

Model TC-(K/T) Miniature Thermocouples



- Fine Wire Thermocouples
- SMALL! Absolutely the smallest diameter temperature sensor available.
- Long lengths suitable for medical catheter applications.
- Types T and K
- Available in Special Accuracy Tolerances.
- RoHS Compliant

DESCRIPTION

These fine wire thermocouples have the smallest diameter of any temperature sensor. They are available in wire gages from 36 to 46AWG, with tip diameters as small as 0.15mm. The bifilar wire construction provides for easy handling in long lengths typical in medical catheter applications. Made from enhanced accuracy thermocouple alloys, these sensors conform to ANSI MC 96.1 special limits of error.

FEATURES APPLICATIONS

- Custom lengths, supplied wound kink free on plastic spools.
- Color coded insulation for polarity identification.
- Thermocouple junctions either insulated or bare.
- Special limits of error for improved accuracy.
- Welded junctions are standard. Soldered junctions are available for smaller diameters on type T couples.
- Medical Catheters for thermal therapies
- General purpose sensing in tight spaces or small volumes.

PERFORMANCE SPECS

Parameters- Type K- 40AWG	+ Leg	- Leg	
Wires	Chromel (Amber)	Alumel (Black) (magnetic)	
Wire Insulation	Polyimide Primary/Nylon Bond Coat		
OD over insulation	0.0045 x 0.0075" max		
Tolerance	ANSI MC 96.1 special limits of error		
	(± 1.1 ℃ from 0 to Max Temp)		
Temperature Range of Use	-40 to +180C ^{note 1}		

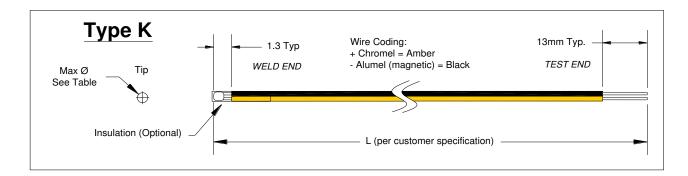


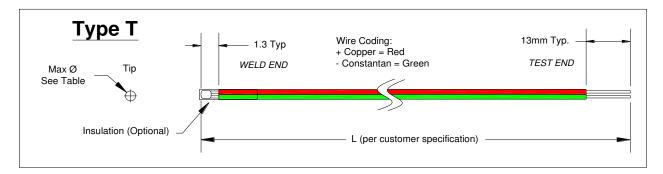
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Parameters- Type T- 40AWG	+ Leg	- Leg		
Wires	Copper (Red)	Constantan (Green)		
Wire Insulation		Polyimide Primary/Nylon Bond Coat		
	or Polyurethane Prim	or Polyurethane Primary/Nylon Bond Coat		
OD over insulation	0.0045 x 0	0.0045 x 0.0075" max		
Toloronoo	ANSI MC 96.1 sp	ANSI MC 96.1 special limits of error		
Tolerance		(± 0.5 °C from 0° C to Max Temp)		
Temperature Range of Use	-40 to +1	-40 to +180 °C note 1		

Note 1. Max temperature is limited by the Nylon bond coat. The Nylon bond coat will degrade above 180°C resulting in separation of stands. In applications where this is permissible the Type K parts may be used up to the 240°C temperature rating of the polyimide primary insulation, and the Type T thermocouples may be used up to 200°C continuously or 240°C for short periods (welded junctions only).

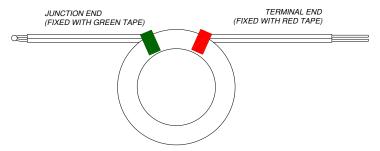
MECHANICAL DETAILS





PACKAGING

Thermocouples over 300mm in length are supplied on spools as shown. Spools are shipped in thermoformed plastic trays double bagged in non-lint producing bags.





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VOLTAGE VS. TEMPERATURE TABLES (REFERENCE JUNCTION = 0°C)

Type K		
Temp. °C	Voltage (mV)	
0	0	
10	0.397	
20	0.798	
30	1.203	
40	1.612	
50	2.023	
60	2.437	
70	2.851	
80	3.267	
90	3.682	
100	4.096	
110	4.509	
120	4.92	
130	5.328	
140	5.735	
150	6.138	

Type K		
Temp. °C	Voltage (mV)	
160	6.54	
170	6.941	
180	7.34	
190	7.739	
200	8.139	
210	8.539	
220	8.94	
230	9.343	
240	9.747	
250	10.153	
260	10.561	
270	10.971	
280	11.382	
290	11.795	
300	12.209	

Type T		
Voltage (mV)		
0		
0.391		
0.790		
1.196		
1.612		
2.036		
2.468		
2.909		
3.358		
3.814		
4.279		
4.750		
5.228		
5.714		
6.206		
6.704		

Type T			
Voltage (mV)			
7.209			
7.720			
8.327			
8.759			
9.288			

ORDERING INFORMATION

Part Numbers

TC-X-XX X X XXX XX Thermocouple Type: K or T Wire Insulation: Pi = Polyimide/Nylon

Type: K or T

Wire Gage:
36, 40, 44, 46

Junction Type:
W = Welded
S = Soldered

Pi = Polyimide/Nylon
PU = Polyurethane/Nylon

Length: in cm

Junction Insulation:
i = Insulated
B = Bare

Part Number	Description	Max Tip OD (mm)	MOQ
TC-T-36WB180Pi	Thermocouple, Type T, 36AWG, Junction Welded, Bare, 180cm, Pi insulation	0.38	100
TC-T-36Wi180Pi	Thermocouple, Type T, 36AWG, Junction Welded, Insulated, 180cm, Pi insulation	0.40	100
TC-T-40SB180Pi	Thermocouple, Type T, 40AWG, Junction Soldered, Bare, 180cm, Pi insulation	0.18	100
TC-T-40Si180Pi	Thermocouple, Type T, 40AWG, Junction Soldered, Insulated, 180cm, Pi insulation	0.33	100
TC-T-40WB180Pi	Thermocouple, Type T, 40AWG, Junction Welded, Bare, 180cm, Pi insulation	0.23	100
TC-T-40Wi180Pi	Thermocouple, Type T, 40AWG, Junction Welded, Insulated, 180cm, Pi insulation	0.33	100
TC-T-44SB180PU	Thermocouple, Type T, 44AWG, Junction Soldered, Bare, 180cm, PU insulation	0.15	100
TC-T-44Si180PU	Thermocouple, Type T, 44AWG, Junction Soldered, Insulated, 180cm, PU insulation	0.26	100
TC-K-40WB180Pi	Thermocouple, Type K, 40AWG, Junction Welded, Bare, 180cm, Pi insulation	0.20	100
TC-K-40Wi180Pi	Thermocouple, Type K, 40AWG, Junction Welded, Insulated, 180cm, PI insulation	0.23	100
TC-K-46WB180Pi	Thermocouple, Type K, 46AWG, Junction Welded, Bare, 180cm, Pi insulation	0.15	100
TC-K-46Wi180Pi	Thermocouple, Type K, 46AWG, Junction Welded, Insulated, 180cm, Pi insulation.	0.20	100



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