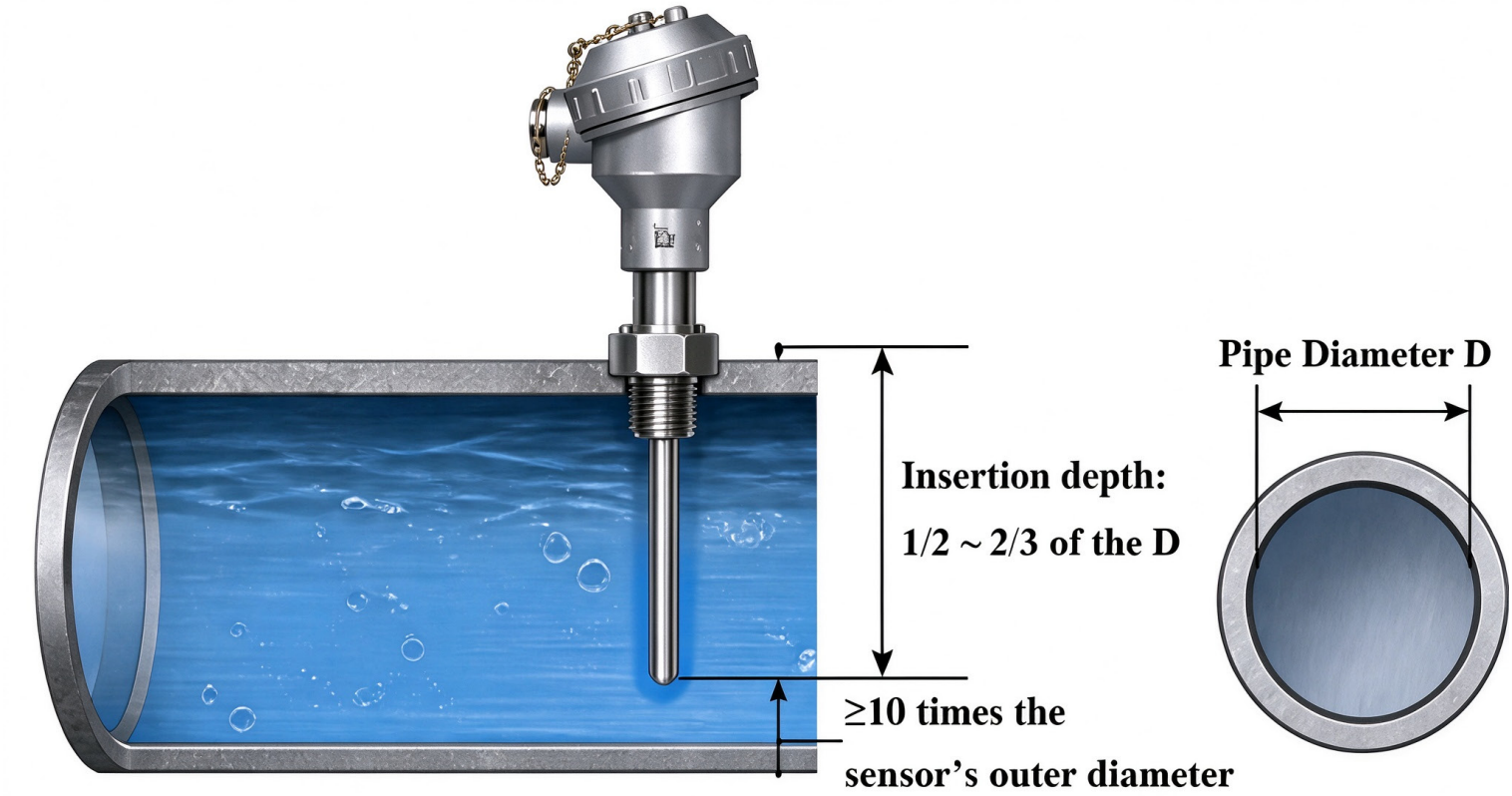
Quick Start Guide

Intended Audience: Field Engineers, Installers, Commissioning Technicians

Prepared by: Anhui Qidian Automation Technology Co., Ltd.

Installation Location and Depth Specifications

1. Ensure sufficient insertion depth and proper positioning. Insertion depth standards: The temperature-sensing element must be in full contact with the medium being measured. When measuring the temperature of a pipe, the recommended insertion depth is 1/2 to 2/3 of the pipe's diameter, or ensure that the tip protrudes at least 10 times the sensor's outer diameter.



