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› RTD Pt100 Temperature Sensor Probe User Manual

Jaybva JB-PT02

RTD Pt100 Temperature Sensor Probe User Manual

Model: JB-PT02

PRODUCT OVERVIEW

The Jaybva RTD Pt100 Temperature Sensor Probe is a high-precision, waterproof thermistor designed for accurate temperature measurement. It features a three-wire configuration and a durable stainless steel probe, suitable for various industrial and scientific applications.

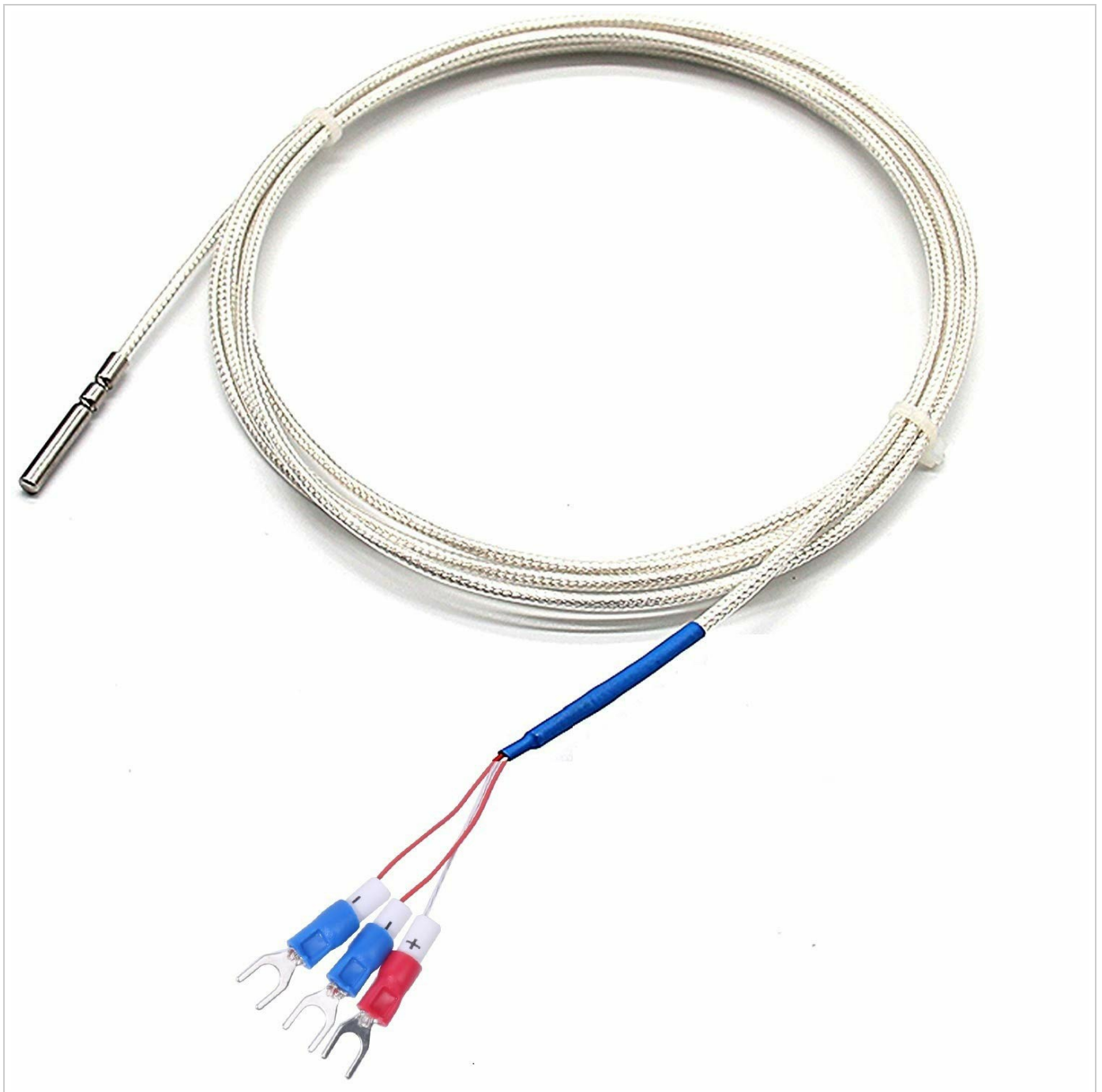


Figure 1: Overview of the RTD Pt100 Temperature Sensor Probe, showing the probe tip, coiled wire, and three-wire connection terminals.

