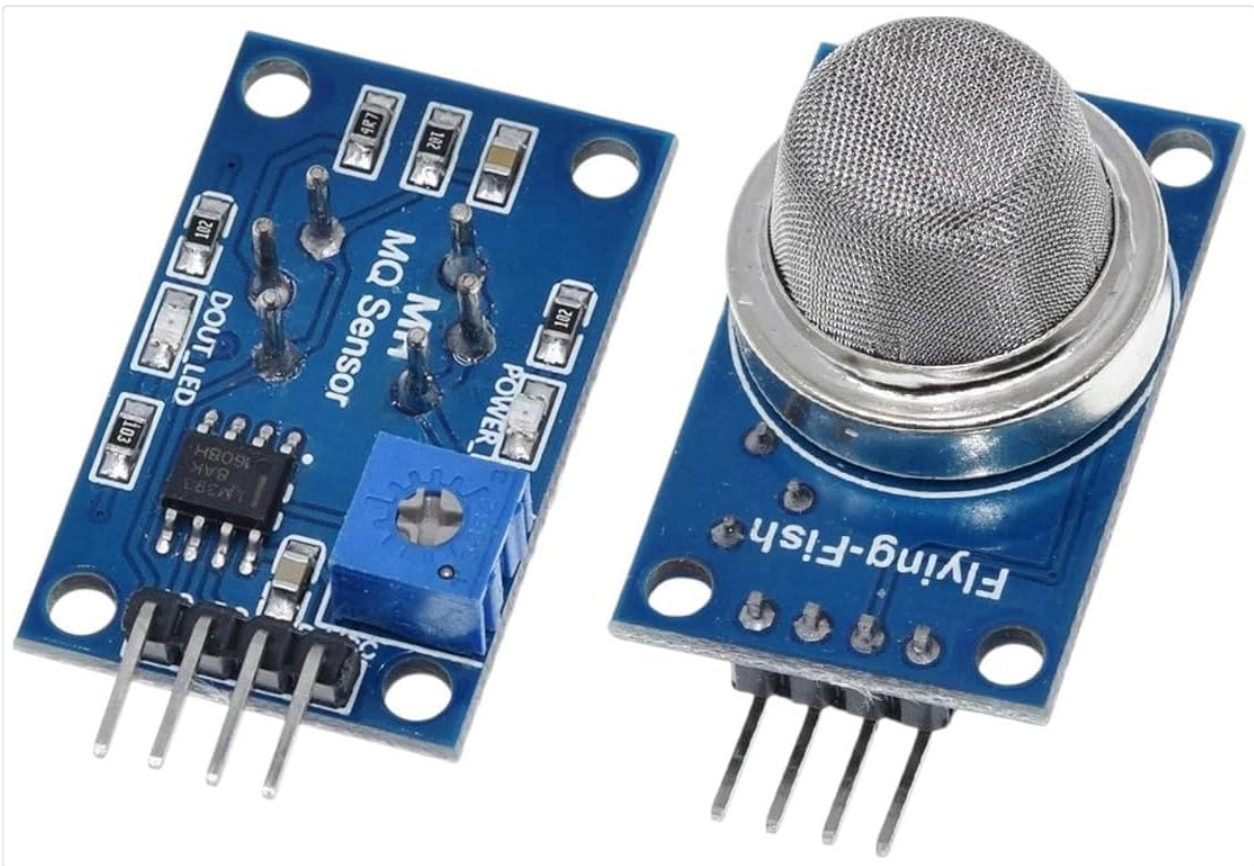


Image 1: The REWMTRIRETEN MQ-6 LPG Gas Sensor Module. This image displays the blue PCB module with the MQ-6 sensor component, a potentiometer for sensitivity adjustment, and pin headers for electrical connections.

## 2. SAFETY INFORMATION

Please read and understand all safety instructions before using the MQ-6 sensor module. Failure to follow these instructions may result in property damage, injury, or death.

- This module is for detection purposes and should not be used as a primary safety device without proper integration into a certified safety system.
- Ensure proper ventilation when working with combustible gases.
- Do not expose the sensor to high concentrations of gas for extended periods, as this may damage the sensor element.
- Always disconnect power before making any electrical connections or disconnections.
- Handle the module with care to avoid electrostatic discharge (ESD) damage.

## 3. SETUP

This section outlines the steps for connecting and preparing your MQ-6 sensor module for operation.

### 3.1 Pinout

The MQ-6 module typically has 4 pins:

- **VCC:** Power supply (typically 5V DC).
- **GND:** Ground connection.
- **DO (Digital Output):** Provides a digital signal (HIGH/LOW) when gas concentration exceeds a set threshold.