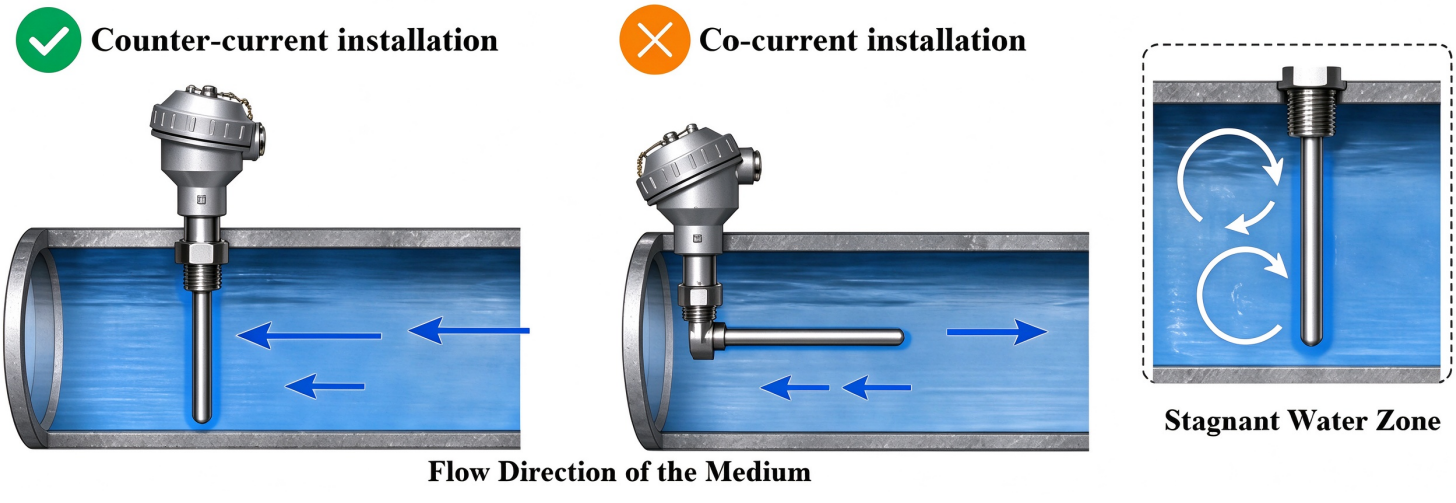
2. Facing the Flow (Avoiding Dead Zones)

Counter-current Installation: When measuring flowing liquids or gases, the sensing tip must face the direction of the medium's flow (counter-current installation) to accurately reflect the temperature. This absolutely prevents inaccurate readings caused by "dead zones."

Correct vs. Incorrect:

Correct: Counter-current installation, with the probe facing the direction of the medium flow.

Incorrect: Downstream installation or placement in a dead zone, resulting in severe temperature distortion.

