



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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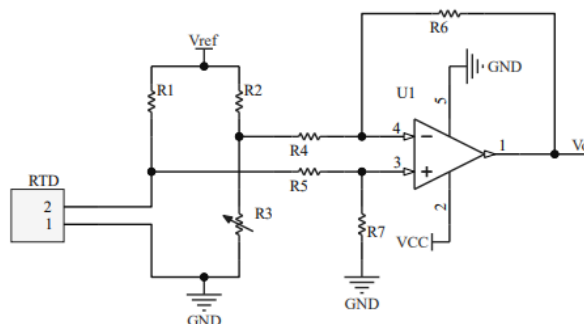
Sensor specifications

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

Reliability

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

Circuit Suggestion



Calculation Formulas

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

Condition

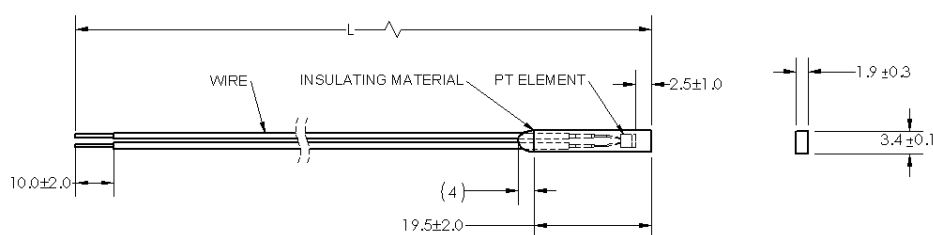
Formulas

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

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
2025-04-24	A2	Update Stocked Part Number information

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NORTH AMERICA
Tel +1 800 522 6752

EUROPE
Tel +31 73 624 6999

ASIA
Tel +86 0400 820 6015

te.com/sensors

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