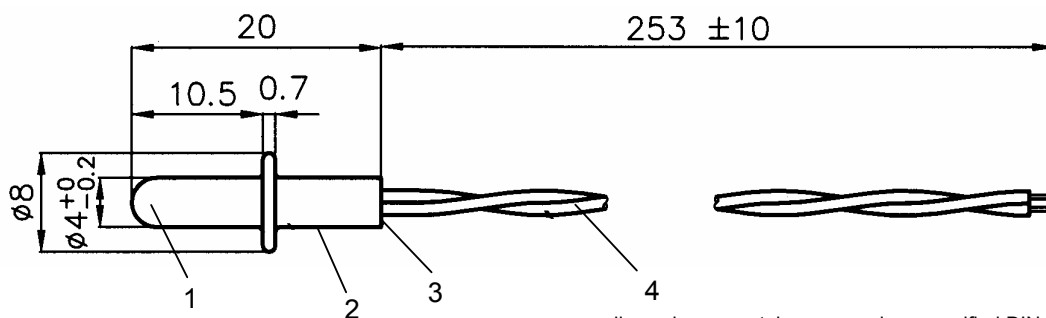


**Data sheet**

**Version:** NTC soldered to AWG26 wire coated with epoxy resin and casted into stainless steel case



dimensions mm, tolerances unless specified DIN 2768-m

| No. | Item            | Material             | Property                                       | Remarks |
|-----|-----------------|----------------------|--|---------|
| 1   | Thermistor      | Ceramic              | EPCOS NTC                                      |         |
| 2   | Protecting tube | Stainless steel case |  |         |
| 3   | Casting         | epoxy resin          |  | black   |
| 4   | Wire            | Cu silvered, AWG26   | black insulation $\phi$ 1 mm, heat proof 200°C |         |

**Ratings and characteristics**

| Parameter                       | Specification                    | Test condition |
|---------------------------------|----------------------------------|----------------|
| Upper category temperature      | 120 °C                           |                |
| Lower category temperature      | -20°C                            |                |
| Rated resistance $R_n$          | 3485 $\Omega$ $\pm$ 2 %          |                |
| Rated temperature $T_n$         | 50 °C                            |                |
| B-value : B(25/100)             | 3988 K $\pm$ 1 %                 |                |
| R/T-curve Nr.                   | 8016                             |                |
| Resistance at 25 °C             | 9672 $\Omega$                    |                |
| Thermal time constant (25/85°C) | $\leq$ 4 s                       | water          |
| Withstand voltage               | 1250 V <sub>AC</sub> (50 Hz, 1s) |                |

Remarks:

|            |          |       |   |           |         |      |     |
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### NTC RESISTANCE-TEMPERATURE CURVE

R/T-Curve 8016  
 $R_N$  at 50 °C 3485  $\Omega \pm 2\%$   
 $B(25/100)$  3988 K  $\pm 1\%$   
 $R$  at 25°C 9672  $\Omega$

