

# THERMOCOUPLE WIRE

## Shielded PVC Insulated 221°F (105°C)

### APPLICATIONS:

- Temperature Sensors
- Testing Laboratories
- New Plant Construction
- General Industry

### AVAILABLE OPTIONS

- Metal Overbraids
- Multi-Pair Cables
- UL Listed Constructions
- TPE Insulation and Jacket Rated to 250°F (125°C)
- Special Color Codes
- Calibration Test Reports
- Continuous use up to 221°F (105°C)

### PRODUCT FEATURES

- Flame Retardant
- Good Moisture, Chemical and Solvent Resistance
- Excellent Dielectric Strength
- 100% Continuous Drain/Shield Contact
- Economical Construction



### PRODUCT SPECIFICATIONS

CONDUCTORS Solid or stranded thermocouple wire per ASTM E230 & ANSI MC96.1

INSULATION: Flame retardant PVC

CONSTRUCTION: Single twisted pair

PAIR SHIELD 002"(.05MM) aluminum/polyester tape, 25% overlap

PAIR DRAIN WIRE 7-strand tinned copper, 2 AWG sizes smaller than conductor (24 AWG smallest drain)

JACKET Flame retardant PVC with ripcord under jacket

OPERATING TEMPERATURE: -15°F (-26°C) to +221°F (+105°C) continuous

LIMITS OF ERROR: Conforms to ASTM E230, IEC 584 and ANSI MC 96.1

COLOR CODE: Conforms to ASTM E230 and ANSI MC 96.1 (International Color Codes Available)

### ORDERING CODE

**P / ALPTW**

( ○ ) - ( ○ ) ( ○ ) - ( ○ )

#### Optimal Metal Coverings

- S =Stainless steel Braid
- CU =Tinned Copper Braid
- I =Inconel Braid
- X =Half-Oval Galvanized Steel

↑  
Wire Size  
AWG or  
Metric

↑  
Add (F)  
for  
Stranded  
Wire

↑  
Calibration  
Grade  
Designation  
Per Table 1

Conductor Size		Insulation Thickness		Jacket Thickness		Outer Diameter		Net Weight	
AWG	(MM)	inches	(MM)	inches	(MM)	inches	(MM)	LB/MF	(KG/KM)
12	(2.05)	.020	(.51)	.025	(.64)	.308	(7.8)	77	(115)
14	(1.63)	.020	(.51)	.025	(.64)	.274	(7.0)	54	(80)
14F*	(1.80)	.020	(.51)	.025	(.64)	.290	(7.4)	60	(89)
16	(1.29)	.015	(.38)	.020	(.51)	.218	(5.5)	35	(52)
16F*	(1.47)	.015	(.38)	.020	(.51)	.232	(5.9)	38	(57)
18	(1.02)	.015	(.38)	.020	(.51)	.196	(5.0)	25	(37)
18F*	(1.22)	.015	(.38)	.020	(.51)	.208	(5.3)	27	(40)
20	(0.81)	.015	(.38)	.020	(.51)	.180	(4.6)	18	(27)
20F*	(0.97)	.015	(.38)	.020	(.51)	.188	(4.8)	20	(30)
22	(0.64)	.015	(.38)	.020	(.51)	.166	(4.2)	16	(24)
24	(0.51)	.015	(.38)	.020	(.51)	.156	(4.0)	12	(18)
24F*	(0.61)	.015	(.38)	.020	(.51)	.164	(4.1)	13	(19)

**MANY ITEMS AVAILABLE FROM STOCK WITHIN 24 HOURS**

The products referenced above represent the most popular constructions. Other constructions can be manufactured to meet individual specification and application requirements. Contact factory for additional information.

**Table 1**

Initial Calibration Tolerances Per ASTM E230 and ANSI MC96.1

**Tolerance-Reference Junction 32F (0C)**

Thermocouple Type	Temperature Range °F (°C)	Grade Designation	Standard Grade Limits °F (°C) whichever is greater	Grade Designation	Special Grade Limits °F (°C) whichever is greater
<b>Thermocouple Wire</b>					
T	32 (0) to 700 (370)	T	±1.8 (1) or ±0.75%	TT	±0.9 (0.5) or 0.4%
J	32 (0) to 1400 (760)	J	±4 (2.2) or ±0.75%	JJ	±2 (1.1) or 0.4%
E	32 (0) to 1600 (870)	E	±3.1 (1.7) or ±0.50%	EE	±1.8 (1) or 0.4%
K or N	32 (0) to 2300 (1260)	K or N	±4 (2.2) or ±0.75%	KK or NN	±2 (1.1) or 0.4%
T*	-328 (-200) to 32 (0)	T	±1.8 (1) or ±1.5%	TT	±0.9 (0.5) or 0.8%**
E*	-328 (-200) to 32 (0)	E	±3.1 (1.7) or ±1%	EE	±1.8 (1) or 0.5%**
K*	-328 (-200) to 32 (0)	K	±4 (2.2) or ±2%	KK	**
<b>Extension Wire</b>					
TX	32 (0) to 212 (100)	TX	±1.8 (1)	TTX	±0.9 (0.5)
JX	32 (0) to 400 (200)	JX	±4 (2.2)	JJX	±2 (1.1)
EX	32 (0) to 400 (200)	EX	±3.1 (1.7)	EEX	±1.8 (1)
KX or NX	32 (0) to 400 (200)	KX or NX	±4 (2.2)	KKX or NNX	±2 (1.1)
RX or SX	32 (0) to 400 (200)	RX or SX	±9 (5)		
BX	32 (0) to 212 (100)	BX***	±7.6 (4.2)		
BX	32 (0) to 400 (200)	BX ALLOY***	±6.7 (3.7)		

\* Thermocouple material is normally supplied to meet tolerances above 0C (32F). If material is required to meet tolerances below 0C (32F), the purchase order must so state. Special selection of material is required.

\*\* Suggested initial calibration tolerance. Requirements should be discussed between purchaser and supplier.

\*\*\* Copper vs. copper can be used as an extension for Type B thermocouples if the transition is below 100C (212F). Above 100C (212F), PCLW30-6 alloy should be used as the positive extension wire.