ControlsCalc

RTD / PT100 Field Reference Sheet

Quick reference for resistance-based temperature measurement.

PT100 Reference Points

Temperature	Approx. PT100 Resistance*
0 °C	100.00 Ω
20 °C	107.79 Ω
50 °C	119.40 Ω
100 °C	138.51 Ω
150 °C	157.33 Ω

RTD Basics

PT100 means a platinum RTD with nominal resistance of 100 Ω at 0 °C.

Resistance increases with temperature over the normal positive-temperature range.

IEC 60751 defines the standard platinum RTD characteristic; exact resistance should be calculated from the applicable curve rather than assuming a constant resistance-per-degree over a wide range.

Wiring Effects

• 2-wire: lead resistance is included in the measured resistance and can create temperature error.

• 3-wire: commonly used to compensate lead resistance when the wiring is balanced.

• 4-wire: provides the highest measurement accuracy because lead resistance can be separated from the sensor measurement.

Field Checks

1. Confirm sensor type and configured curve.

2. Check wiring and terminal condition.

3. Measure resistance with the sensor isolated as required by site procedure.

4. Compare measured resistance with the expected value for the measured temperature.

5. Check for excessive lead resistance, intermittent connections, or sensor damage.

6. Verify the controller/input is configured for PT100 and the correct wiring method.

Note

*Values shown are reference values for a standard PT100 curve and are not a substitute for the exact sensor specification or calibration requirements.