

Resistance Temperature Detector (RTD) Pt100

Temperature sensor contains a platinum resistance thermometer that changes resistance value as its temperature changes and provides accurate and reliable long-term temperature measurements



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Overview



APPLICATIONS

For monitoring temperature in:

Concrete

Soil

Rock

FEATURES

Complies to class A BS EN/IEC 60751:2008

IP68 (10 bar)

Fast Response

High accuracy

Excellent long-term stability

Operating range -20 to +80 °C

The Geosense® Pt100 temperature sensor contains a platinum resistance thermometer that changes resistance value as its temperature changes and provides accurate and reliable long-term temperature measurements. These sensors are often used in the extremely harsh environments found within Geotechnical monitoring.

The platinum element is housed inside a rugged enclosure and sealed with a special sealing material to ensure efficient thermal distribution and has IP68 waterproofing.

The principle of operation is to measure the resistance of a platinum element and in accordance with EN/IEC 60751:2022.

The basic values for Pt 100 temperature sensors can be calculated using the following formula:

For range 0°C to +600°C use: $R_t = R_0 (1 + At + Bt^2)$

For range -200°C to 0°C use: $R_t = R_0 (1 + At + Bt^2 + Ct^3 (t - 100))$

Where: R_t = resistance in Ohms at temperature t
 R_0 = 100 ohms at 0°C

$A = 3.9083 \times 10^{-3}$

$B = -5.775 \times 10^{-7}$ t = temperature in °C

$C = -4.183 \times 10^{-12}$



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Specifications

GENERAL

Temperature range	-20 to +80 °C
Temperature coefficient of resistance (TCR) ¹	0.00385 O/O/°C, 0 - 100°C
Accuracy ²	±0.15°C at 0°C, ±0.35°C at 100°C
Resolution	0.1 °C
Housing	Stainless steel
Housing diameter (mm)	16
Housing length (mm)	65
Cable diameter (mm)	5
Cable construction	2 pair x AWG 24 with shield
Cable sheath	PUR
Cable	Type 900 - VW Sensor with Foil Screen & Drain Wire

ORDERING INFORMATION

Model
Cable length
Readout and datalogger

¹ In accordance with BS EN/IEC 60751:2008

² Accuracies quoted are for the element and may not be the actual accuracy of the completed assembly.



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