



200 °C Series

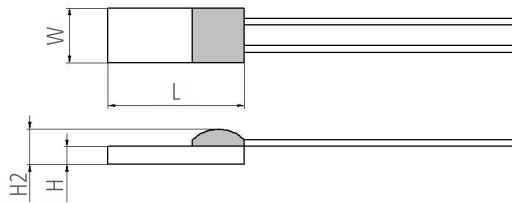
Nickel sensor with wires

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

Illustration¹⁾



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) ^{1):*}	IST AG reference	T > 0 °C
<small>1) For tolerances <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:²⁾

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		103075	103073
Former 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		Upon request	103072
Former 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		Upon request	103077
Former 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			Upon request
Former 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			103082
Former 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			Upon request
Former 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			103084
Former order code			020.00044



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	ND0K5.520.2W.A.015	ND0K5.520.2W.B.015
Order code		Upon request	103266
Former 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		103085	Upon request
Former order code		020.00050	020.00049
520	5.0 x 2.0 x 0.65 / 1.3	ND1K0.520.2W.A.010	ND1K0.520.2W.B.010
Order code		Upon request	103087
Former 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			Upon request
Former order code			020.00083
102	10.0 x 2.0 x 0.65 / 1.3	Upon request	ND1K0.102.2W.B.015
Order code			Upon request
Former 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			Upon request
Former 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		103113	103111
Former 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			Upon request
Former 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			Upon request
Former order code			020.00128



Size	Dimensions (L x W x H / H2 in mm)	Class A	Class B
Order Information - 2I (Cu/Ag-wire, AWG 30, PTFE-insulated)			

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			103079
Former 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			103241
Former order code			020.00629
520	5.0 x 2.0 x 0.65 / 1.3	Upon request	NL1K0.520.2I.B.100
Order code			103240
Former order code			020.00627

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

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			Upon request
Former order code			020.00071
538	5.0 x 3.8 x 0.65 / 1.3	Upon request	ND1K0.538.2K.B.026
Order code			103235
Former 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			103230
Former order code			020.00605
520	5.0 x 2.0 x 0.65 / 1.3	Upon request	NL1K0.520.2K.B.215
Order code			103231
Former order code			020.00606



Size	Dimensions (L x W x H / H2 in mm)	Class A	Class B
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Order Information - 2K (Cu/Ag-wire, Ø 0.4 mm)

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			103162
Former 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		Upon request	Upon request
Former 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			103143
Former order code			020.00201
520	5.0 x 2.0 x 0.65 / 1.3	Upon request	NL1K0.520.2K.B.020
Order code			103140
Former order code			020.00197

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

6180 ppm/K (Nickel ND)

Nominal resistance: 1000 Ω 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		103173	103172
Former 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			103079
Former order code			020.00014

5000 ppm/K (Nickel NL)

Nominal resistance: 1000 Ω at 0 °C

520	5.0 x 2.0 x 0.65 / 1.3	NL1K0.520.2FW.A.007	NL1K0.520.2FW.B.007
Order code		103175	103174
Former order code		020.00351	020.00350



Size	Dimensions (L x W x H / H2 in mm)	Class A	Class B
Order Information - 2S (CuP-SIL wire post-plated with Sn, 10 mm)			

6180 ppm/K (Nickel ND)

Nominal resistance: 100 Ω at 0 °C			
505	5.0 x 5.0 x 0.65 / 1.3	Upon request	ND0K1.505.2S.B
Order code			Upon request
Former order code			020.00027
538	5.0 x 3.8 x 0.65 / 1.3	Upon request	ND0K1.538.2S.B
Order code			103080
Former order code			020.00024

Nominal resistance: 200 Ω at 0 °C			
538	5.0 x 3.8 x 0.65 / 1.3	Upon request	ND0K2.538.2S.B
Order code			103083
Former order code			020.00034

Nominal resistance: 1000 Ω at 0 °C			
525	5.0 x 2.5 x 0.65 / 1.3	ND1K0.525.2S.A	ND1K0.525.2S.B
Order code		103097	103096
Former 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		103100	103099
Former order code		020.00085	020.00084

Nominal resistance: 5000 Ω at 0 °C			
525	5.0 x 2.5 x 0.65 / 1.3	ND5K0.525.2S.A	ND5K0.525.2S.B
Order code		Upon request	Upon request
Former order code		020.00100	020.00099

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			Upon request
Former 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		Upon request	Upon request
Former 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			103118
Former order code			020.00118



538	5.0 x 3.8 x 0.65 / 1.3	Upon request	NL1K0.538.2S.B
Order code			103119
Former 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			Upon request
Former order code			020.00166



Additional Documents

Application Note:	Document name: ATN_E
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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 Ω 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



Innovative Sensor Technology IST AG, Stegrütistrasse 14, 9642 Ebnat-Kappel, Switzerland
Phone: +41 71 992 01 00 | Fax: +41 71 992 01 99 | Email: info@ist-ag.com | www.ist-ag.com

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