KEY FEATURES

- **Waterproof Design:** Ensures reliable operation in wet environments.
- **High Accuracy:** A-grade accuracy for precise temperature readings.
- **Durable Construction:** Stainless steel 304 probe material for longevity.
- **Wide Temperature Range:** Operates effectively from -50°C to 200°C .
- **Extended Cable Length:** 6.6 feet (2 meters) PFA material cable for flexible installation.
- **Three-Wire Configuration:** Standard wiring for Pt100 sensors, enhancing accuracy by compensating for lead wire resistance.

SETUP AND INSTALLATION

Proper installation is crucial for accurate temperature measurement. Follow these steps for setting up your Pt100 sensor:

1. **Identify Wires:** The sensor features a three-wire configuration. Typically, two wires are for the same side of the platinum element (often red or white), and one wire is for the other side (often blue or black). Refer to the specific color coding on your sensor's terminals.
2. **Connect to Measurement Device:** Connect the three wires to your RTD input device (e.g., a temperature controller, PLC, or a dedicated RTD amplifier board like the MAX31865). Ensure correct polarity and wire assignment as per your device's manual.
3. **Secure the Probe:** Insert the stainless steel probe into the environment where temperature measurement is required. Ensure the probe tip is fully immersed or in direct contact with the medium to be measured for optimal accuracy.
4. **Cable Management:** Route the PFA cable away from sources of electrical noise or extreme heat to prevent interference or damage.



Figure 2: Detailed view of the stainless steel probe tip, which houses the Pt100 element.

