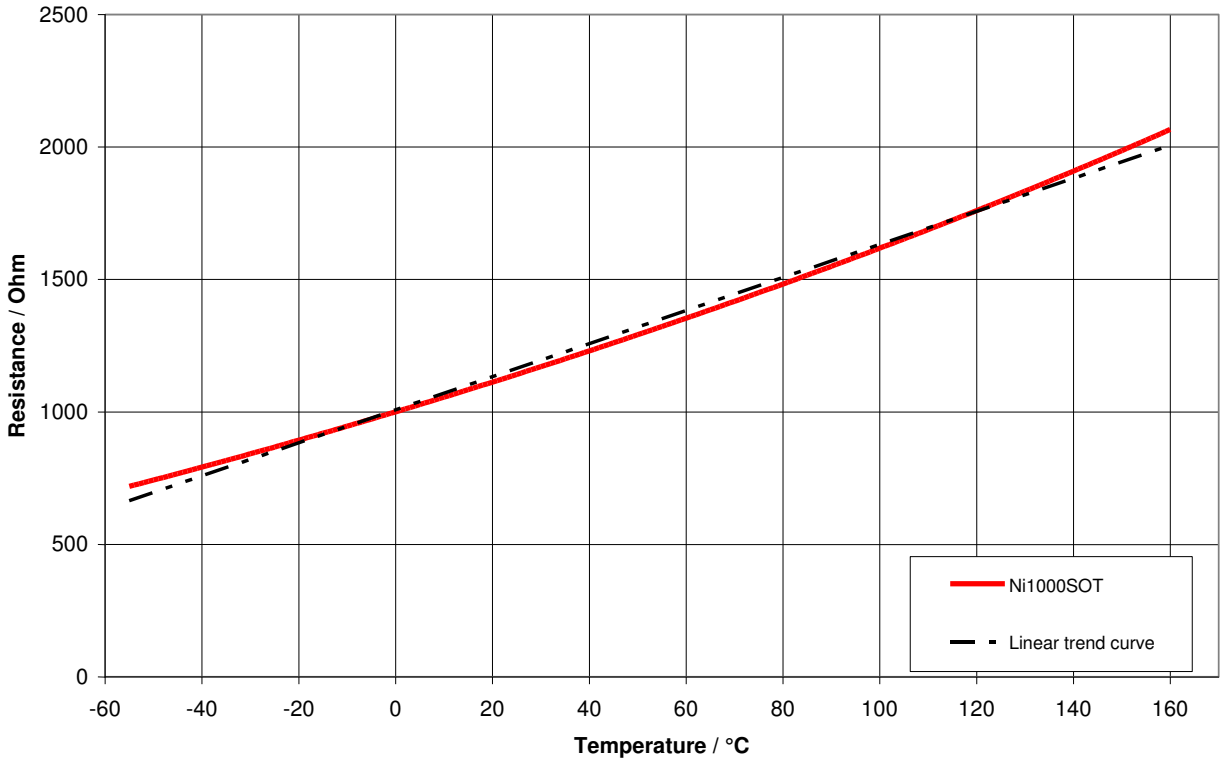
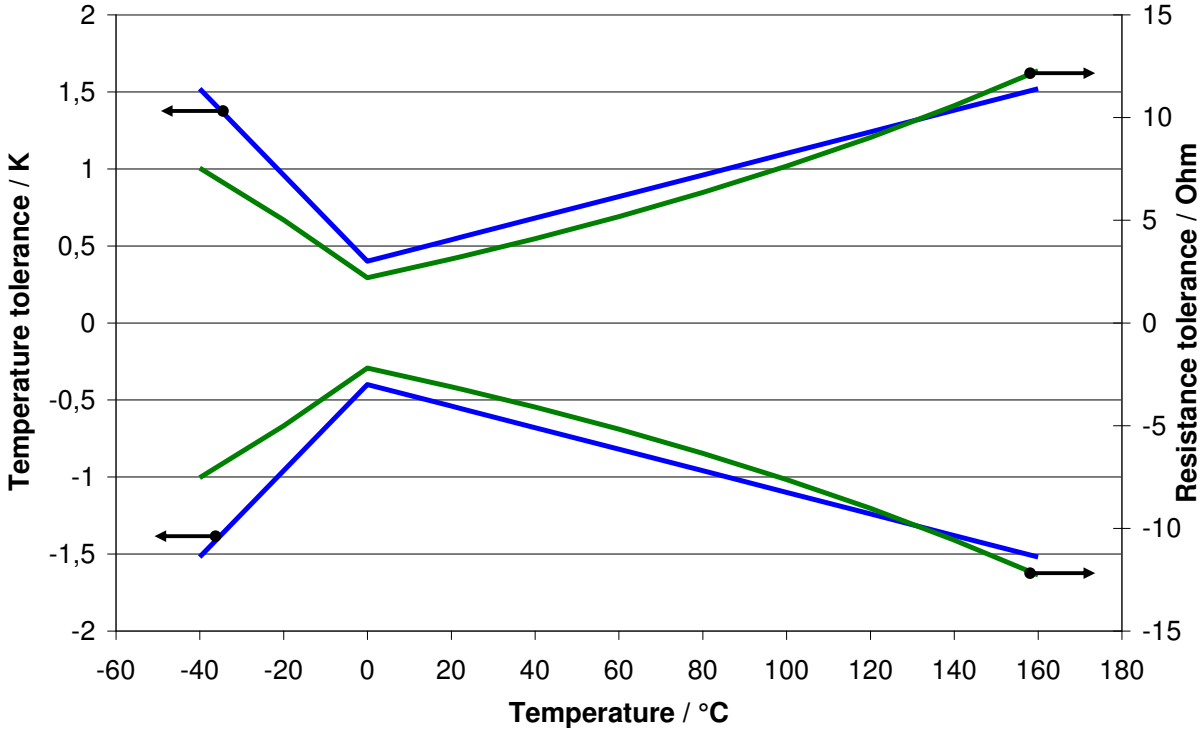
TYPICAL PERFORMANCE CURVES



