

## Temperature sensing elements Ni 2226

### Basic technical parameters

Sensing element	Thin-film nickel resistor
Working temperature range	-30 °C to 150 °C *
Resistance at 0 °C	2226 Ω
Long-term resistance stability	0.1 % after 1000 h at t = 150 °C
Recommended / maximum direct measuring current	0.2mA / 0.7mA
<b>Note:</b> This is a characteristic of sensors designated T1 (Staefa Control, later Siemens. They are no longer produced or offered by these companies.)	

\* The real range of working temperature of the temperature sensor is given by the design and technology.

The temperature dependence of the sensing element resistance in the temperature range of -30 to 150 °C is expressed as follows:

$$R = 2226 (1 + At + Bt^2 + Ct^3 + Dt^4)$$

where: A = 4.476. 10<sup>-3</sup> °C<sup>-1</sup> C = 2.906. 10<sup>-9</sup> °C<sup>-3</sup>

B = 3.6496. 10<sup>-6</sup> °C<sup>-2</sup> D = 3.140. 10<sup>-12</sup> °C<sup>-4</sup>

### Dependence of resistance on temperature in ohms [Ω]:

°C	0	-1	-2	-3	-4	-5	-6	-7	-8	-9
-30	1934.2									
-20	2029.9	2020.3	2010.7	2001.1	1991.5	1981.9	1972.3	1962.8	1953.3	1943.7
-10	2127.2	2117.4	2107.6	2097.8	2088.1	2078.4	2068.6	2058.9	2049.3	2039.6
0	2226.0	2216.0	2206.1	2196.2	2186.3	2176.4	2166.5	2156.7	2146.8	2137.0

°C	0	1	2	3	4	5	6	7	8	9
0	2226.0	2236.0	2246.0	2256.0	2266.0	2276.0	2286.1	2296.1	2306.2	2316.3
10	2326.5	2336.6	2346.7	2356.9	2367.1	2377.3	2387.5	2397.8	2408.0	2418.3
20	2428.6	2438.9	2449.2	2459.5	2469.9	2480.3	2490.7	2501.1	2511.5	2521.9
30	2532.4	2542.9	2553.4	2563.9	2574.4	2585.0	2595.5	2606.1	2616.7	2627.3
40	2638.0	2648.6	2659.3	2670.0	2680.7	2691.4	2702.2	2712.9	2723.7	2734.5
50	2745.3	2756.2	2767.0	2777.9	2788.8	2799.7	2810.6	2821.6	2832.6	2843.5
60	2854.5	2865.6	2876.6	2887.7	2898.8	2909.9	2921.0	2932.1	2943.3	2954.4
70	2965.6	2976.9	2988.1	2999.3	3010.6	3021.9	3033.2	3044.6	3055.9	3067.3
80	3078.7	3090.1	3101.5	3113.0	3124.4	3135.9	3147.4	3159.0	3170.5	3182.1
90	3193.7	3205.3	3216.9	3228.6	3240.3	3252.0	3263.7	3275.4	3287.2	3299.0
100	3310.8	3322.6	3334.4	3346.3	3358.2	3370.1	3382.0	3394.0	3405.9	3417.9
110	3429.9	3442.0	3454.0	3466.1	3478.2	3490.3	3502.5	3514.6	3526.8	3539.0
120	3551.2	3563.5	3575.8	3588.1	3600.4	3612.7	3625.1	3637.5	3649.9	3662.3
130	3674.8	3687.2	3699.7	3712.3	3724.8	3737.4	3750.0	3762.6	3775.2	3787.9
140	3800.6	3813.3	3826.0	3838.8	3851.5	3864.3	3877.2	3890.0	3902.9	3915.8
150	3928.7									

## Sensing element accuracy classes

Sensing elements are manufactured in accuracy class B, expressed as follows:

for $-30^{\circ}\text{C} \leq t < 0^{\circ}\text{C}$	for $0^{\circ}\text{C} \leq t \leq 50^{\circ}\text{C}$	for $50^{\circ}\text{C} < t \leq 100^{\circ}\text{C}$
$\Delta T = \pm (0.7 + 0.063 *  t )$ in $^{\circ}\text{C}$	$\Delta T = \pm 0.7^{\circ}\text{C}$	$\Delta T = \pm (0.7 + 0.038 * (t - 50))$ in $^{\circ}\text{C}$

$|t|$  is the absolute value of temperature

Temperature [ $^{\circ}\text{C}$ ]	Resistance [ $\Omega$ ]	Class B	
		$\Delta T$ [ $^{\circ}\text{C}$ ]	$\Delta R$ [ $\Omega$ ]
-20	2029.9	$\pm 1.96$	$\pm 19.01$
0	2226.0	$\pm 0.70$	$\pm 7.00$
25	2480.3	$\pm 0.70$	$\pm 7.28$
50	2745.3	$\pm 0.70$	$\pm 7.63$
70	2965.6	$\pm 1.46$	$\pm 16.50$
100	3310.8	$\pm 2.60$	$\pm 30.68$

**Application of sensing elements:** Previously, temperature sensors with this characteristic were used by Staefa Control, which was purchased in 1997 by the SIEMENS Group and in fact ceased to exist. Nowadays, they can be found under the designation **T1**. They are used as sensing elements for sensors for exteriors, interiors, piping, thermostats, etc. They are currently not used in new constructions and Sensit s.r.o. offers them as spare parts.

*Notes:*