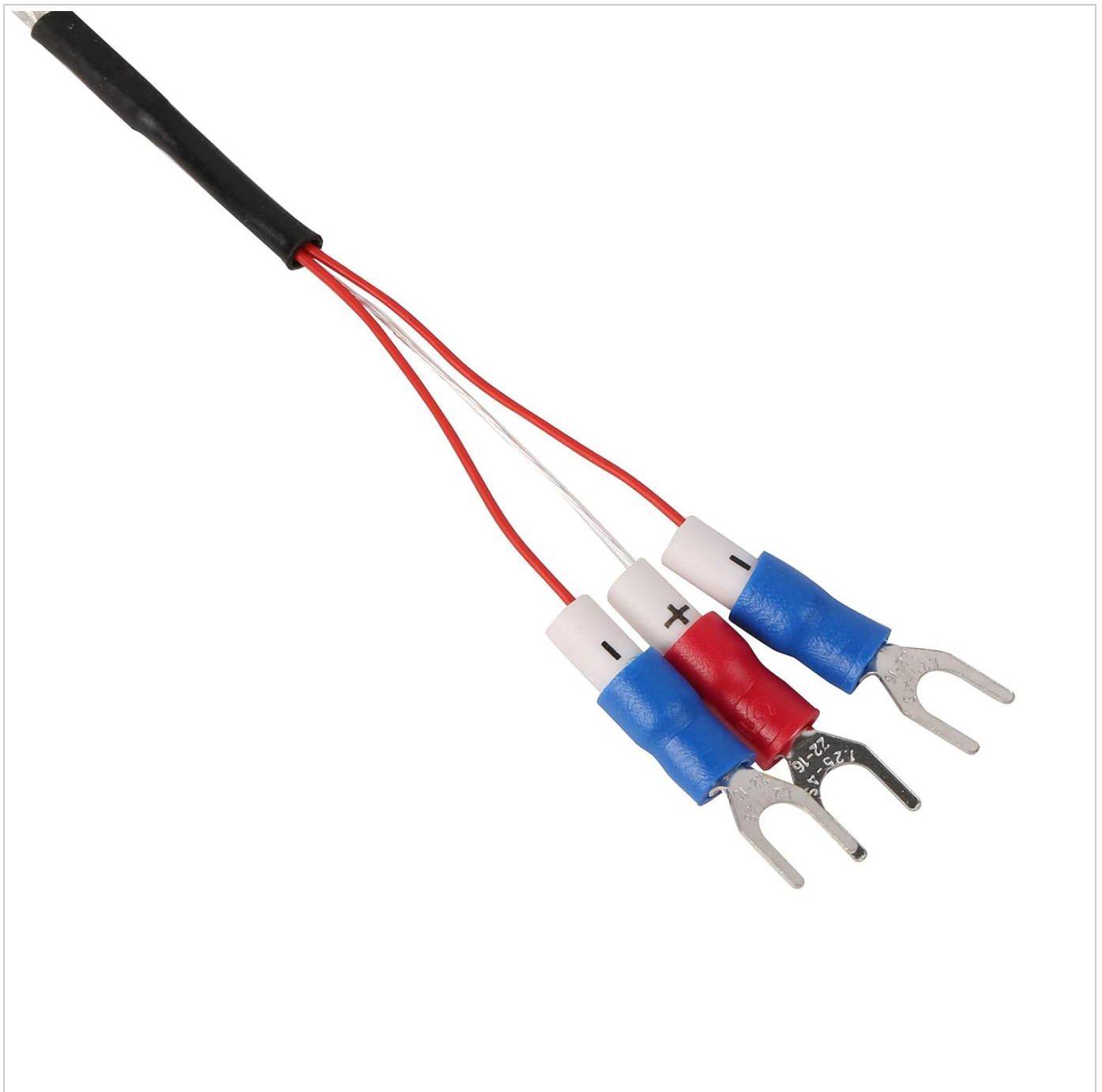


Figure 3: Close-up of the three-wire terminals, showing the red, white, and blue insulated connectors for wiring.

OPERATING PRINCIPLES

The Pt100 sensor operates on the principle of resistance temperature detection. Its resistance changes predictably with temperature. A Pt100 sensor has a resistance of 100 ohms at 0°C. The three-wire configuration helps to eliminate errors caused by the resistance of the lead wires, ensuring more accurate temperature readings, especially over longer cable lengths.

Once connected to a compatible measurement device, the device will interpret the resistance change from the sensor and convert it into a temperature reading, typically displayed in Celsius or Fahrenheit.

MAINTENANCE

The Jaybva RTD Pt100 sensor is designed for durability and requires minimal maintenance. However, adhering to the following guidelines will help ensure its longevity and continued accuracy:

- **Cleaning:** The probe is waterproof. If cleaning is necessary, gently wipe the stainless steel probe with a damp cloth.

For more thorough cleaning, the manufacturer recommends hand washing only. Avoid harsh chemicals or abrasive materials that could damage the probe or cable.

- **Inspection:** Periodically inspect the cable and probe for any signs of physical damage, such as cuts, kinks, or corrosion. Ensure the connections remain secure.
- **Storage:** When not in use, store the sensor in a clean, dry environment within its specified temperature range to prevent damage.

TROUBLESHOOTING

If you encounter issues with your RTD Pt100 sensor, consider the following troubleshooting steps:

- **No Reading or Incorrect Reading:**
 - Verify all three wires are correctly connected to your measurement device according to its wiring diagram.
 - Check for loose connections at both the sensor terminals and the measurement device.
 - Ensure your measurement device is configured for a Pt100 sensor and the correct three-wire setup.
 - Confirm the measurement device is powered on and functioning correctly.
- **Fluctuating Readings:**
 - Check for electrical interference from nearby equipment. Try to route the sensor cable away from power lines or motors.
 - Ensure the probe is securely placed and not subject to rapid temperature changes or air currents if measuring static temperatures.
- **Physical Damage:**
 - Inspect the probe and cable for any visible damage. A damaged cable or probe can lead to inaccurate readings or sensor failure.

If issues persist after attempting these steps, consult the manual for your specific measurement device or contact the manufacturer for further assistance.

SPECIFICATIONS

Attribute	Detail
Model Name	JB-PT02
Temperature Range	-50°C to 200°C
Element Type	Pt100 (Platinum)
Accuracy Class	A grade
Probe Material	Stainless Steel 304
Probe Size	4mm diameter × 30mm length (0.55" wide x 1.1")
Cable Material	PFA
Cable Length	6.6 feet (approximately 2 meters)
Wiring Configuration	Three-wire

Special Feature	Waterproof
Product Care	Hand Wash Only
Connectivity Technology	Wired

WARRANTY AND SUPPORT

Specific warranty details for the Jaybva RTD Pt100 Temperature Sensor Probe are not provided within this manual. For warranty information, technical support, or further inquiries, please refer to the product packaging or contact Jaybva customer service directly through their official website or the retailer from whom the product was purchased.

Manufacturer: Jaybva

First Available Date: October 8, 2019

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This manual is for informational purposes only. Specifications are subject to change without notice.