Walfront PT100

Walfront PT100 Temperature Sensor Probe User Manual

Model: PT100

1. INTRODUCTION

This manual provides essential information for the proper use, installation, and maintenance of your Walfront PT100 Temperature Sensor Probe. Please read this manual thoroughly before operating the device to ensure safe and efficient performance.

The Walfront PT100 Temperature Sensor Probe is a high-precision platinum resistance thermometer designed for accurate temperature measurement in industrial and electrical applications. It features a robust construction, stable performance, and a wide temperature measurement range.

2. PRODUCT FEATURES

- **High Precision:** Utilizes a PT100 platinum resistor for accurate temperature readings.
- **Wide Temperature Range:** Capable of measuring temperatures from 0℃ to 400℃.
- **Fast Response:** The probe is highly sensitive, allowing for quick temperature sensing.
- **Stable Connection:** Equipped with high-quality terminal connectors for reliable and secure wiring.
- **Durable Construction:** Designed for industrial environments.

3. SPECIFICATIONS

Parameter	Value
Type	PT100 Platinum Resistance Thermocouple
Temperature Range	0℃ to 400℃
Probe Length	50mm (2 inches)
Probe Diameter	5mm (0.2 inches)
Screw Thread Diameter	M8 (8mm / 0.3 inches)

Parameter	Value
Cable Length	3m (Current Model) - Other lengths available (1m, 2m, 4m, 5m)
Connector Type	3-wire terminal connectors
Material	Platinum, Copper
Measurement Accuracy	±1.5%
Mounting Type	Flange Mount
Output Type	Analog
Typical Applications	Industrial, Electrical

Figure 3.1: Key dimensions of the PT100 Temperature Sensor Probe.

4. SETUP AND INSTALLATION

Proper installation is crucial for accurate and reliable temperature measurement. Follow these steps carefully:

1. **Safety First:** Ensure all power to the system where the sensor will be installed is disconnected before beginning installation.

2. **Mounting Location:** Select a mounting location that accurately represents the temperature you wish to measure. The probe tip should be fully immersed in the medium (liquid, gas, etc.) if possible.

3. **Mechanical Installation:** The PT100 probe features an M8 screw thread for secure mounting. Thread the probe into a compatible M8 port or flange. Ensure a snug fit to prevent movement and ensure good thermal contact. Do not overtighten.

