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





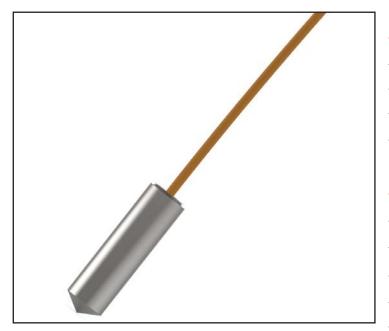




Resistance Temperature Detector (RTD) Pt100

Overview





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: Rt = R0 (1 + At + Bt2)

For range -200° C to 0° C use: Rt = R0 (1 + At + Bt2 + Ct3 (t -100))

Where: Rt = resistance in Ohms at temperature t R0 = 100 ohms at $0^{\circ}C$

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

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

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

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



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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 ℃
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.





Geosense Ltd, Nova House, Rougham Industrial Estate, Rougham, Bury St Edmunds, Suffolk IP30 9ND, England

www.geosense.co.uk e sales@geosense.co.uk t +44(0)1359 270457

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