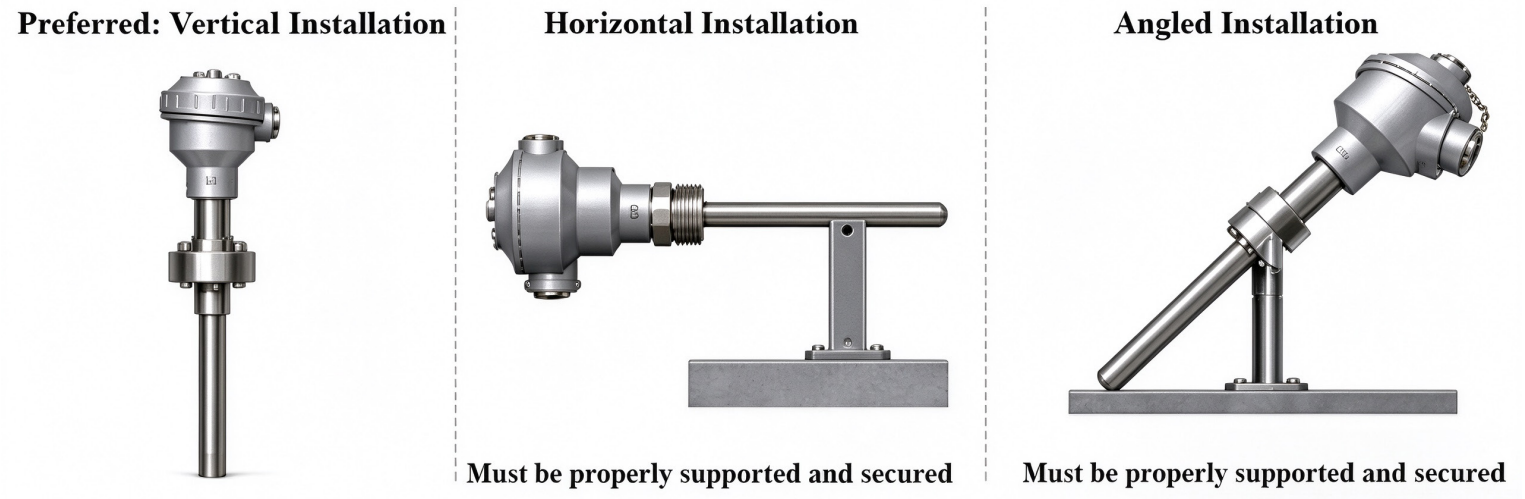


Orientation and Fixed Details

1. Vertical Installation Is Preferred

Prevents Bending and Deformation: Vertical installation prevents the protective conduit from bending or deforming under its own weight at high temperatures .

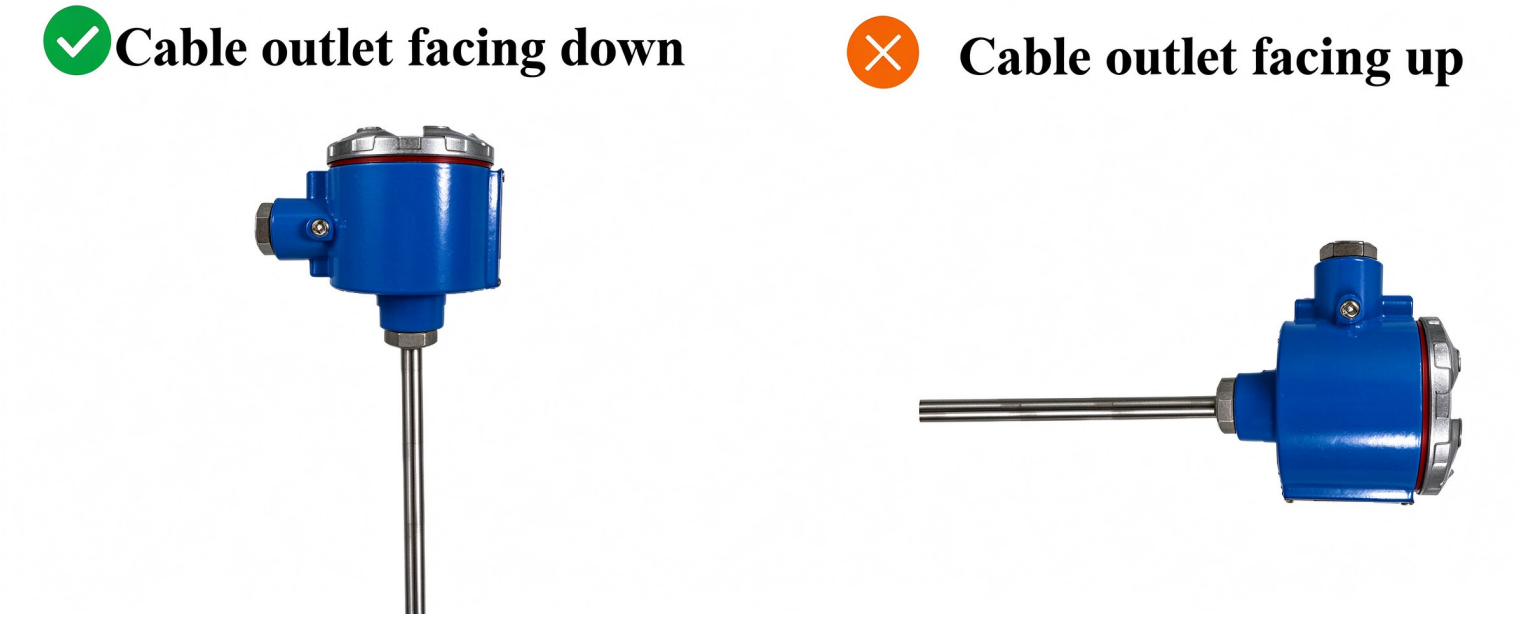
Horizontal or Inclined Installation Requirements: If horizontal or inclined installation is necessary, the conduit must be properly supported and secured to prevent internal circuit breaks caused by vibration.



