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› WWZMDiB DS18B20 Temperature Sensor Probe Instruction Manual

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Model: DS18B20 Temperature Sensor Probe | Brand: WWZMDiB

1. INTRODUCTION

The WWZMDiB DS18B20 Temperature Sensor Probe is a high-accuracy, waterproof digital temperature sensor designed for various DIY electronics projects, including those involving Arduino and Raspberry Pi. Its robust design allows for reliable temperature measurement in wet or moist environments.

Key features of this sensor include:

- **Waterproof Design:** Capable of operating in wet or moist environments without damage.
- **Wide Temperature Range:** Measures temperatures from -55°C to $+125^{\circ}\text{C}$ ($\pm 0.5^{\circ}\text{C}$ accuracy).
- **Supply Voltage:** Operates within a 3V to 5.25V range.
- **Compatibility:** Suitable for use with Arduino, Raspberry Pi, ESP32, STM, and other microcontrollers.

DS18B20 High-Accuracy Waterproof

DS18B20 is a digital temperature sensor, whose output is a digital signal with small size, low hardware overhead, strong anti-interference capability and high accuracy. And DS18B20 waterproof probe is a sensor specially designed for underwater environment, which can measure temperature underwater.

💎 **[DS18B20 Temperature Sensor]** :The DS18B20 waterproof probe is designed for underwater use, capable of operating in wet or moist environments without being damaged by water or moisture.

⚡ **[Supply voltage]** :3.0V ~ 5.25V

🔌 **[Wiring]** : Red(VCC), Yellow(Data), Black(GND)

🌡️ **[Wide temperature range of]** :-55 °C ~ +125 °C (±0.5°C)

🔧 **Can be used for Arduino Raspberry Pi DIY and other experiments**

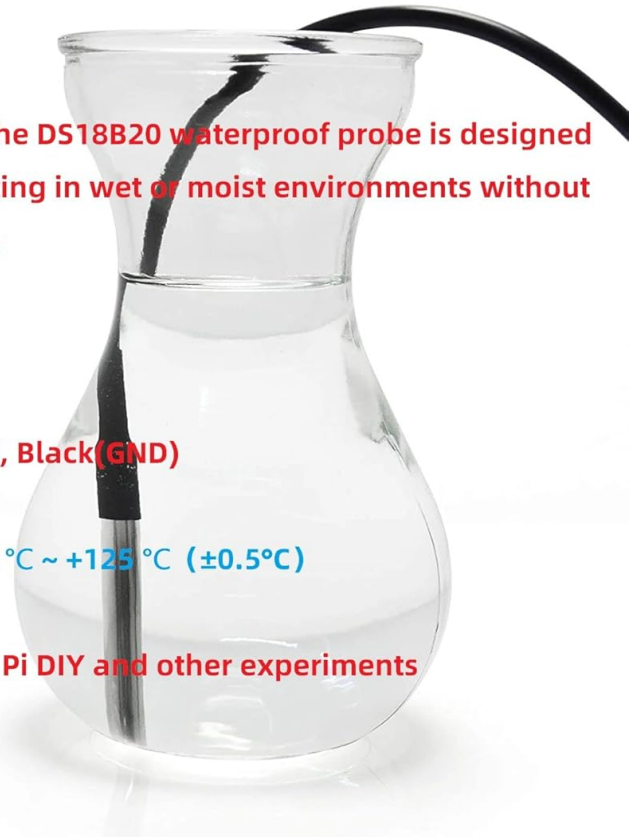


Image 1: The DS18B20 waterproof probe submerged in water, demonstrating its design for wet environments. The image highlights the sensor's ability to measure temperature underwater.

