



PT RECTANGULAR MOTOR TEMPERATURE SENSOR

- Shrink Tube Encapsulation
- Fluoroplastics Insulated Wire
- Wide Temperature Design

Product Description

The temperature sensor is designed to monitor the temperature of the electric motor system. The PT sensing element is sealed and protected by fluoroplastics material. The design provides a rectangular shape and smaller size, making the assembly well suited to motor stator system, industrial system or other temperature monitoring system. The sensor design to fulfill reliability requirements, including high and low temperature storage, temperature cycling, temperature /humidity cycling and ATF(Automatic Transmission Fluid) oil proof testing.

Features

- PT
- Temperature range: -40°C ~+200°C
- Insulation resistance: $\geq 100\text{Mohm}$
- High-pot strength: 3000VAC
- Rectangular body
- ATF oil proof

Applications

- Motors
- Generators
- BESS(Battery Energy Storage System)
- BMS(Battery Management System)
- ECC(Electrical Control Cabinet)
- Air conditioning systems
- White Goods

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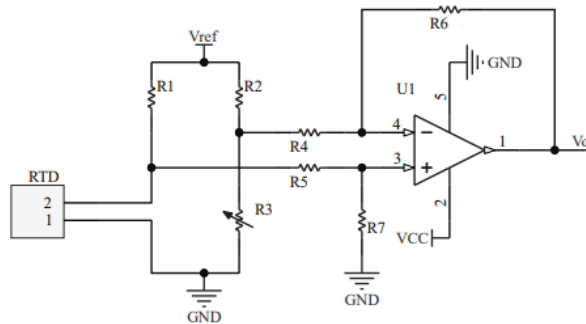
Sensor specifications

<i>Sensor Dimension</i>	3.4*1.9*19.5 mm
<i>Temperature Coefficient of Resistance</i>	3850 ppm/°C
<i>Temperature Range</i>	-40°C~+200°C
<i>Operating Current</i>	PT100: 0.3~1.0mA
	PT1000: 0.1~0.3mA
<i>Response time</i>	T ₅₀ (25/35)<4s(Water)
<i>Insulation Resistance</i>	≥100MΩ, @1000 VDC, Room temperature
<i>Dielectric Strength</i>	3000VAC, 1mA Max, Room temperature

Reliability

<i>Item</i>	<i>Condition</i>	<i>Criteria</i>
<i>Thermal Cycling</i>	-55°C to +125°C, 1000cycles	<i>Drift ≤Tolerance IEC60751</i>
<i>Thermal Shock</i>	-40°C to +150°C, 100cycles	<i>Drift ≤Tolerance IEC60751</i>
<i>Temperature and Humidity Test</i>	85RH/85°C 1000H	<i>Drift ≤Tolerance IEC60751</i>
<i>High Temperature Storage</i>	200°C 1000H	<i>Drift ≤Tolerance IEC60751</i>
<i>Low Temperature Storage</i>	-40°C 1000H	<i>Drift ≤Tolerance IEC60751</i>
<i>Water Immersion</i>	85°C 1000H	<i>Drift ≤Tolerance IEC60751</i>
<i>ATF Oil Proof</i>	-40°C 500H & +150°C 500H	<i>Drift ≤Tolerance IEC60751</i>
<i>Insulating Paint Resistant</i>	145°C ±5°C, 6H	<i>Drift ≤Tolerance IEC60751</i>
<i>Mechincal shock</i>	Half-sine. Peak value : 100g's ; Duartion : 6ms ; velocity12.3ft/s	<i>Drift ≤Tolerance IEC60751</i>
<i>Vibration test</i>	5g's for 20min 12cycles of 3 orientations test from 10HZ~2000HZ	<i>Drift ≤Tolerance IEC60751</i>

Circuit Suggestion



Calculation Formulas

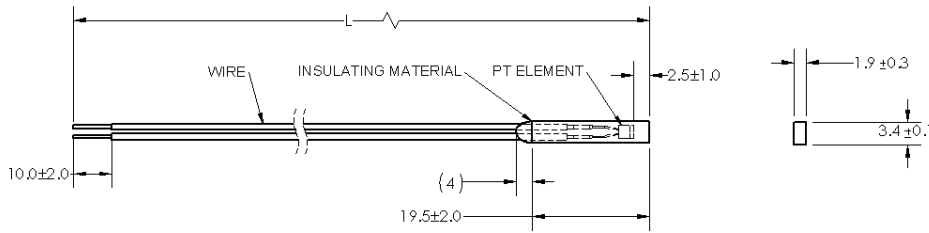
The calculation formulas of these Pt-RTD according to DIN EN 60751:

Condition	Formulas
For $T \geq 0^{\circ}\text{C}$	$R(t) = R(0) * (1+At+Bt^2)$
For $T < 0^{\circ}\text{C}$	$R(t) = R(0) * [1+At+Bt^2+C(t-100)t^3]$
Coefficients	$A = 3.9083\text{E-}03, B = -5.775\text{E-}07, C = -4.183\text{E-}12$

Tolerances: class F0.15 (A): $\pm (0.15+0.002*|T/^{\circ}\text{C}|)$ $^{\circ}\text{C}$

Tolerances: class F0.3 (B): $\pm (0.3+0.005*|T/^{\circ}\text{C}|)$ $^{\circ}\text{C}$

Diagrams and Dimensions



Customize parameter

Model Sensor	Resistance [Ω] @ +0 $^{\circ}\text{C}$	Tolerance
1	100	class F0.15 (A)
2	100	class F0.3 (B)
3	1,000	class F0.15 (A)
4	1,000	class F0.3 (B)

Ordering Information

Total Length	Wire color	Wire size option
Define 'L' Length in mm(Example: 550 = 550 mm)	Transparency	22AWG or 26AWG

Description	Length	Wire size	Stocked Part Number
PT1000 Rectangular temperature sensor / Class B	550	26AWG	20031092-00
PT1000 Rectangular temperature sensor / Class B	550	26AWG	20029370-00 (Except Auto Application)

Recommended Storage Conditions

The recommended storage conditions.

Parameter	Symbol	Min	Typical	Max	Units
Storage Temperature Range	T _{store}	-20	+25	+85	°C

Installation Tips

- For the sensor assembly to accurately track temperature, it should be installed as deep as possible into a hole or holder to let the sensor head as closer as measurement point.
- Don't grip the sensor head with high pressure.

Compliance

- RoHS and REACH Compliance

Change History

Date	Version	Change Description
2024-08-30	A	Initial Release
2025-03-12	A1	Add Stocked Part Number

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