

Parallel connection of temperature sensing cable terminal boxes



Summary of Content

Temperature sensing devices like RTDs generally should not be connected in parallel to multiple inputs, while thermocouples can be connected in parallel under specific conditions with proper precautions.

RTDs (Resistance Temperature Detectors)

RTDs measure temperature by resistance, and connecting a single RTD element to multiple input modules in parallel is not recommended. When connected in parallel, each input draws current through the sensor, which can alter the measured voltage or resistance, leading to inaccurate temperature readings. Self-heating of the RTD due to multiple excitation currents can further distort measurements. To achieve multiple readings from a single RTD, consider:

- Dual-element RTDs: These have two sensing elements in the same thermowell, allowing independent connections to separate devices without interference.
- Signal splitters or retransmitters: A temperature transmitter can provide two isolated outputs from a single RTD input, ensuring accurate readings and avoiding ground loop issues .

Thermocouples

Thermocouples generate a small voltage proportional to temperature. Parallel connections are feasible if certain conditions are met:

- Measurement devices must have high input impedance to minimize loading effects.

Article Content

Pt100 Temperature Sensor in 2-Wire, 3-Wire or 4-Wire Connection

The connection between evaluation unit and thermometer is made by a 2 conductor cable. Like any other electrical conductor, such

Serial Port Temperature Sensors

This page describes how to configure and use multiple temperature sensors using a single serial port interface circuit.

Temperature Transmitter Wiring | Types, Diagrams, and Best Practices

Learn how to wire temperature transmitters including RTDs and thermocouples. Explore 2-wire, 3-wire, and 4-wire

Detailed explanation of NTC Temperature Sensor Wiring Methods

Connect the two main pins of the NTC sensor to the power supply's positive and negative terminals or the

Making Parallel Thermocouple Measurements

It is often used to directly access temperature data taken from the thermocouple to control the process. The two thermocouple wires

Wiring of NTC Thermistor Temperature Sensor

The parallel connection method is to connect the NTC thermistor in parallel with other resistor devices to form a

Wiring method for temperature sensing cable terminal box

Discover how to master the temperature transmitter connection to avoid downtime and ensure precise readings. Learn how to wire

Making Parallel Thermocouple Measurements

The question comes up often, "Can I connect a thermocouple to your data acquisition system and a secondary device (i.e. additional

Series-parallel wiring

Make all wiring connections in accordance with local, national, and regional regulations. Do not exceed the TE-6300P

How to Wire a Thermocouple | Step-by-Step Installation Guide

Learn how to wire a thermocouple correctly for accurate temperature readings. Follow CEL's expert guide for proper

Contact Us

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