2. WHAT'S IN THE BOX

Your package should contain the following components:

- 5 x DS18B20 Waterproof Temperature Sensor Probes (1 meter / 39.37 inches each)
- 5 x 4.7K Metal Resistors

5Pcs DS18B20 Waterproof probe 1M/39.37"

5Pcs 4.7K Metal Resistor

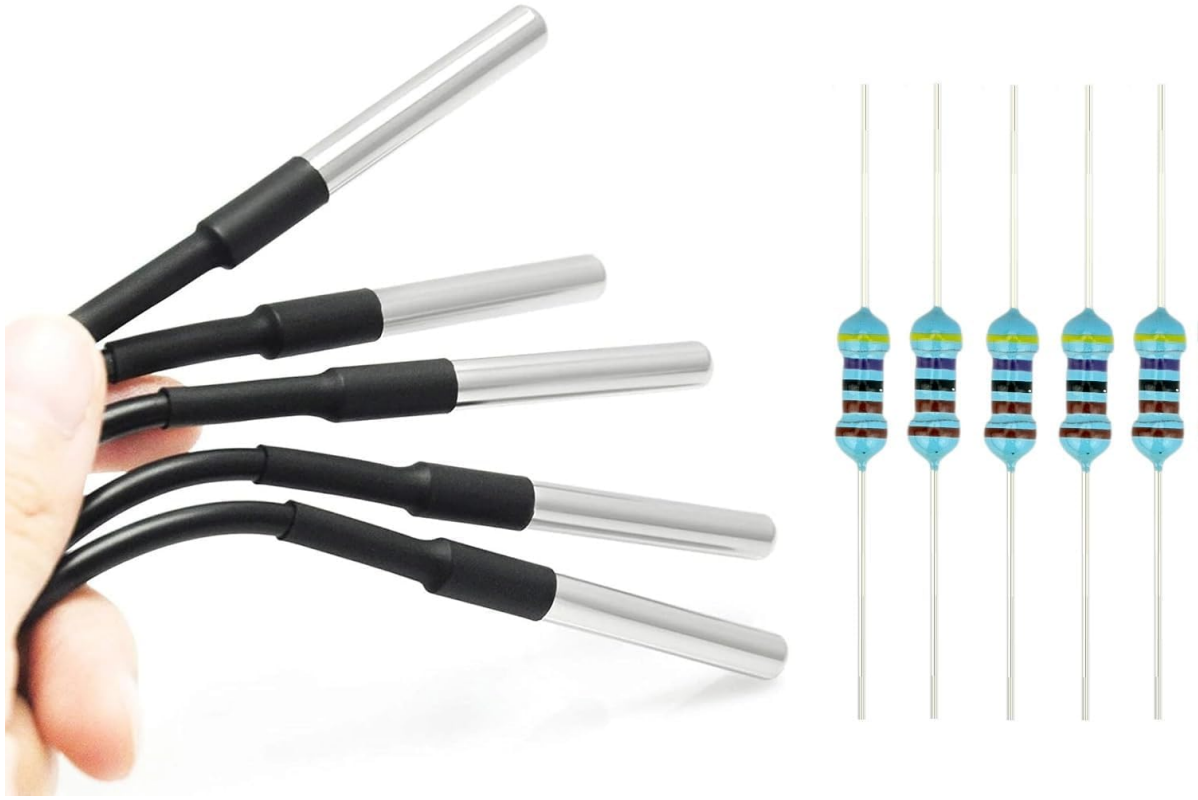


Image 2: A visual representation of the kit contents, showing five DS18B20 temperature sensor probes and five 4.7K metal resistors. These are the primary components included in the package.

Video 1: This video demonstrates the unboxing of a DS18B20 temperature sensor module kit, showing the individual components including the probes and resistors. It provides a clear view of what to expect in the package.

3. SETUP

To set up your DS18B20 temperature sensor probe with a microcontroller like Arduino or Raspberry Pi, follow these general wiring and connection guidelines:

1. **Identify Wires:** The DS18B20 probe typically has three wires:
 - **Red (VCC):** Power supply (3V to 5.25V).
 - **Yellow (Data):** Data signal line.
 - **Black (GND):** Ground.
- **Connect Power:** Connect the Red wire to the VCC (power) pin of your microcontroller (e.g., 5V on Arduino).
- **Connect Ground:** Connect the Black wire to the GND (ground) pin of your microcontroller.
- **Connect Data Line:** Connect the Yellow (Data) wire to a digital pin on your microcontroller.

- **Add Pull-up Resistor:** A 4.7K ohm pull-up resistor is required between the Data line (Yellow wire) and the VCC line (Red wire). This resistor ensures proper communication on the 1-Wire bus.



