

# Data sheet

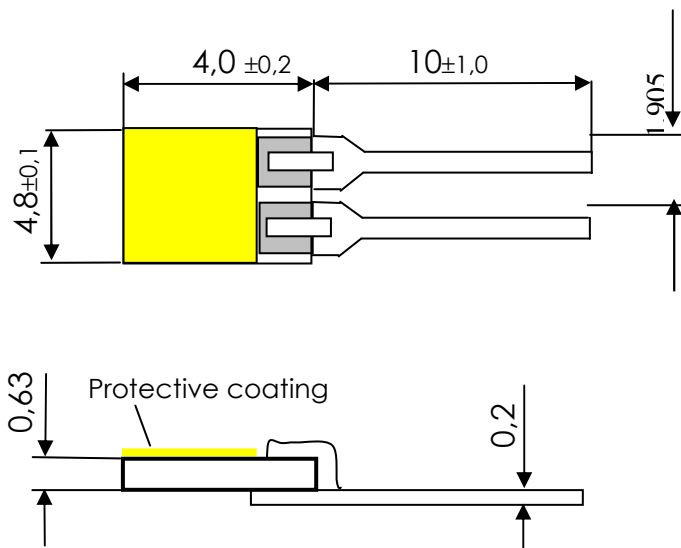
## Nickel Thin Film Temperature Sensor

**Ni 500 DIN 43760**  
**Part number: 100 069**

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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.

Dimensions in mm



Nominal resistance $R_0$	500 ohm
Characteristic	DIN 43760
Temperature Coefficient $0^\circ\text{C}/100^\circ\text{C}$	6180 ppm/K
Tolerance	DIN 43760
Operation temperature range	$-60^\circ\text{C}$ bis $200^\circ\text{C}$
Self heating in air	0,3 K/mW
Thermal response time $t_{0,9}$ (water 0,2 m/sec)	0,3 sec
Thermal response time $t_{0,9}$ (air 1 m/sec)	9 sec
Operating current max.	5 mA
Connector pin material	Phosphor bronze, preplated Tin/Ag finish
Protective coating	high-temperature epoxy

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)

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

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

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