

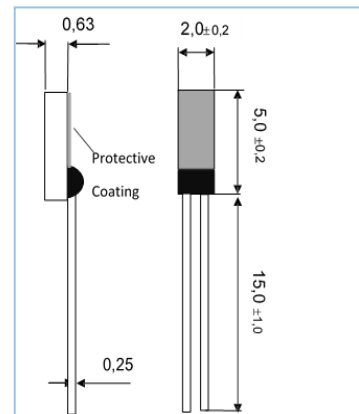
# Nickel Thin Film Temperature Sensor

## Temperature range -60 °C to +200 °C

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.

Nominal Resistance $R_0$	Tolerance	Order number
1000 Ohms @ 0 °C	As per DIN 43760	100 489

<b>Specification</b>	DIN 43760
<b>Temperature Range</b>	-60 °C to +200 °C
<b>Temperature Coefficient</b>	6180 ppm/K
<b>Lead wire material</b>	Nickel
<b>Protective coating</b>	high-temperature epoxy
<b>Self-heating</b>	0,3K/mW in air
<b>Response time</b>	Water ( $v = 0,2\text{m/sec.}$ ) $t_{0,9} = 0,3 \text{ sec.}$ Air ( $v = 1\text{m/sec.}$ ) $t_{0,9} = 9 \text{ sec.}$
<b>Operating Current, Maximum</b>	5 mA



### Polynomial of a nickel resistor in accordance with DIN 43760:

$$R(\vartheta) = R_0 \times (1 + 5,481 \times 10^{-3} \times \vartheta + 6,650 \times 10^{-6} \times \vartheta^2 + 2,805 \times 10^{-11} \times \vartheta^4 + 2,000 \times 10^{-17} \times \vartheta^6)$$

### Maximum permissible tolerance as a function of temperature (DIN 43760):

$$\vartheta < 0^\circ\text{C}: F = \pm (0,4 + 0,028 \times \vartheta) \text{ } ^\circ\text{C}$$

$$\vartheta > 0^\circ\text{C}: F = \pm (0,4 + 0,007 \times \vartheta) \text{ } ^\circ\text{C}$$

### California Proposition 65

**WARNING:** This product can expose you to chemicals including lead oxide, which is known to the State of California to cause cancer and birth defects or other reproductive harm, and including cobalt oxide, nickel and cobalt, which are known to the State of California to cause cancer. For more information go to [www.p65warnings.ca.gov](http://www.p65warnings.ca.gov).



The information provided in this data sheet describes certain technical characteristics of the product, but shall not be qualified or construed as quality guarantees whatsoever. Furthermore, the information provided in this data sheet does not constitute a warranty, implied or express, whatsoever, including but not limited to warranties of merchantability, fitness for a particular purpose, or use.

The information provided in this data sheet regarding measurement values (including, but not limited to, response time, long-term stability, vibration and shock resistance, insulation resistance and self-heating) are average values that have been obtained under laboratory conditions in tests of large numbers of the product. Product results or measurements achieved by customer or any other person in any production, test, or other environment may vary depending on the specific conditions of use.

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