



# 200 °C Series

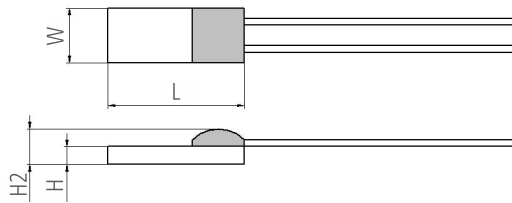
## Nickel sensor with wires

### For medium temperatures

#### Benefits & Characteristics

- Excellent long-term stability
- Connections remain in shape
- Easy interchangeability
- Small dimensions
- Simple linearization
- Vibration and temperature shock resistant
- Customer-specific sensor available upon request

#### Illustration<sup>1)</sup>



1) For actual size, see dimensions

#### Technical Data

Operating temperature range:	-60 °C to +200 °C	
Nominal resistance: *	100 Ω at 0 °C 500 Ω at 0 °C 1000 Ω at 0 °C	
Characteristics curve: *	6180 ppm/K (Nickel ND) 5000 ppm/K (Nickel NL) 6370 ppm/K (Nickel NJ)** 6720 ppm/K (Nickel NA)***	
Long-term stability:	< 0.1 % at 1000 h at maximal operating temperature	
Tolerance class (dependent on temperature) <sup>1):*</sup>	IST AG reference	T > 0 °C
<small>1) For tolerances &lt;0°C please check application note</small>	A	0.2 + 0.0035 x  t
	B	0.4 + 0.007 x  t
	C	0.8 + 0.014 x  t
Connection: *	Ag-wire, Ø 0.25 mm (solderable, weldable) Cu/Ag-wire, PTFE AWG30 (solderable, weldable) Cu/Ag-wire, PTFE AWG26 (solderable, weldable) Cu/Ag-wire, Ø 0.4 mm (solderable, weldable) Ni/Au-flat wire, 0.2 x 0.4 mm (solderable, weldable, crimpable) CuP-SIL wire post-plated with Sn (solderable, crimpable)	
Alternative wire construction: *	Inverted welding	



Recommended applied current:<sup>2)</sup>

*2) Self-heating must be considered*

1 mA at 100 Ω

0.5 mA at 500 Ω

0.3 mA at 1000 Ω

Other alternatives:\*

Metallized backside

Substrate thickness

Sintered powder

\* [Customer-specific alternatives available](#)

\*\* 6370 ppm/K (Nickel NJ) 891 Ω at 0 °C only

\*\*\* 6720 ppm/K (Nickel NA) 120 Ω at 0 °C only

## Order Information - 2W (Ag-wire, Ø 0.25 mm)

Size	Dimensions (L x W x H / H2 in mm)	Class A	Class B
6180 ppm/K (Nickel ND)			
Nominal resistance: 100 Ω at 0 °C			
232	2.3 x 2.0 x 0.65 / 1.3	ND0K1.232.2W.A.010	ND0K1.232.2W.B.010
Order code		020.00004	020.00002
232	2.3 x 2.0 x 0.65 / 1.3	ND0K1.232.2W.A.015	ND0K1.232.2W.B.015
Order code		020.00003	020.00001
325	3.0 x 2.5 x 0.65 / 1.3	ND0K1.325.2W.A.010	ND0K1.325.2W.B.010
Order code		020.00011	020.00009
505	5.0 x 5.0 x 0.65 / 1.3	Upon request	ND0K1.505.2W.B.010
Order code			020.00529
Nominal resistance: 200 Ω at 0 °C			
520	5.0 x 2.0 x 0.65 / 1.3	Upon request	ND0K2.520.2W.B.015
Order code			020.00031
Nominal resistance: 300 Ω at 0 °C			
520	5.0 x 2.0 x 0.65 / 1.3	Upon request	ND0K3.520.2W.B.015
Order code			020.00357
Nominal resistance: 500 Ω at 0 °C			
520	5.0 x 2.0 x 0.65 / 1.3	Upon request	ND0K5.520.2W.B.010
Order code			020.00044
520	5.0 x 2.0 x 0.65 / 1.3	ND0K5.520.2W.A.015	ND0K5.520.2W.B.015
Order code		020.00683	020.00682
Nominal resistance: 1000 Ω at 0 °C			
232	2.3 x 2.0 x 0.65 / 1.3	ND1K0.232.2W.A.015	ND1K0.232.2W.B.010
Order code		020.00050	020.00049