| Temp. [°C] | R Nom [ $\Omega$ ] | R Min [ $\Omega$ ] | R Max [ $\Omega$ ] | $\Delta R$ [ $\pm\%$ ] |
|------------|--------------------|--------------------|--------------------|------------------------|
| -20        | 93891              | 88762              | 99020              | 5,5                    |
| -19        | 88600              | 83815              | 93385              | 5,4                    |
| -18        | 83642              | 79177              | 88108              | 5,3                    |
| -17        | 78993              | 74824              | 83163              | 5,3                    |
| -16        | 74633              | 70739              | 78527              | 5,2                    |
| -15        | 70541              | 66903              | 74179              | 5,2                    |
| -14        | 66699              | 63299              | 70099              | 5,1                    |
| -13        | 63091              | 59912              | 66270              | 5,0                    |
| -12        | 59701              | 56728              | 62674              | 5,0                    |
| -11        | 56514              | 53733              | 59296              | 4,9                    |
| -10        | 53518              | 50915              | 56121              | 4,9                    |
| -9         | 50686              | 48250              | 53122              | 4,8                    |
| -8         | 48022              | 45741              | 50302              | 4,7                    |
| -7         | 45514              | 43378              | 47650              | 4,7                    |
| -6         | 43153              | 41152              | 45154              | 4,6                    |
| -5         | 40929              | 39054              | 42804              | 4,6                    |
| -4         | 38834              | 37076              | 40591              | 4,5                    |
| -3         | 36859              | 35211              | 38507              | 4,5                    |
| -2         | 34996              | 33450              | 36542              | 4,4                    |
| -1         | 33239              | 31789              | 34689              | 4,4                    |
| 0          | 31581              | 30220              | 32942              | 4,3                    |
| 1          | 30011              | 28734              | 31288              | 4,3                    |
| 2          | 28529              | 27330              | 29728              | 4,2                    |
| 3          | 27129              | 26003              | 28255              | 4,2                    |
| 4          | 25806              | 24749              | 26864              | 4,1                    |
| 5          | 24556              | 23562              | 25550              | 4,0                    |
| 6          | 23374              | 22440              | 24308              | 4,0                    |
| 7          | 22256              | 21378              | 23134              | 3,9                    |
| 8          | 21198              | 20372              | 22023              | 3,9                    |
| 9          | 20196              | 19420              | 20973              | 3,8                    |
| 10         | 19248              | 18518              | 19978              | 3,8                    |
| 11         | 18348              | 17661              | 19035              | 3,7                    |
| 12         | 17495              | 16848              | 18141              | 3,7                    |
| 13         | 16686              | 16078              | 17295              | 3,6                    |
| 14         | 15920              | 15347              | 16493              | 3,6                    |

|            |          |       |   |           |         |      |     |
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| Temp. [°C] | R Nom [Ω]   | R Min [Ω]   | R Max [Ω]   | ΔR [±%]    |
|------------|-------------|-------------|-------------|------------|
| 15         | 15193       | 14654       | 15733       | 3,5        |
| 16         | 14504       | 13996       | 15012       | 3,5        |
| 17         | 13850       | 13372       | 14329       | 3,5        |
| 18         | 13230       | 12779       | 13680       | 3,4        |
| 19         | 12641       | 12216       | 13065       | 3,4        |
| 20         | 12081       | 11681       | 12481       | 3,3        |
| 21         | 11549       | 11172       | 11926       | 3,3        |
| 22         | 11044       | 10688       | 11400       | 3,2        |
| 23         | 10564       | 10228       | 10899       | 3,2        |
| 24         | 10107       | 9791        | 10423       | 3,1        |
| 25         | 9672        | 9374        | 9971        | 3,1        |
| 26         | 9259        | 8977        | 9540        | 3,0        |
| 27         | 8865        | 8599        | 9130        | 3,0        |
| 28         | 8490        | 8239        | 8740        | 3,0        |
| 29         | 8133        | 7897        | 8369        | 2,9        |
| 30         | 7793        | 7570        | 8016        | 2,9        |
| 31         | 7469        | 7258        | 7680        | 2,8        |
| 32         | 7160        | 6961        | 7359        | 2,8        |
| 33         | 6866        | 6678        | 7053        | 2,7        |
| 34         | 6585        | 6408        | 6762        | 2,7        |
| 35         | 6317        | 6150        | 6485        | 2,7        |
| 36         | 6062        | 5904        | 6220        | 2,6        |
| 37         | 5819        | 5669        | 5968        | 2,6        |
| 38         | 5586        | 5445        | 5727        | 2,5        |
| 39         | 5364        | 5231        | 5498        | 2,5        |
| 40         | 5153        | 5027        | 5278        | 2,4        |
| 41         | 4950        | 4831        | 5069        | 2,4        |
| 42         | 4756        | 4644        | 4869        | 2,4        |
| 43         | 4571        | 4465        | 4678        | 2,3        |
| 44         | 4395        | 4294        | 4495        | 2,3        |
| 45         | 4226        | 4131        | 4320        | 2,2        |
| 46         | 4064        | 3974        | 4154        | 2,2        |
| 47         | 3910        | 3825        | 3994        | 2,2        |
| 48         | 3762        | 3682        | 3842        | 2,1        |
| 49         | 3620        | 3545        | 3696        | 2,1        |
| <b>50</b>  | <b>3485</b> | <b>3415</b> | <b>3555</b> | <b>2,0</b> |
| 51         | 3355        | 3285        | 3425        | 2,1        |
| 52         | 3231        | 3162        | 3299        | 2,1        |
| 53         | 3112        | 3044        | 3179        | 2,2        |
| 54         | 2998        | 2932        | 3064        | 2,2        |
| 55         | 2888        | 2824        | 2953        | 2,2        |
| 56         | 2784        | 2720        | 2847        | 2,3        |
| 57         | 2683        | 2621        | 2745        | 2,3        |
| 58         | 2587        | 2526        | 2648        | 2,3        |

