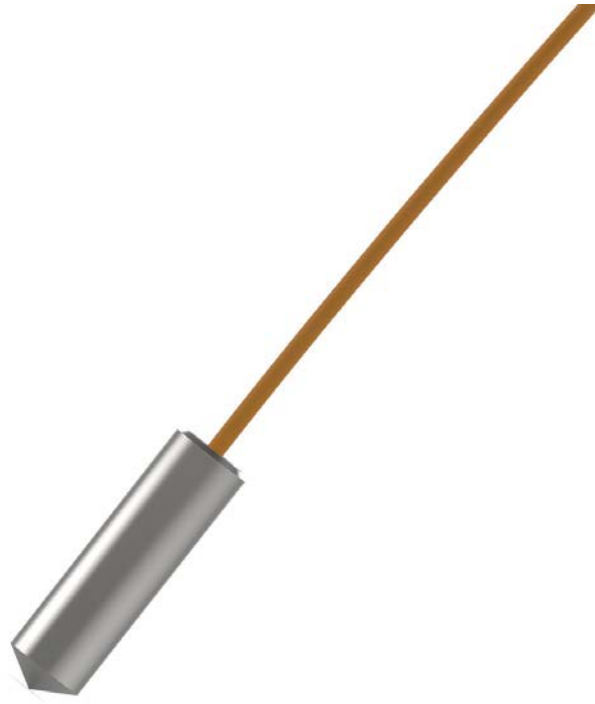


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## Resistance Temperature Detector (RTD) Pr100

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



### 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 BS EN/IEC 60751:2008.

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

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



# Resistance Temperature Detector (RTD) Pt100

## Specifications

### GENERAL

Model	PT100-1	PT100-2
Temperature range	-20 to +80 °C	-20 to +80 °C*
Temperature coefficient of resistance (TCR) <sup>1</sup>	0.00385 O/O/°C, 0 - 100°C	0.00385 O/O/°C, 0 - 100°C
Accuracy <sup>2</sup>	±0.15°C at 0°C, ±0.35°C at 100°C	±0.15°C at 0°C, ±0.35°C at 100°C
Resolution	0.1 °C	0.1 °C
Housing	PVC	Stainless steel
Housing diameter (mm)	16	16
Housing length (mm)	65	65
Cable diameter (mm)	5	5
Cable construction	2 pair x AWG 24 with shield	2 pair x AWG 24 with shield
Cable sheath	PUR	PUR
Cable	Type 900 - VW Sensor with Foil Screen & Drain Wire	

### ORDERING INFORMATION

Model

Cable length

Readout and datalogger

<sup>1</sup> In accordance with BS EN/IEC 60751:2008

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