Size	Dimensions (L x W x H / H2 in mm)	Class A	Class B
520	5.0 x 2.0 x 0.65 / 1.3	ND1K0.520.2W.A.010	ND1K0.520.2W.B.010
Order code		020.00062	020.00060
538	5.0 x 3.8 x 0.65 / 1.3	Upon request	ND1K0.538.2W.B.015
Order code			020.00083
102	10.0 x 2.0 x 0.65 / 1.3	Upon request	ND1K0.102.2W.B.015
Order code			020.00090
Nominal resistance: 5000 Ω at 0 °C			
525	5.0 x 2.5 x 0.65 / 1.3	Upon request	ND5K0.525.2W.B.010
Order code			020.00098

5000 ppm/K (Nickel NL)

Nominal resistance: 1000 Ω at 0 °C

520	5.0 x 2.0 x 0.65 / 1.3	NL1K0.520.2W.A.010	NL1K0.520.2W.B.010
Order code		020.00110	020.00108
525	5.0 x 2.5 x 0.65 / 1.3	Upon request	NL1K0.525.2W.B.010
Order code			020.00117

Nominal resistance: 10000 Ω at 0 °C

525	5.0 x 2.5 x 0.65 / 1.3	Upon request	NL10K.525.2W.B.010
Order code			020.00128

### Order Information - 2I (Cu/Ag-wire, AWG 30, PTFE-insulated)

Size	Dimensions (L x W x H / H2 in mm)	Class A	Class B
6180 ppm/K (Nickel ND)			
Nominal resistance: 100 Ω at 0 °C			
325	3.0 x 2.5 x 0.65 / 1.3	Upon request	ND0K1.325.2I.B.030
Order code			020.00014
Nickel NL (5000ppm/K)			
Nominal resistance: 1000 Ω at 0 °C			
520	5.0 x 2.0 x 0.65 / 1.3	Upon request	NL1K0.520.2I.B.050
Order code			020.00629
520	5.0 x 2.0 x 0.65 / 1.3	Upon request	NL1K0.520.2I.B.100
Order code			020.00627



### Order Information - 2K (Cu/Ag-wire, AWG 26)

Size	Dimensions (L x W x H / H2 in mm)	Class A	Class B
6180 ppm/K (Nickel ND)			
Nominal resistance: 1000 Ω at 0 °C			
520	5.0 x 2.0 x 0.65 / 1.3	Upon request	ND1K0.520.2K.B.058
Order code			020.00071
538	5.0 x 3.8 x 0.65 / 1.3	Upon request	ND1K0.538.2K.B.026
Order code			020.00619
5000 ppm/K (Nickel NL)			
Nominal resistance: 1000 Ω at 0 °C			
520	5.0 x 2.0 x 0.65 / 1.3	Upon request	NL1K0.520.2K.B.165
Order code			020.00605
520	5.0 x 2.0 x 0.65 / 1.3	Upon request	NL1K0.520.2K.B.215
Order code			020.00606

### Order Information - 2K (Cu/Ag-wire, Ø 0.4 mm)

Size	Dimensions (L x W x H / H2 in mm)	Class A	Class B
6180 ppm/K (Nickel ND)			
Nominal resistance: 1000 Ω at 0 °C			
520	5.0 x 2.0 x 0.65 / 1.3	Upon request	ND1K0.520.2K.B.007
Order code			020.00322
538	5.0 x 3.8 x 0.65 / 1.3	ND1K0.538.2K.A.010	ND1K0.538.2K.B.010
Order code		020.00639	020.00635
5000 ppm/K (Nickel NL)			
Nominal resistance: 1000 Ω at 0 °C			
520	5.0 x 2.0 x 0.65 / 1.3	Upon request	NL1K0.520.2K.B.007
Order code			020.00201
520	5.0 x 2.0 x 0.65 / 1.3	Upon request	NL1K0.520.2K.B.020
Order code			020.00197