4. **Wiring:** The sensor comes with three-wire terminal connectors. Connect these wires to your temperature controller, PLC, or data acquisition system according to the wiring diagram provided by your specific control device. Typically, PT100 sensors use a 3-wire configuration for lead wire compensation, improving accuracy. Refer to the image below for a visual reference of the connectors.
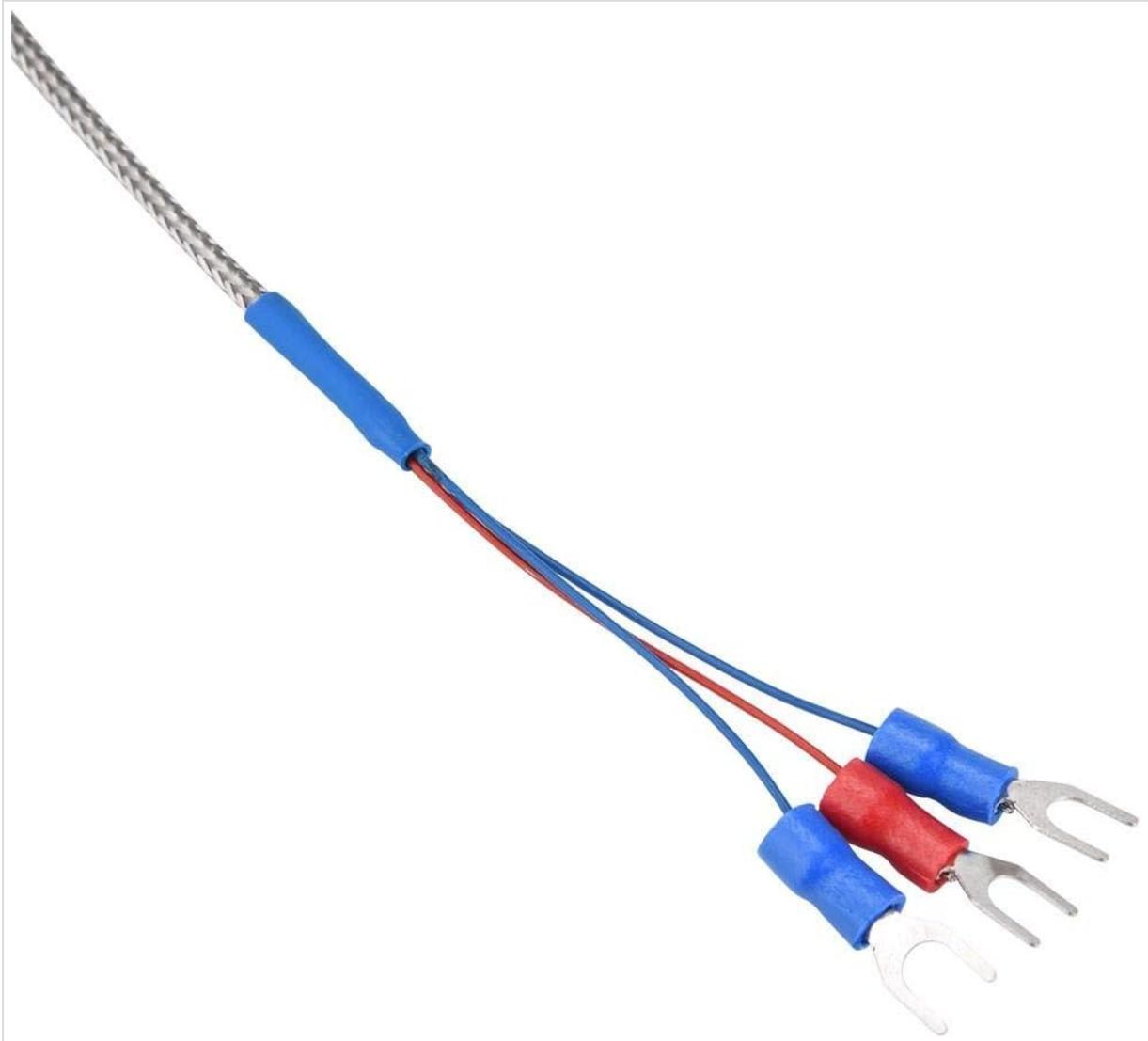

Figure 4.1: Close-up view of the three-wire terminal connectors (red, blue, blue) for the PT100 sensor.

5. **Cable Management:** Route the sensor cable away from sources of electrical noise or extreme heat. Secure the cable to prevent accidental damage or dislodgement.

6. **Verification:** After installation, visually inspect all connections to ensure they are secure and correctly wired.

5. OPERATING INSTRUCTIONS

Once the PT100 temperature sensor probe is correctly installed and wired to a compatible measurement device (e.g., a temperature controller, multimeter with RTD function, or PLC), operation is straightforward:

- **Power On:** Apply power to your measurement device.
- **Read Temperature:** The measurement device will display the temperature detected by the PT100

probe. Ensure your device is configured for PT100 input.

- **Monitoring:** Continuously monitor the temperature as required by your application. The fast response time of the PT100 probe allows for real-time temperature tracking.
- **Temperature Range:** Always operate the sensor within its specified temperature range of 0°C to 400°C to prevent damage and ensure accuracy.

Figure 5.1: The Walfront PT100 Temperature Sensor Probe, ready for operation.