|            |          |       |   |           |         |      |     |
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| Temp. [°C] | R Nom [Ω] | R Min [Ω] | R Max [Ω] | ΔR [±%] |
|------------|-----------|-----------|-----------|---------|
| 59         | 2495      | 2435      | 2554      | 2,4     |
| 60         | 2407      | 2348      | 2465      | 2,4     |
| 61         | 2322      | 2265      | 2379      | 2,5     |
| 62         | 2240      | 2184      | 2296      | 2,5     |
| 63         | 2162      | 2107      | 2217      | 2,5     |
| 64         | 2087      | 2033      | 2140      | 2,6     |
| 65         | 2015      | 1962      | 2067      | 2,6     |
| 66         | 1946      | 1894      | 1997      | 2,6     |
| 67         | 1879      | 1829      | 1929      | 2,7     |
| 68         | 1815      | 1766      | 1864      | 2,7     |
| 69         | 1754      | 1706      | 1802      | 2,7     |
| 70         | 1695      | 1648      | 1742      | 2,8     |
| 71         | 1638      | 1592      | 1684      | 2,8     |
| 72         | 1584      | 1539      | 1629      | 2,8     |
| 73         | 1532      | 1488      | 1575      | 2,9     |
| 74         | 1481      | 1438      | 1524      | 2,9     |
| 75         | 1433      | 1391      | 1475      | 2,9     |
| 76         | 1386      | 1345      | 1427      | 3,0     |
| 77         | 1341      | 1301      | 1382      | 3,0     |
| 78         | 1298      | 1259      | 1338      | 3,0     |
| 79         | 1257      | 1218      | 1295      | 3,1     |
| 80         | 1217      | 1179      | 1255      | 3,1     |
| 81         | 1178      | 1141      | 1215      | 3,1     |
| 82         | 1141      | 1105      | 1177      | 3,2     |
| 83         | 1105      | 1070      | 1140      | 3,2     |
| 84         | 1071      | 1036      | 1105      | 3,2     |
| 85         | 1037      | 1003      | 1071      | 3,3     |
| 86         | 1005      | 972       | 1038      | 3,3     |
| 87         | 974,1     | 941,8     | 1006,0    | 3,3     |
| 88         | 944,3     | 912,6     | 975,9     | 3,3     |
| 89         | 915,4     | 884,5     | 946,4     | 3,4     |
| 90         | 887,6     | 857,4     | 917,9     | 3,4     |
| 91         | 860,9     | 831,2     | 890,5     | 3,4     |
| 92         | 835,0     | 806,0     | 864,0     | 3,5     |
| 93         | 810,0     | 781,7     | 838,4     | 3,5     |
| 94         | 786,0     | 758,2     | 813,7     | 3,5     |
| 95         | 762,7     | 735,6     | 789,8     | 3,6     |
| 96         | 740,2     | 713,7     | 766,8     | 3,6     |
| 97         | 718,5     | 692,5     | 744,5     | 3,6     |
| 98         | 697,6     | 672,1     | 723,0     | 3,6     |
| 99         | 677,3     | 652,4     | 702,2     | 3,7     |
| 100        | 657,7     | 633,4     | 682,1     | 3,7     |
| 101        | 638,8     | 615,0     | 662,7     | 3,7     |
| 102        | 620,6     | 597,2     | 643,9     | 3,8     |