### Order Information - 2FW (Ni/Au-flat wire, 0.2 x 0.4 mm (HxW))

Size	Dimensions (L x W x H / H2 in mm)	Class A	Class B
6180 ppm/K (Nickel ND)			
Nominal resistance: 1000 $\Omega$ at 0 °C			
520	5.0 x 2.0 x 0.65 / 1.3	ND1K0.520.2FW.A.007	ND1K0.520.2FW.B.007
Order code		020.00349	020.00348
325	3.0 x 2.5 x 0.65 / 1.3	Upon request	ND0K1.325.2I.B.030
Order code			020.00014

5000 ppm/K (Nickel NL)

Nominal resistance: 1000 $\Omega$ at 0 °C			
520	5.0 x 2.0 x 0.65 / 1.3	NL1K0.520.2FW.A.007	NL1K0.520.2FW.B.007
Order code		020.00351	020.00350

### Order Information - 2S (CuP-SIL wire post-plated with Sn, 10 mm)

Size	Dimensions (L x W x H / H2 in mm)	Class A	Class B
6180 ppm/K (Nickel ND)			
Nominal resistance: 100 $\Omega$ at 0 °C			
505	5.0 x 5.0 x 0.65 / 1.3	Upon request	ND0K1.505.2S.B
Order code			020.00027
538	5.0 x 3.8 x 0.65 / 1.3	Upon request	ND0K1.538.2S.B
Order code			020.00024
Nominal resistance: 200 $\Omega$ at 0 °C			
538	5.0 x 3.8 x 0.65 / 1.3	Upon request	ND0K2.538.2S.B
Order code			020.00034
Nominal resistance: 1000 $\Omega$ at 0 °C			
525	5.0 x 2.5 x 0.65 / 1.3	ND1K0.525.2S.A	ND1K0.525.2S.B
Order code		020.00078	020.00077
538	5.0 x 3.8 x 0.65 / 1.3	ND1K0.538.2S.A	ND1K0.538.2S.B
Order code		020.00085	020.00084
Nominal resistance: 5000 $\Omega$ at 0 °C			
525	5.0 x 2.5 x 0.65 / 1.3	ND5K0.525.2S.A	ND5K0.525.2S.B
Order code		020.00100	020.00099



Size	Dimensions (L x W x H / H2 in mm)	Class A	Class B
5000 ppm/K (Nickel NL)			
Nominal resistance: 500 Ω at 0 °C			
538	5.0 x 3.8 x 0.65 / 1.3	Upon request	NL0K5.538.2S.B
Order code			020.00203
Nominal resistance: 1000 Ω at 0 °C			
425	4.0 x 2.5 x 0.65 / 1.3	NL1K0.425.2S.A	NL1K0.425.2S.B
Order code		020.00157	020.00106
525	5.0 x 2.5 x 0.65 / 1.3	Upon request	NL1K0.525.2S.B
Order code			020.00118
538	5.0 x 3.8 x 0.65 / 1.3	Upon request	NL1K0.538.2S.B
Order code			020.00122
Nominal resistance: 5000 Ω at 0 °C			
525	5.0 x 2.5 x 0.65 / 1.3	Upon request	NL5K0.525.2S.B
Order code			020.00166

### Additional Documents

	Document name:
Application Note:	ATN_E



# Order Information

## Nickel Sensor

### Secondary reference

#### Material

N = Nickel

S = special

#### TCR

A = ANSI 6720 ppm/K    J = 6370 ppm/K

B = Balco                    M = 5696 ppm/K

D = 6180 ppm/K            C = 4280 ppm/K (GOST 6651-2009)

L = 5000 ppm/K            S = special

#### Resistance in $\Omega$ at 0 °C

#### Size in mm

#### Operating temperature range

1 = -60 °C to +150 °C

2 = -60 °C to +200 °C

3 = -60 °C to +300 °C

#### Connection

S = SIL                                    FK = flat wire customer-specific

I = insulated wire                    K = customer-specific

W = wire                                    E = enameled Cu-wire

FW = flat wire

#### Tolerance class (T > 0 °C)

A =  $0.2 + 0.0035 \times |t|$

B =  $0.4 + 0.007 \times |t|$

C =  $0.8 + 0.014 \times |t|$

K = customer-specific

#### Wire length in mm

#### Special

T = substrate thickness 0.25 mm    M = metallized backside

W = sintered powder                    U = inverted welding

S = special

N    L    1K0. 520.    2    FW.    B.    007



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