2. The cable exit hole in the junction box must face downward

Golden rule for water and dust protection: If the cable exit hole faces upward, rainwater or condensation will seep into the junction box along the cable, causing short circuits or reduced insulation. Installing it so that the exit hole faces downward is the most basic principle of water and dust protection.

True/False Comparison:
True: The cable outlet faces downward, allowing the cable to form a natural drip bend.
False: The cable outlet faces upward, allowing water to seep into the junction box along the cable and cause malfunctions.

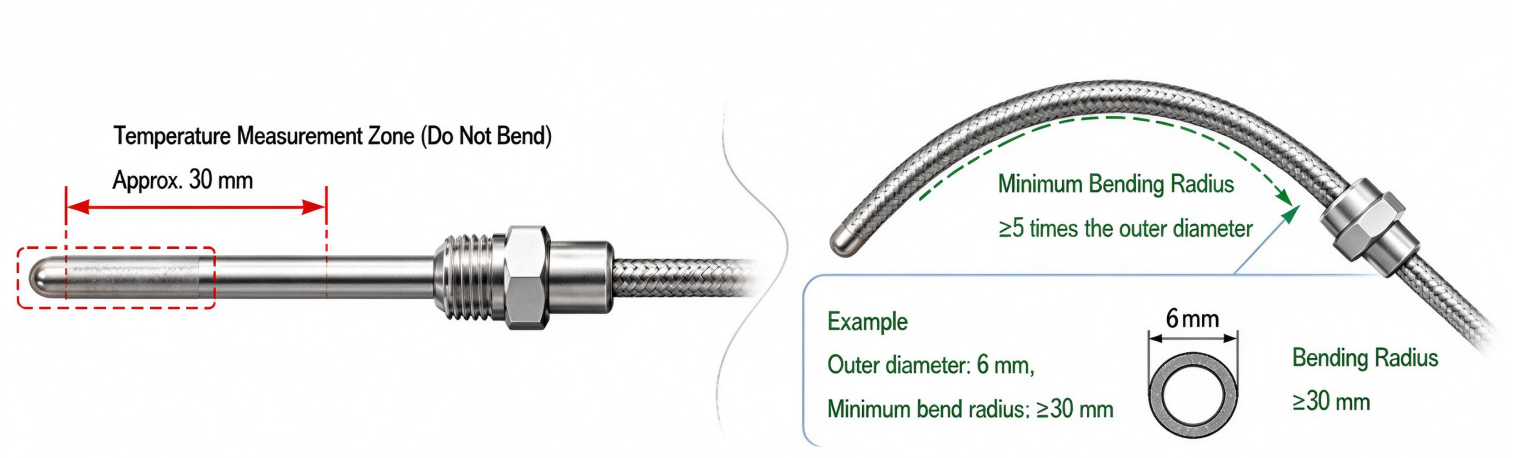


Bending Restrictions and Electrical Wiring

3.Bending Restrictions (Armored Cables Cannot Be Bent Arbitrarily)

Bending is strictly prohibited in the temperature-sensing zone: The area approximately 30 mm from the front end of the armored cable is the core temperature-sensing zone; bending is absolutely prohibited, as it may damage the internal insulation or cause wire breaks.

