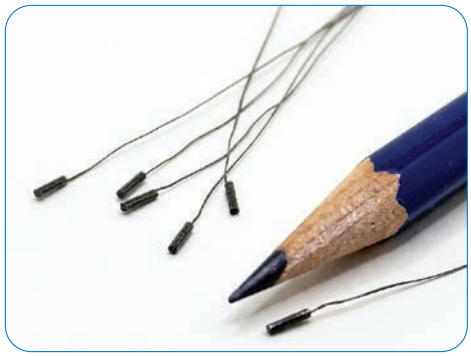
THERMOMETRICS
A COMMITMENT TO EXCELLENCE
AN AMPHENOL COMPANY

Series Type SC30XL

Small Diameter, Fast Response, Interchangeable NTC Thermistor with Extended Leads

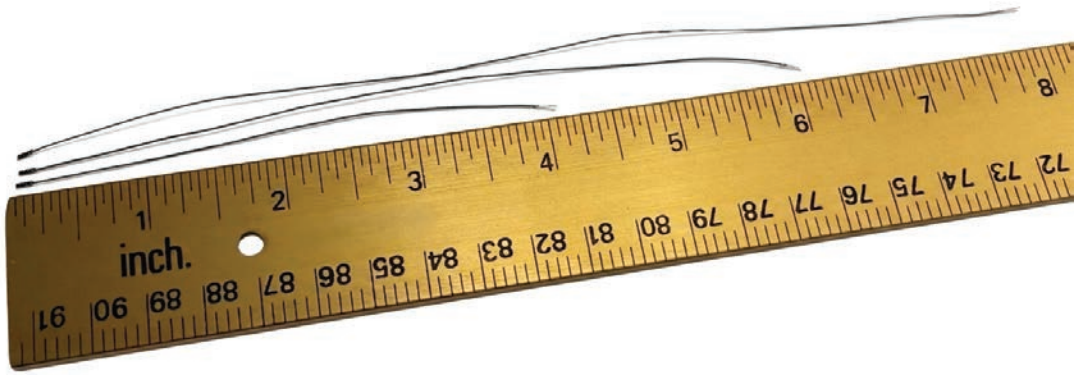


Features

- Precision, solid-state temperature sensor
- Epoxy filled sleeve for controlled diameter
- Interchangeability down to ±0.18°F (±0.10°C)
- Suitable for use over the range of: -40°F to 221°F (-40°C to 105°C)
- High sensitivity greater than: -4%/°C at 77°F (25°C)
- Suitable for temperature measurement, control, and compensation
- Ideal for medical applications
- Fully insulated
- Polyimide sleeved for good mechanical strength and resistance to solvents
- Extended length 0.004 in (0.1 mm) diameter heavy polyester insulated bifilar nickel lead wires

Applications

- Wearable Skin Sensors
- In Vitro Diagnostic (IVD) Analyzers
- Digital Thermometers
- Surgical Instruments
- Blood Analysis
- Dialysis Equipment



Amphenol
Sensors

Type SC30XL NTC Thermistor Specifications

Polyimide sleeved, interchangeable chip thermistors with extended length heavy polyester insulated nickel lead-wires.

Thermal and Electrical Properties

Zero Power Resistance
10K Ω @ 77°F (25°C)

Tolerance
32°F to 158°F (0°C to 70°C): ±0.18°F (±0.10°C)

25/85 Beta
3969K

Dissipation Constant
Still air: 0.4 mW/°C
Stirred oil: 3.0 mW/°C

Thermal Time Constant
Still air: 5.0 seconds
Stirred oil: 0.3 seconds

Maximum Power at 77°F (25°C) ~30 mW
De-rated from 100% at 77°F (25°C) to 0% at 212°F (100°C)

Physical Properties

- Polyimide Sleeve Housing
- Black Epoxy Fill
- #38 AWG Nickel Alloy Bifilar Heavy Polyester Insulated Leads
- RoHS Compliant

Options

Consult Factory for Availability of Options

- Other resistance values in the range of 2252 to 100K Ω
- Other tolerances or ranges
- Alternative lead wires or lengths
- Non-standard R vs T curves
- Controlled dimensions
- See page 4 for standard length SC30 offerings

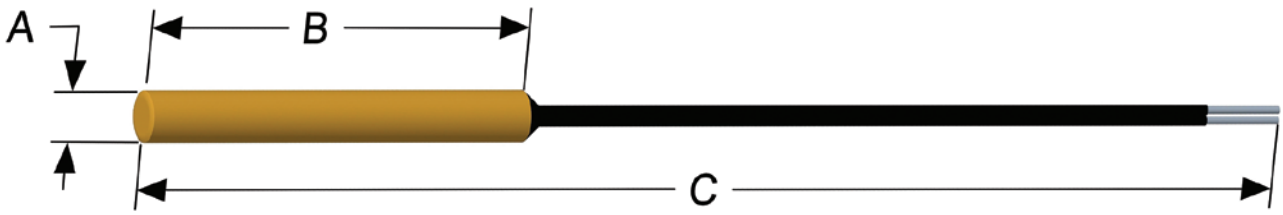
Ordering Information

Select the appropriate part number below for desired lead length

SC30XL Part Numbers and Lengths

Part Name	"A" (OD)	"B" (Sleeve Length)	"C" (Total Length)
SC30F103VN-L100	0.032" max	0.110" ref	4.00" min
SC30F103VN-L150	0.032" max	0.110" ref	6.00" min
SC30F103VN-L200	0.032" max	0.110" ref	7.90" min

