Nickel Thin Film Temperature Sensor

Nickel thin film elements are characterized by a relatively high temperature coefficient. Typical applications include bearing temperature monitoring, HVAC temperature monitoring, and stator winding temperature monitoring.

<table>
<thead>
<tr>
<th>Nominal Resistance $R_0$</th>
<th>Accuracy</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>120 ohms at 0 °C</td>
<td>2 X DIN 43760</td>
<td>100 485-4</td>
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</tbody>
</table>

**Specification**

- **ANSI**
- **Temperature Range** -60 °C to +250 °C
- **Temperature Coefficient** 6720ppm/K
- **Lead wire material** Nickel
- **Protective coating** high-temperature epoxy
- **Self-heating** 0.3K/mW in air
- **Response time**
  - Water ($v = 0.2$ m/sec.) $t_{0.9} = 0.3$ sec.
  - Air ($v = 1$ m/sec.) $t_{0.9} = 9$ sec.
- **Operating Current, Maximum** 5 mA

**Polynomial of the resistive characteristic:**

$$R(\vartheta) = R_0 \times (1 + 5.88 \times 10^{-3} \times \vartheta + 7.872 \times 10^{-6} \times \vartheta^2 + 4.71 \times 10^{-9} \times \vartheta^3)$$

**Maximum permissible tolerance as a function of temperature (accuracy defined as 2 x DIN 43760):**

- $\vartheta < 0°C$: $F = \pm (0.8 + 0.056 \times \vartheta) °C$
- $\vartheta > 0°C$: $F = \pm (0.8 + 0.014 \times \vartheta) °C$

*At temperatures above 180 Deg. C. tensile loads on connection wires must be avoided for proper function*

All technical data serves as a guideline and does not guarantee any particular properties to the product.

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