Widerstandskennlinien passive Temperatursensoren

01DT

01HT

01PT

01ST

01UT

01CT-1..F

01CT

01RT

Sensor	Pt100	Pt1000	Ni1000	Ni1000 TK5000	NTC10k (10k2)	NTC10k Precon (10k3)	NTC5k	NTC1.8k	NTC20k	NTC10k Carel
Temperatur	IEC 751 I EN 60751 B: ±0.3°C @ 0°C		±0.4°C @ 0°C DIN 43760	±0.4°C @ 0°C	±0.23°C @ 25°C	±0.2°C @ 25°C	±0.2°C @ 25°C	±0.5°C @ 25°C	±0.2°C @ 25°C	±0.26°C @ 25°C
°C	Ω	Ω	Ω	Ω	Ω	Ω	Ω	Ω	Ω	Ω
−50	80.31	803.1	743	790.88	667830		333914		1667570	
−40	84.27	842.7	791	830.83	335670	239800	167835	40375	813440	186796
−30	88.22	882.2	842	871.69	176680	135200	88341	22906	415480	110881
−20	92.16	921.6	893	913.48	96970	78910	48487	13477	221300	67683
−10	96.09	960.9	946	956.24	55300	47540	27649	8198	122470	42431
0	100	1000	1000	1000	32650	29490	16325	5141	70200	27280
10	103.9	1039	1056	1044.79	19900	18790	9951	3315	41560	17961
20	107.79	1077.9	1112	1090.65	12490	12260	6246	2193	25350	12092
25	109.74	1097.4	1141	1113.99	10000	10000	5000	1800	20000	10000
30	111.67	1116.7	1171	1137.61	8060	8190	4028	1486	15890	8312
40	115.54	1155.4	1230	1185.71	5320	5590	2662	1028	10210	5826
50	119.4	1194	1291	1234.97	3600	3890	1800	726	6720	4159
60	123.24	1232.4	1353	1285.44	2490	2760	1243	522	4520	3020
70	127.07	1270	1417	1337.14	1750	1990	875.8	382	3100	2228
80	130.89	1308.9	1483	1390.12	1260	1460	628	284	2120	1668
90	134.7	1347	1549	1444.39	920	1080	458	214	1540	1266
100	138.5	1385	1618	1500	680	820	339.3	164	1120	974
110	142.29	1422	1688	1556.98	510	620	255	127	820	758
120	146.06	1460.6	1760	1615.36	390	480	194.3	99	610	597
130	149.82	1498.2	1833	1675.18	300	380	149.9		460	475
140	153.58	1535.8	1909	1736.47	230	300	117		350	382
150	157.31	1573.1	1987	1799.26	180	240	92		270	310

Widerstandsformeln

Messwiderstand	Formel	Messwiderstand	Formel
Pt100	$T = \frac{1}{3850 \cdot 10^{-6}} \cdot \left(\frac{R}{100\,\Omega} - 1\right)$	**NTC10k (10k2)**	$T = \frac{1}{\frac{1}{298.15} + \frac{1}{3970} \cdot \ln\left(\frac{R}{10000\,\Omega}\right)} - 273.15$
Pt1000	$T = \frac{1}{3850 \cdot 10^{-6}} \cdot \left(\frac{R}{1000\,\Omega} - 1\right)$	**NTC 10k Precon (10k3)**	$T = \frac{1}{\frac{1}{298.15} + \frac{1}{3690} \cdot \ln\left(\frac{R}{10000}\right)} - 273.15$
Ni1000	$T = \frac{1}{6180 \cdot 10^{-6}} \cdot \left(\frac{R}{1000\,\Omega} - 1\right)$	**NTC5k**	$T = \frac{1}{\frac{1}{298.15} + \frac{1}{3970} \cdot \ln\left(\frac{R}{5000\,\Omega}\right)} - 273.15$
Ni1000 TK5000	$T = \frac{1}{5000 \cdot 10^{-6}} \cdot \left(\frac{R}{1000\,\Omega} - 1\right)$	**NTC1.8k**	$T = \frac{1}{\frac{1}{298.15} + \frac{1}{3499} \cdot \ln\left(\frac{R}{1800\,\Omega}\right)} - 273.15$
		NTC20k	$T = \frac{1}{\frac{1}{298.15} + \frac{1}{4262} \cdot \ln\left(\frac{R}{20000\,\Omega}\right)} - 273.15$
		NTC10k Carel	$T = \frac{1}{\frac{1}{298.15} + \frac{1}{3435} \cdot \ln\left(\frac{R}{10000\,\Omega}\right)} - 273.15$

Legende:
R = Widerstand des Sensorelements in Ohm Ω
T = Temperatur in °C