

NC Sensor

NC — —

Type P

Application (F = Office equipment)

Non-contact thermistor sensor

- Office automation fuser roller applications such as LBP, PPC etc.
- Rotating parts in automotive applications
- Rotating motor parts
- Temperature measurement in high pressure environments
- Temperature measurement of drugs and chemicals

Parameter	Value	Conditions
Measurement center	180 °C ± 3 °C	Blackbody temp.: 180 °C; sensor body temp.: 100 °C Roller diameter: 40 mm; distance: 5 mm
Responsivity	1.3 s ± 0.5 s	Time required to reach 63.2% of temperature difference between blackbody and sensor body.
Operating temp. range	- 10 °C to 150 °C	—
Measuring temp. range	- 20 °C to 260 °C	—
Thermistor resistance value	7 kΩ ± 3%	Rated zero-power resistance at 180 °C
Thermistor B value	3370 K ± 1%	B value determined by rated zero-power resistance at 25 °C and 85 °C

Item	Test conditions	Criteria
Dry heat	1000 hours at 150 °C	Measurement center within $\pm 5\text{ }^{\circ}\text{C}$ of initial value
Dry heat under electrical load	1000 hours at 150 °C, 5 V load	
Temperature cycle (thermal shock)	5 cycles as below: 1. - 20 °C for 30 minutes 2. Room temperature for 5 minutes 3. 150 °C for 30 minutes 4. Room temperature for 5 minutes	
Insulation resistance	500 V DC (between aluminium case and connections)	
Voltage proof	500 V AC for one minute (between aluminium case and connections)	Over 100 MΩ
		Less than 1 mA

		Roller temperature (°C)													
Compensation temperature (°C)	Compensation output (Vc)	0	20	40	60	80	100	120	140	160	180	200	220	240	260
		Measurement output (Vd)													
0	4.838	4.838	4.836	4.834	4.831	4.827	4.823	4.818	4.812	4.805	4.797	4.787	4.775	4.760	4.741
10	4.758		4.757	4.754	4.750	4.745	4.740	4.733	4.726	4.716	4.706	4.692	4.677	4.658	4.634
20	4.651		4.651	4.646	4.641	4.635	4.628	4.620	4.610	4.599	4.585	4.569	4.549	4.525	4.496
30	4.509			4.506	4.500	4.493	4.484	4.474	4.462	4.448	4.431	4.411	4.388	4.359	4.325
40	4.331			4.331	4.323	4.315	4.304	4.292	4.278	4.262	4.242	4.219	4.191	4.158	4.119
50	4.115				4.110	4.100	4.088	4.075	4.059	4.040	4.018	3.992	3.961	3.925	3.881
60	3.863				3.863	3.852	3.839	3.824	3.806	3.786	3.762	3.734	3.701	3.662	3.615
70	3.581					3.574	3.561	3.545	3.527	3.505	3.481	3.452	3.418	3.377	3.329
80	3.277					3.277	3.263	3.247	3.228	3.207	3.183	3.154	3.120	3.079	3.032
90	2.962						2.955	2.939	2.922	2.901	2.877	2.849	2.816	2.778	2.732
100	2.648						2.648	2.633	2.616	2.597	2.575	2.549	2.518	2.482	2.440
110	2.344							2.337	2.322	2.304	2.284	2.260	2.233	2.200	2.162
120	2.058							2.058	2.045	2.029	2.011	1.991	1.966	1.938	1.904
130	1.796								1.790	1.777	1.761	1.743	1.723	1.698	1.669
140	1.560								1.560	1.549	1.536	1.521	1.503	1.482	1.458
150	1.352									1.347	1.336	1.323	1.309	1.291	1.271

Unit: V

Technical drawing of the cable assembly showing dimensions and connection details. The main view shows a side profile with dimensions: 46.5 (total length), 12.6 (height), 11.6 (distance from front to connector), 11.8 (distance from front to cable entry), 5.8 (distance from cable entry to connector), 10.0 (distance from connector to cable entry), and L (length of the cable). A detail view shows the connector with dimensions 4.7 (height) and 4 max (width). A detail view shows the cable entry with dimensions 4.5 (height) and 1 (width). Two views show the cable entry angle: 75° and 122°.

Unit: mm

The diagram illustrates a temperature compensation circuit. It features a voltage source E connected to a network of resistors $R1$, $R2$, $R3$, and $R4$. A non-linear compensation (NC) sensor, containing thermistors T_c and T_d , is connected to the circuit. The sensor's output is processed by a differential amplifier, followed by an AD converter and an MPU. The MPU outputs data to a voltage output data block. A voltage stabilization circuit is also present, connected to the output OUT and input IN . The circuit is grounded at GND .

Legend:

- E : Applied voltage
- V_d : Measurement output
- V_c : Compensation output
- T_d : Measurement thermistor
- T_c : Compensation thermistor
- $R1, R2$: Resistor

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