6. MAINTENANCE

The Walfront PT100 Temperature Sensor Probe is designed for durability and requires minimal maintenance. However, periodic checks can help ensure its longevity and continued accuracy:

- **Cleaning:** If the probe tip accumulates dirt or residue from the measured medium, gently clean it with

a soft cloth. Avoid abrasive materials or harsh chemicals that could damage the probe.

- **Cable Inspection:** Periodically inspect the sensor cable for any signs of wear, cuts, or damage. Damaged cables can lead to inaccurate readings or sensor failure.
- **Connection Check:** Ensure that the terminal connections remain secure and free from corrosion. Loose connections can cause intermittent readings.
- **Recalibration (Optional):** For applications requiring extreme precision, periodic recalibration against a known standard may be performed by a qualified technician.

7. TROUBLESHOOTING

If you encounter issues with your PT100 temperature sensor probe, refer to the following common problems and their solutions:

Problem	Possible Cause	Solution
No temperature reading or "Open Circuit" error	Broken wire, loose connection, or faulty sensor.	Check all wiring connections. Inspect the cable for damage. If connections are secure and cable is intact, the sensor may be faulty and require replacement.
Inaccurate or fluctuating readings	Poor thermal contact, electrical noise, incorrect wiring, or sensor contamination.	Ensure the probe tip is properly immersed or in good contact with the measured medium. Check for sources of electrical interference. Verify wiring against your device's diagram. Clean the probe tip if contaminated.
Reading stuck at minimum or maximum value	Sensor operating outside its specified temperature range, or a short circuit/open circuit condition.	Confirm the measured temperature is within 0°C to 400°C. Check for short circuits in the wiring or sensor.

8. WARRANTY AND SUPPORT

For warranty information and technical support, please contact Walfront customer service through their official channels. Keep your purchase receipt as proof of purchase.
For further assistance, you may visit the Walfront Store on Amazon.

Related Documents - PT100

[Delta Pro 2-in-1 Self Tune Universal PID Temperature Controller User Manual](#)
Comprehensive user manual for the PPI Delta Pro 2-in-1 Self Tune Universal PID Temperature Controller. Covers front panel layout, basic operations, parameter settings, installation, mechanical and electrical connections for RTD Pt100 and various thermocouple types.
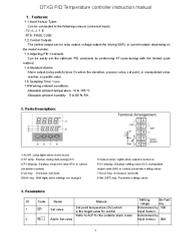
[DTXG PID Temperature Controller: Features, Operation, and Specifications](#)
Comprehensive instruction manual for the DTXG PID Temperature Controller, detailing its features, parts description, parameters, operation, alarm functions, and wiring diagrams for SSR output.

[NOVUS N321 Temperature Controller Operating Manual](#)
Operating manual for the NOVUS N321 temperature controller, detailing specifications, electrical wiring, operation, configuration, and error messages for heating and cooling applications.

[Novus N322 Temperature Controller Operation Manual](#)
This manual provides detailed information on the operation, specifications, and configuration of the Novus N322 temperature controller, suitable for heating and cooling applications with various sensor inputs like Pt100, Pt1000, NTC, and thermocouples (J, K, T). It covers electrical connections, parameter settings, error indications, and warranty information.
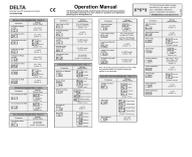
[PPI DELTA Dual Self Tune PID Temperature Controller Operation Manual](#)
This operation manual provides quick reference for wiring connections and parameter searching for the PPI DELTA Dual Self Tune PID Temperature Controller. It covers installation, operator, PID control, and auxiliary function parameters for RTD Pt100 and J/K type thermocouples.

[Novus TxRail-USB Temperature Transmitter User Manual](#)
User manual for the Novus TxRail-USB temperature transmitter, detailing its features, specifications, configuration methods (SigNow, TxConfig II, smartphone app), electrical connections for various sensors (thermocouples, RTDs, mV, NTC), installation guidelines, and operation.