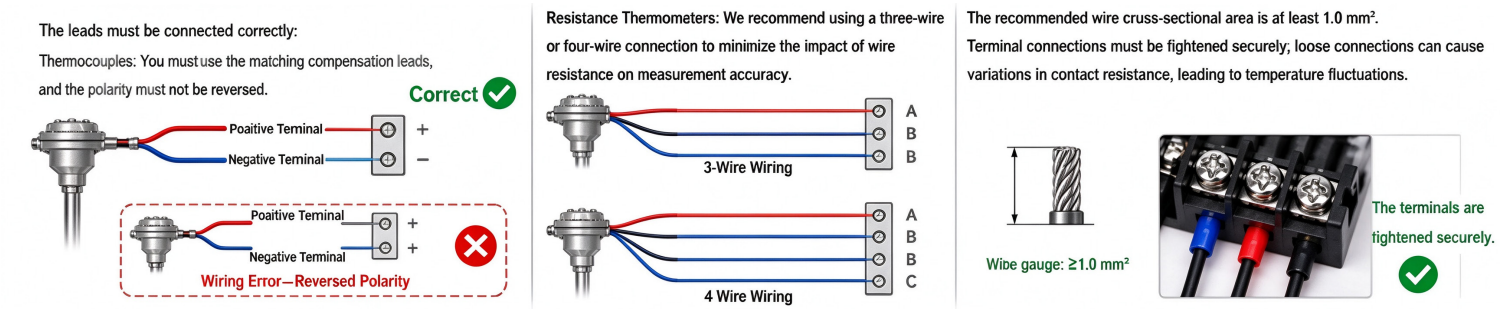
Mandatory Bending Radius Requirements: When bending the entire cable, the minimum bending radius must not be less than 5 times the outer diameter of the armored cable. For example, for an armored cable with an outer diameter of 6 mm, the minimum bending radius must be at least 30 mm.
(Note: Illustrates the 30-mm no-bend zone in the temperature-sensing area and the 5-times-outer-diameter bending radius specification.)



Electrical Wiring (Most signal errors are caused by wiring issues)

Wiring must be correct: Thermocouples: Matching compensation leads must be used, and polarity must not be reversed. Resistance temperature detectors (RTDs): Three-wire or four-wire connections are recommended to minimize the impact of lead resistance on measurement accuracy.

Wire Gauge and Tightness: The cross-sectional area of the wires should be no less than 1.0 mm². Terminal connections must be tightened securely; loose connections can cause variations in contact resistance, resulting in temperature fluctuations.



Quick Reference “Pre- and Post-Installation Checklist”

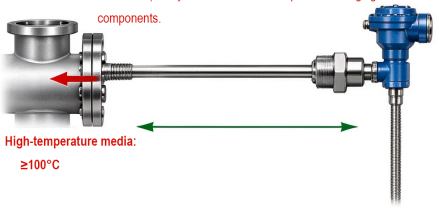
Handling Special Environments:
High-Temperature Environments: When the temperature of the measured medium exceeds 100°C, it is recommended to use a longer armored cable and position the junction box (or transmitter) away from heat sources to prevent the aging of electronic components.

Explosion-Proof Areas: Sensors with an explosion-proof certification (Ex) must be used.
Never open the cover while the power is on; power must be disconnected before performing any operations, and ensure that the external ground terminal is reliably grounded.

Corrosive Media: The material of the protective sheath must be selected appropriately based on operating conditions: 304 stainless steel is typically used, while 316L or Hastelloy should be used in environments with strong acids or alkalis.

High-Temperature Environments:

When the temperature of the measured medium exceeds 100°C, it is recommended to use a longer armored cable and position the junction box (or transmitter) away from heat sources to prevent the aging of electronic components.



High-temperature media:
≥100°C

Explosion-Proof Areas:

Sensors with an explosion-proof certification (Ex) must be used. Opening the cover while the system is energized is strictly prohibited; power must be disconnected before any operation, and the external ground terminal must be reliably grounded.



Operating while energized is strictly prohibited!



External ground terminal. Reliable grounding.

Corrosive Media:

The material of the protective sheath must be selected appropriately based on operating conditions: 304 stainless steel is typically used, while 316L or Hastelloy is recommended for environments with strong acids or alkalis.



304 Stainless Steel
(Standard Media)



316L Stainless Steel
(Strong Acids and Bases)



Hastelloy
(Highly Corrosive Media)

Quick Reference Checklist for Pre- and Post-Installation “Self-Checks”

Stage	Inspection Items	Standard Requirements
Before Installation	Verify that the model, measurement range, and material are suitable for the operating conditions	Verify that the certificate of conformity matches the design parameters.
During Installation	Verify that the insertion depth meets specifications	1/2 to 2/3 of the pipe diameter.
During Installation	Check for any bends in the temperature-sensing zone	Keep the first 30 mm straight.
During Installation	Verify that the wiring polarity and configuration are correct	Do not reverse the polarity of the three-wire system or compensation leads.
After Installation	Verify that the output signal is normal	After powering on and preheating, compare the measured temperature.
After Installation	Verify that the explosion-proof grounding has been completed	External ground resistance ≤ 4 Ω.