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Fafeicy Fafeicyuozx8twhr0

Fafeicy Ultrasonic Distance Sensor DC3.3V-5V IP67 User Manual

Model: Fafeicyuozx8twhr0

1. Introduction

This manual provides essential information for the proper installation, operation, and maintenance of your Fafeicy Ultrasonic Distance Sensor. This sensor is designed for accurate distance measurement and object detection in various environments, featuring a robust IP67 waterproof rating and low power consumption.
The sensor operates on a DC3.3V-5V power supply and provides stable data output through its UART automatic mode. Its design ensures reliable performance, unaffected by the color, transparency, or material of detected objects.



Image 1.1: Front view of the Fafeicy Ultrasonic Distance Sensor, showing its compact black housing and integrated cable.

2. Setup

Follow these steps to correctly set up your ultrasonic distance sensor:

1. **Power Supply:** Connect the sensor to a stable DC power source within the range of 3.3V to 5V. Ensure correct polarity to prevent damage.
2. **Wiring:** Identify the power (VCC), ground (GND), and data (TX/RX) pins on the sensor's connector. Connect these to your control unit (e.g., microcontroller) according to its specifications. The sensor utilizes a UART automatic output mode for data transmission.
3. **Mounting:** Securely mount the sensor in the desired location. Ensure the sensor's detection area is clear of obstructions. The IP67 rating allows for use in humid or harsh environments, but proper mounting is crucial for consistent performance.
4. **Initial Test:** After connecting, power on your system and perform a basic test to confirm the sensor is receiving power and transmitting data. Refer to your control unit's documentation for reading UART data.



Image 2.1: The Fafeicy Ultrasonic Distance Sensor, highlighting its cable and 4-pin connector for electrical connections.

3. Operating Instructions

The Fafeicy Ultrasonic Distance Sensor operates by emitting ultrasonic waves and measuring the time it takes for the waves to return after reflecting off an object. This time-of-flight measurement is then converted into a distance reading.

- **Detection Range:** The sensor is capable of detecting objects within a range of approximately 3 cm to 450 cm (1.2 inches to 177.2 inches).
- **Data Output:** Distance data is provided via UART in an automatic output mode. Consult the sensor's technical datasheet (if available) or your control unit's programming guide for specific data format and communication protocols.
- **Applications:** This sensor is suitable for a wide range of applications, including:
  - Robot obstacle avoidance
  - Intelligent garbage can detection

    - Parking space occupancy detection
    - Smart home automation
    - General object proximity detection and automatic control systems
- **Environmental Robustness:** The sensor's performance is not significantly affected by the color, transparency, or material (metal, non-metal) of the detected objects, making it versatile for various environments.

4. Maintenance

To ensure the longevity and optimal performance of your Fafeicy Ultrasonic Distance Sensor, follow these maintenance guidelines:

- **Cleaning:** Periodically clean the sensor's surface to remove dust, dirt, or debris that may accumulate. Use a soft, dry cloth. For stubborn dirt, a slightly damp cloth can be used, ensuring no liquid enters the internal components.
- **Inspection:** Regularly inspect the cable and connector for any signs of wear, damage, or corrosion. Replace damaged components immediately.
- **Environmental Protection:** While the sensor has an IP67 rating, prolonged exposure to extreme conditions (e.g., direct high-pressure water jets, corrosive chemicals) should be avoided to prevent potential long-term damage.
- **Storage:** When not in use, store the sensor in a clean, dry environment away from direct sunlight and extreme temperatures.

5. Troubleshooting

If you encounter issues with your ultrasonic distance sensor, consider the following troubleshooting steps:

- **No Power/No Indication:**
    - Verify the power supply voltage is within the DC3.3V-5V range.
    - Check all wiring connections for proper polarity and secure contact.
- **Inaccurate Readings:**
    - Ensure the sensor's surface is clean and free from obstructions.
    - Check for any objects within the sensor's blind spot (minimum detection range of 3 cm).
    - Verify that the target object is large enough and positioned correctly for reflection.
    - Minimize acoustic noise in the environment, as excessive noise can interfere with ultrasonic detection.
- **No Data Output:**
    - Confirm the UART communication settings (baud rate, data bits, parity, stop bits) on your control unit match the sensor's requirements.
    - Check the data line connections for continuity and proper connection to the control unit's UART receiver.
- **Intermittent Operation:**
    - Inspect for loose connections or damaged wiring.
    - Ensure the power supply is stable and free from voltage fluctuations.

If problems persist after attempting these steps, contact Fafeicy customer support for further assistance.

6. Specifications

Feature	Specification
Model Number	Fafeicyuozx8twhr0
Measurement Accuracy	±(1+Sx0.3%)
Operating Voltage	DC3.3V-5V
Average Current	8mA
Temperature Compensation	Yes
Range	Approx. 3 ~ 450cm (1.2 ~ 177.2in)
Output Mode	UART automatic
Protection Level	IP67
Package Dimensions	3.54 x 2.36 x 0.79 inches
Manufacturer	Fafeicy

7. Warranty and Support

Fafeicy products are manufactured to high-quality standards. For warranty information or technical support, please refer to the documentation provided with your purchase or visit the official Fafeicy website. When contacting support, please have your product model number (Fafeicyuozx8twhr0) and purchase details readily available.

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