Image 3: This image displays the wiring diagram for the DS18B20 sensor, indicating Red (VCC), Yellow (Data), and Black (GND) connections. It also shows the physical dimensions of the probe.

[REDACTED]

Video 2: This video illustrates the connection process of the DS18B20 temperature sensor to an Arduino board, including the use of an adapter. It demonstrates how to properly wire the sensor for operation.

4. OPERATING

Once the sensor is correctly wired and connected to your microcontroller, you can begin reading temperature data. This typically involves using a compatible library (e.g., the DallasTemperature library for Arduino) to communicate with the sensor via the 1-Wire protocol.

To operate the sensor:

1. **Upload Code:** Upload the appropriate code (sketch) to your microcontroller that initializes the DS18B20 sensor and reads temperature values.
2. **Monitor Readings:** Observe the temperature readings through your chosen output method (e.g., serial monitor, LCD display).

3. **Test Environment:** Place the waterproof probe in the environment where you wish to measure temperature. The sensor will provide accurate readings across its specified range.



Video 3: This video demonstrates the waterproof capability of the DS18B20 temperature sensor by submerging it in water and showing real-time temperature readings on a display. It highlights the sensor's functionality in liquid environments.



Video 4: This video illustrates the DS18B20 temperature sensor's response to temperature changes, showing how the displayed temperature fluctuates when the probe is heated. It provides a visual example of the sensor's dynamic measurement capabilities.

5. MAINTENANCE

The DS18B20 waterproof temperature sensor probe is designed for durability and minimal maintenance. To ensure its longevity and accurate performance:

- **Regular Cleaning:** If used in environments with residue or buildup, gently clean the stainless steel probe with a soft cloth and mild detergent. Rinse thoroughly with clean water.
- **Avoid Physical Damage:** While robust, avoid bending the probe excessively or subjecting it to strong impacts, which could compromise its waterproof seal or internal components.
- **Inspect Cables:** Periodically check the cable for any signs of wear, cuts, or damage. Ensure connections remain secure.
- **Storage:** When not in use, store the sensors in a dry, cool place away from direct sunlight and extreme temperatures.

6. TROUBLESHOOTING

If you encounter issues with your DS18B20 temperature sensor probe, consider the following troubleshooting steps:

- **No Temperature Reading or Incorrect Readings:**
 - **Check Wiring:** Double-check all connections (VCC, Data, GND) to ensure they are secure and correctly connected to the appropriate pins on your microcontroller.
 - **Verify Pull-up Resistor:** Confirm that a 4.7K ohm pull-up resistor is correctly installed between the Data line (Yellow wire) and the VCC line (Red wire). Incorrect resistor values (e.g., 47K ohm or 4.7 ohm instead of 4.7K ohm) are a common cause of issues.
 - **Software/Library Issues:** Ensure you have installed the necessary libraries (e.g., OneWire and DallasTemperature for Arduino) and that your code is correctly configured for the DS18B20 sensor.
 - **Power Supply:** Ensure your microcontroller is receiving adequate power and that the sensor's VCC line is connected to a stable power source within the 3V-5.25V range.
- **Sensor Not Detected:**
 - **Unique Address:** Each DS18B20 sensor has a unique 64-bit address. Ensure your code is scanning for and correctly identifying the sensor(s) on the 1-Wire bus.
 - **Multiple Sensors:** If using multiple sensors on the same 1-Wire bus, ensure your code is designed to handle multiple devices and their unique addresses.

7. SPECIFICATIONS

Feature	Specification
Sensor Type	DS18B20 Digital Temperature Sensor
Probe Material	Stainless Steel
Cable Length	1 meter (39.37 inches)
Operating Voltage	3V - 5.25V
Temperature Range	-55°C to +125°C
Accuracy	±0.5°C
Wiring	Red (VCC), Yellow (Data), Black (GND)
Compatibility	Arduino, Raspberry Pi, ESP32, STM
Item Weight	4.2 ounces (total package)
Package Dimensions	11.22 x 3.31 x 0.55 inches

8. WARRANTY AND SUPPORT

For technical assistance, product support, or warranty inquiries, please contact WWZMDiB customer service directly through the platform where you purchased this product. Please have your order details available to facilitate the support process.