- **AO (Analog Output):** Provides an analog voltage proportional to the gas concentration.

## 3.2 Electrical Connections

1. Connect the **VCC** pin of the MQ-6 module to a 5V DC power supply.
2. Connect the **GND** pin of the MQ-6 module to the ground of your power supply and microcontroller.
3. For digital detection, connect the **DO** pin to a digital input pin on your microcontroller (e.g., Arduino, Raspberry Pi).
4. For analog detection, connect the **AO** pin to an analog input pin on your microcontroller.

## 3.3 Initial Calibration and Warm-up

Upon initial power-up, the MQ-6 sensor requires a warm-up period to stabilize its readings. This typically takes 20-60 seconds. During this time, the sensor's resistance will stabilize. For accurate readings, it is recommended to allow the sensor to warm up in a clean air environment.

The digital output threshold can be adjusted using the onboard potentiometer. Turn the potentiometer clockwise to increase sensitivity (trigger at lower gas concentrations) and counter-clockwise to decrease sensitivity.

## 4. OPERATING INSTRUCTIONS

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Once the module is set up, you can begin using it for gas detection.

### 4.1 Digital Output (DO) Usage

The digital output provides a simple HIGH/LOW indication:

- When the detected gas concentration exceeds the threshold set by the potentiometer, the DO pin will go **LOW** (or HIGH, depending on the specific module's comparator configuration, typically LOW).
- When the gas concentration is below the threshold, the DO pin will remain **HIGH** (or LOW).
- Monitor this pin with your microcontroller to trigger alarms or actions.

### 4.2 Analog Output (AO) Usage

The analog output provides a more granular measurement of gas concentration:

- The AO pin outputs a voltage that varies proportionally with the gas concentration.
- Connect the AO pin to an Analog-to-Digital Converter (ADC) on your microcontroller.
- Read the analog value and convert it to a gas concentration using a calibration curve or empirical data. Refer to the MQ-6 datasheet for specific resistance vs. concentration curves.

## 5. MAINTENANCE

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Proper maintenance ensures the longevity and accuracy of your MQ-6 sensor module.

- **Keep Clean:** Ensure the sensor's metal mesh is free from dust, dirt, and moisture. Use a soft, dry brush if cleaning is necessary.
- **Avoid Contaminants:** Do not expose the sensor to silicone vapors, corrosive gases, or high humidity, as these can permanently damage the sensing element.
- **Regular Testing:** Periodically test the sensor's functionality with a known source of LPG in a controlled environment to ensure it is operating correctly.

- **Storage:** Store the module in a dry, clean, and non-corrosive environment when not in use.

## 6. TROUBLESHOOTING

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If you encounter issues with your MQ-6 sensor module, refer to the following troubleshooting steps.

### 6.1 No Output or Incorrect Readings

- **Power Check:** Verify that the module is receiving the correct 5V DC power and that GND is properly connected.
- **Warm-up Time:** Ensure the sensor has completed its warm-up period (20-60 seconds) before expecting stable readings.
- **Connections:** Double-check all wiring connections to your microcontroller for looseness or incorrect pin assignments.
- **Potentiometer Adjustment:** For digital output, adjust the onboard potentiometer. If the DO LED is always on or off, the threshold might be set too high or too low.
- **Sensor Contamination:** Inspect the sensor for any visible contamination or damage.

### 6.2 Digital Output (DO) LED Always On/Off

- **Potentiometer:** Adjust the potentiometer. If the LED is always on, decrease sensitivity. If always off, increase sensitivity.
- **Gas Presence:** Ensure there is no gas present if the LED is always on in a clean air environment. Conversely, ensure gas is present if the LED never turns on during testing.

## 7. SPECIFICATIONS

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Parameter	Value
Operating Voltage	5V DC
Detection Gas	LPG (Propane, Butane), Natural Gas
Detection Concentration	300 to 10,000 ppm (LPG)
Digital Output	TTL compatible (HIGH/LOW)
Analog Output	0-5V (proportional to concentration)
Warm-up Time	20-60 seconds
Operating Temperature	-20°C to 50°C
Operating Humidity	5% to 95% RH (non-condensing)

## 8. WARRANTY AND SUPPORT

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For warranty information and technical support regarding your REWMTRIRETEN MQ-6 LPG Gas Sensor Module, please refer to the manufacturer's official website or contact their customer service department. Details are typically provided with your purchase documentation or on the product packaging.

Please retain your proof of purchase for any warranty claims.