See page 4 for standard length SC30 offerings



Type SC30XL NTC Thermistor Specifications

Resistance vs. Temperature Curve

$$ln(R) = A + \frac{B}{T} + \frac{C}{T^2} + \frac{D}{T^3}$$

A = -4.89264520777979E+00
B = 4.39628793259888E+03
C = -2.39878796647210E+04
D = -9.86957351928719E+06

Temp (°C)	R/R25	R nom (Ω)	R min (Ω)	R max (Ω)	R tol min (-%)	R tol max (+%)	Temp tol min (-°C)	Temp tol max (+°C)	Alpha (%/°C)	Beta nom (K)
-40	34.23	342277.8	332440.5	352437.8	2.87%	2.97%	0.44	0.44	-6.71	3778.4
-35	24.62	246188.8	239934.8	252623.9	2.54%	2.61%	0.40	0.40	-6.48	3791.1
-30	17.91	179086.2	175113.1	183159.7	2.22%	2.27%	0.36	0.36	-6.26	3803.1
-25	13.17	131685.4	129172.7	134252.7	1.91%	1.95%	0.32	0.32	-6.05	3814.5
-20	9.783	97832.4	96258.7	99434.9	1.61%	1.64%	0.28	0.28	-5.85	3825.3
-15	7.340	73400.0	72431.6	74382.8	1.32%	1.34%	0.24	0.24	-5.65	3835.6
-10	5.559	55588.5	55010.5	56173.4	1.04%	1.05%	0.19	0.19	-5.47	3845.3
-5	4.248	42478.5	42151.5	42808.4	0.77%	0.78%	0.15	0.15	-5.29	3854.6
0	3.274	32739.8	32572.5	32908.1	0.51%	0.51%	0.10	0.10	-5.13	3863.5
5	2.544	25441.4	25315.4	25568.0	0.50%	0.50%	0.10	0.10	-4.97	3872.0
10	1.993	19925.5	19829.9	20021.6	0.48%	0.48%	0.10	0.10	-4.81	3880.1
15	1.572	15722.9	15649.8	15796.5	0.47%	0.47%	0.10	0.10	-4.67	3887.8
20	1.250	12496.1	12439.7	12552.8	0.45%	0.45%	0.10	0.10	-4.53	3895.2
25	1.000	10000.0	9956.2	10044.0	0.44%	0.44%	0.10	0.10	-4.39	0.0
30	0.8055	8055.4	8021.1	8089.8	0.43%	0.43%	0.10	0.10	-4.26	3909.1
35	0.6530	6529.9	6503.0	6557.0	0.41%	0.41%	0.10	0.10	-4.14	3915.6
37	0.6014	6014.2	5989.7	6038.9	0.41%	0.41%	0.10	0.10	-4.09	3918.1
40	0.5325	5325.5	5304.1	5347.0	0.40%	0.40%	0.10	0.10	-4.02	3921.8
45	0.4368	4368.5	4351.5	4385.6	0.39%	0.39%	0.10	0.10	-3.91	3927.9
50	0.3603	3603.5	3589.8	3617.2	0.38%	0.38%	0.10	0.10	-3.80	3933.6
55	0.2988	2988.3	2977.3	2999.4	0.37%	0.37%	0.10	0.10	-3.69	3939.2
60	0.2491	2491.0	2482.0	2499.9	0.36%	0.36%	0.10	0.10	-3.59	3944.5
65	0.2087	2086.7	2079.4	2094.0	0.35%	0.35%	0.10	0.10	-3.50	3949.7
70	0.1756	1756.3	1750.3	1762.3	0.34%	0.34%	0.10	0.10	-3.40	3954.6
75	0.1485	1484.9	1477.4	1492.6	0.51%	0.51%	0.15	0.15	-3.31	3959.4
80	0.1261	1261.1	1252.6	1269.6	0.67%	0.68%	0.21	0.21	-3.23	3964.0
85	0.1075	1075.5	1066.5	1084.5	0.83%	0.84%	0.27	0.27	-3.14	3968.5
90	0.09209	920.9	911.8	930.1	0.99%	1.00%	0.32	0.32	-3.06	3972.8
95	0.07917	791.7	782.7	800.8	1.14%	1.15%	0.38	0.38	-2.99	3976.9
100	0.06831	683.1	674.4	692.0	1.28%	1.30%	0.44	0.44	-2.91	3980.9
105	0.05916	591.6	583.2	600.2	1.42%	1.45%	0.51	0.51	-2.84	3984.8

Note: Shaded values are calculated estimates and for reference only.