Resistance characteristics



Tolerance chart

ELECTRICAL CHARACTERISTIC

The characteristic of the nickel temperature sensor is specified as per DIN 43760. The large Temperature Coefficient of Resistance (TCR) of the Ni-RTD, 6178 ppm/K, offers greater sensitivity than other types of RTD's. The electrical characteristic can be described by the following equation:

$$R(T) = R_0 (1+aT+bT^2+cT^4+dT^6)$$

Coefficients:

$a = 5.485 \times 10^{-3}$
$b = 6.650 \times 10^{-6}$
$c = 2.805 \times 10^{-11}$
$d = -2.000 \times 10^{-17}$

$$T(R) = a'+b'(1+c'R)^{½}+d'R^5+e'R^7$$ **dT < 0.12 K (higher order equations on request)**

Coefficients:

$a' = -412.6$
$b' = 140.41$
$c' = 0.00764$
$d' = -6.25 \times 10^{-17}$
$e' = -1.25 \times 10^{-24}$

Tolerances: Class B ± (0.4+0.007 x |T|) in range from 0°C to +160 °C
± (0.4+0.028 x |T|) in range from -55°C to 0 °C

T/°C	0	1	2	3	4	5	6	7	8	9
-60	695.2	699.9	704.6	709.3	714.0	718.7	723.4	728.2	733.0	737.8
-50	742.6	747.4	752.2	757.0	761.9	766.8	771.6	776.5	781.4	786.4
-40	791.3	796.3	801.2	806.2	811.2	816.2	821.2	826.3	831.3	836.4
-30	841.5	846.5	851.7	856.8	861.9	867.0	872.2	877.4	882.6	887.8
-20	893.0	898.2	903.4	908.7	913.9	919.2	924.5	929.8	935.1	940.5
-10	945.8	951.2	956.5	961.9	967.3	972.7	978.2	983.6	989.1	994.5
0	1000.0	1005.5	1011.0	1016.5	1022.0	1027.6	1033.1	1038.7	1044.3	1049.9
10	1055.5	1061.1	1066.8	1072.4	1078.1	1083.8	1089.5	1095.2	1100.9	1106.6
20	1112.4	1118.1	1123.9	1129.7	1135.5	1141.3	1147.1	1153.0	1158.8	1164.7
30	1170.6	1176.5	1182.4	1188.3	1194.2	1200.2	1206.1	1212.1	1218.1	1224.1
40	1230.1	1236.1	1242.2	1248.2	1254.3	1260.4	1266.5	1272.6	1278.8	1284.9
50	1291.1	1297.2	1303.4	1309.6	1315.8	1322.0	1328.3	1334.5	1340.8	1347.1
60	1353.4	1359.7	1366.0	1372.4	1378.7	1385.1	1391.5	1397.9	1404.3	1410.8
70	1417.2	1423.7	1430.1	1436.6	1443.1	1449.7	1456.2	1462.8	1469.3	1475.9
80	1482.5	1489.1	1495.7	1502.4	1509.1	1515.7	1522.4	1529.1	1535.9	1542.6
90	1549.3	1556.1	1562.9	1569.7	1576.5	1583.4	1590.2	1597.1	1604.0	1610.9
100	1617.8	1624.7	1631.7	1638.6	1645.6	1652.6	1659.6	1666.7	1673.7	1680.8
110	1687.9	1695.0	1702.1	1709.3	1716.4	1723.6	1730.8	1738.0	1745.2	1752.5
120	1759.7	1767.0	1774.3	1781.6	1788.9	1796.3	1803.7	1811.1	1818.5	1825.9
130	1833.3	1840.8	1848.3	1855.8	1863.3	1870.9	1878.4	1886.0	1893.6	1901.2
140	1908.9	1916.5	1924.2	1931.9	1939.6	1947.4	1955.1	1962.9	1970.7	1978.5
150	1986.3	1994.2	2002.1	2010.0	2017.9	2025.9	2033.8	2041.8	2049.8	2057.8
160	2065.9	2074.0	2082.1	2090.2	2098.3	2106.5	2114.6	2122.8	2131.1	2139.3