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| Temp. [°C] | R Nom [ $\Omega$ ] | R Min [ $\Omega$ ] | R Max [ $\Omega$ ] | $\Delta R$ [ $\pm\%$ ] |
|------------|--------------------|--------------------|--------------------|------------------------|
| 103        | 602,9              | 580,1              | 625,8              | 3,8                    |
| 104        | 585,8              | 563,5              | 608,2              | 3,8                    |
| 105        | 569,3              | 547,4              | 591,2              | 3,8                    |
| 106        | 553,3              | 531,9              | 574,8              | 3,9                    |
| 107        | 537,9              | 516,9              | 558,9              | 3,9                    |
| 108        | 522,9              | 502,4              | 543,5              | 3,9                    |
| 109        | 508,5              | 488,4              | 528,6              | 4,0                    |
| 110        | 494,5              | 474,8              | 514,2              | 4,0                    |
| 111        | 480,9              | 461,6              | 500,2              | 4,0                    |
| 112        | 467,8              | 448,9              | 486,6              | 4,0                    |
| 113        | 455,1              | 436,6              | 473,5              | 4,1                    |
| 114        | 442,7              | 424,6              | 460,9              | 4,1                    |
| 115        | 430,8              | 413,1              | 448,6              | 4,1                    |
| 116        | 419,3              | 401,9              | 436,6              | 4,1                    |
| 117        | 408,1              | 391,1              | 425,1              | 4,2                    |
| 118        | 397,2              | 380,6              | 413,9              | 4,2                    |
| 119        | 386,7              | 370,4              | 403,1              | 4,2                    |
| 120        | 376,6              | 360,6              | 392,5              | 4,2                    |

|            |          |       |   |           |         |      |     |
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**RELIABILITY REQUIREMENTS:**

| Test                               | Test conditions  | $\Delta R_{25}/R_{25}$<br>(typical) | Remarks           |
|------------------------------------|--|-------------------------------------|-------------------|
| Storage in dry heat                | Storage at upper category temperature in air<br>Temperature: 125°C<br>Voltage: 5 V <sub>DC</sub> over serial resistance 6,8 kΩ<br>Duration: 1000 h | < 2 %                               | No visible damage |
| Storage in coldness                | Storage at lower category temperature in air<br>Temperature: -20°C<br>Voltage: 5 V <sub>DC</sub> over serial resistance 6,8 kΩ<br>Duration: 1000 h | < 2 %                               | No visible damage |
| Storage in damp heat, steady state | Temperature of air: 60°C<br>Relative humidity of air: 93 %<br>Voltage: 5 V <sub>DC</sub> over serial resistance 6,8 kΩ<br>Duration: 56 days        | < 2 %                               | No visible damage |
| Vibration test<br>DIN IEC 60068    | Frequency range: 10 Hz to 2000 Hz<br>Amplitude: 1.5 mm / 10 g<br>Linear sweep; X,Y and Z direction for 2h each                                     | < 3 %                               | No visible damage |
| Natural falling test               | Drop Sensor 3 times from a height of 75 cm spontaneously onto hard surface   | < 2 %                               | No visible damage |
| bending test                       | bend sensor head 5 times 90° to the left and right   | < 2 %                               | No visible damage |
| boiling test                       | storage at 96°C in water for 6h then natural cooling for 16h   | < 2 %                               | No visible damage |

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