Type SC30XL NTC Thermistor Specifications

SC30 Standard Lead Length Offerings

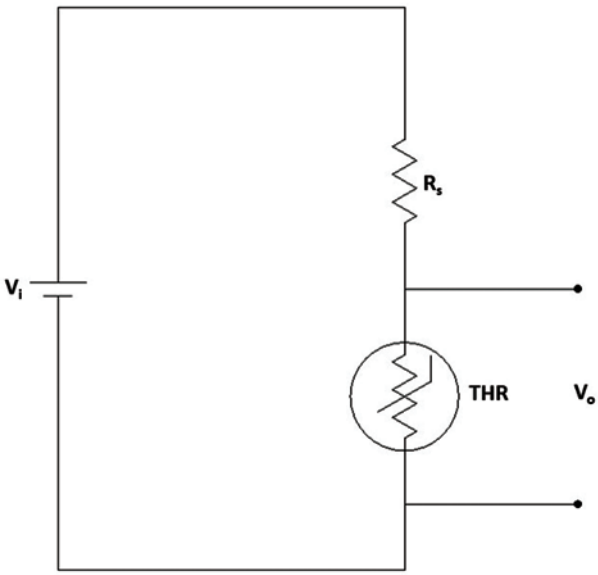
Consult Amphenol Sensors document **AAS-920-307E** for the full standard length SC30 specification

R @ 25°C (Ω)	Material System	25/85 Beta	±0.18°F (±0.10°C) 32°F to 158°F (0°C to 70°C)	±0.36°F (±0.20°C) 32°F to 158°F (0°C to 70°C)	"A" (OD)	"B" (Sleeve Length)	"C" (Total Length)
2252	F	3969K	SC30F232V	SC30F232W	0.032" max	0.245" ref	1.50" min
3000	F	3969K	SC30F302V	SC30F302W	0.032" max	0.245" ref	1.50" min
5000	F	3969K	SC30F502V	SC30F502W	0.032" max	0.110" ref	1.50" min
10000	F	3969K	SC30F103V	SC30F103W	0.032" max	0.110" ref	1.50" min
10000	10KY	3690K	SC30Y103V	SC30Y103W	0.032" max	0.110" ref	1.50" min
30000	H	3936K	SC30H303V	SC30H303W	0.032" max	0.130" ref	1.50" min
50000	G	4252K	SC30G503V	SC30G503W	0.032" max	0.130" ref	1.50" min
100000	100KY	3699K	SC30Y104V	SC30Y104W	0.032" max	0.130" ref	1.50" min
100000	G	4252K	SC30G104V	SC30G104W	0.032" max	0.130" ref	1.50" min

Notes:

1. For RoHS compliant product, please add the suffix "N" to the part label. Example SC30F103VN.
2. For RoHS compliant product with applications below 0°C, please add the suffix "H" to the part label. Example, SC30F103VH.

SC30 Voltage Divider Examples



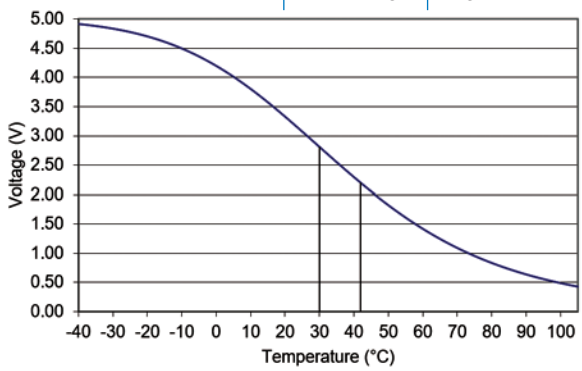
For optimum resolution...

$$R_s = \sqrt{R_T hot \times R_T cold}$$

Voltage vs. Temperature

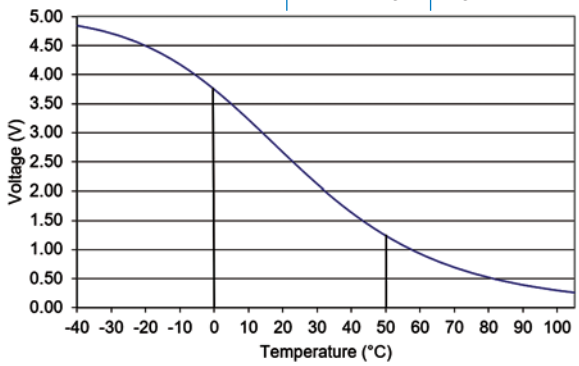
Application Temperature Range: 30°C to 42°C

SC30 R@25°C: 10K Ω | Vi: 5 Volts | Rs: 6300 Ω



Application Temperature Range: 0°C to 50°C

SC30 R@25°C: 10K Ω | Vi: 5 Volts | Rs: 11000 Ω



Amphenol Sensors

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