

## **WIRE, CABLE & ACCESSORIES INDEX**

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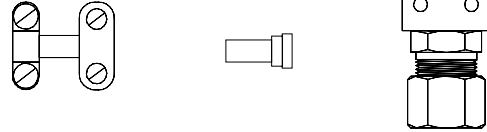
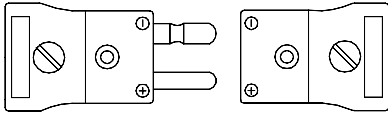
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### **General Information, Wire, Cable & Accessories Section**

SensorTec offers a full line of wire, cable and accessories for the temperature sensing industry. From plugs, jacks and panel connectors to thermocouple and RTD wire, we can help you complete your project. We also offer additional accessories for the plastics/packaging industry, which are located on pages P-21 through P-23 in the Plastics/Packaging section of our catalog.

Several accessories in this section are stock items ready for shipment. Please call to confirm availability and pricing. For products not listed in our catalog, please contact SensorTec for availability.

# STANDARD CONNECTORS and HARDWARE



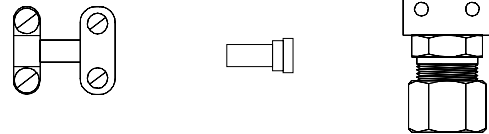
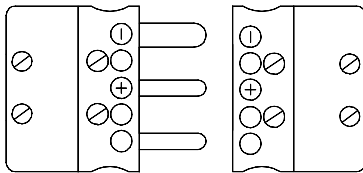
## STANDARD 2-PIN CONNECTORS

## HARDWARE, 2-PIN CONNECTORS

STANDARD TEMPERATURE (200°C / 392°F)	
PART #	DESCRIPTION
26105-*	Male Plug, Assembled
26205-*	Male Plug, Unassembled
26130-*	Male Plug, Jab-In Type
26150-*	Female Jack, Assembled
26250-*	Female Jack, Unassembled
26165-*	Female Jack, Jab-In Type
HIGH TEMPERATURE (427°C / 800°F)	
PART #	DESCRIPTION
26125-*	Male Plug, Assembled
26225-*	Male Plug, Unassembled
26132-*	Male Plug, Jab-In Type
26160-*	Female Jack, Assembled
26260-*	Female Jack, Unassembled
26167-*	Female Jack, Jab-In Type
* INSERT CALIBRATION: E, J, K, R, S, T, U	

PART #	DESCRIPTION
271150	Neoprene Wire Entrance Grommet
271100	Standard Wire Clamp Bracket
271105	Neoprene Wire Clamp Grommet
271001	Brass Crimp Adapter, 1/16" OD Sheath
271002	Brass Crimp Adapter, 1/8" OD Sheath
271003	Brass Crimp Adapter, 3/16" OD Sheath
271004	Brass Crimp Adapter, 1/4" OD Sheath
TPCT-10	Crimping Tool For Above
271051	Tube Adapter, 1/16" OD Sheath
271052	Tube Adapter, 1/8" OD Sheath
271053	Tube Adapter, 3/16" OD Sheath
271054	Tube Adapter, 1/4" OD Sheath
271055	Tube Adapter, 3/8" OD Sheath
271155	Neoprene Protective Boot

NOTE: For Solid Pin Male Plug, add-SP to P/N



## STANDARD 3-PIN CONNECTORS

## HARDWARE, 3-PIN CONNECTORS

STANDARD TEMPERATURE (200°C / 392°F)	
PART #	DESCRIPTION
26135	Male Plug, Assembled
26235	Male Plug, Unassembled
26170	Female Jack, Assembled
26235	Female Jack, Unassembled

PART #	DESCRIPTION
271180H	Neoprene Wire Entrance Grommet
271100H	Standard Wire Clamp Bracket
271105	Neoprene Wire Clamp Grommet
271001H	Brass Crimp Adapter, 1/16" OD Sheath
271002H	Brass Crimp Adapter, 1/8" OD Sheath
271003H	Brass Crimp Adapter, 3/16" OD Sheath
271004H	Brass Crimp Adapter, 1/4" OD Sheath
TPCT-10	Crimping Tool For Above
271051H	Tube Adapter, 1/16" OD Sheath
271052H	Tube Adapter, 1/8" OD Sheath
271053H	Tube Adapter, 3/16" OD Sheath
271054H	Tube Adapter, 1/4" OD Sheath
271055H	Tube Adapter, 3/8" OD Sheath

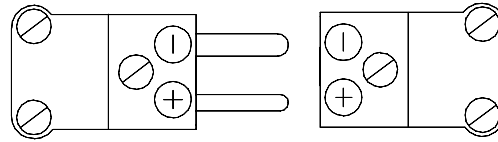
# MINIATURE CONNECTORS, HARDWARE and JACK PANELS

## MINIATURE 2-PIN CONNECTORS

### STANDARD TEMPERATURE (200°C / 392°F)

PART #	DESCRIPTION
26300-*	Male Plug, Assembled
26400-*	Male Plug, Unassembled
26330-*	Female Jack, Assembled
26430-*	Female Jack, Unassembled

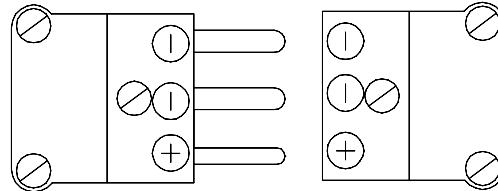
\* INSERT CALIBRATION: E, J, K, R, S, T, U



## MINIATURE 3-PIN CONNECTORS

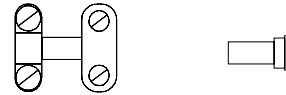
### STANDARD TEMPERATURE (200°C / 392°F)

PART #	DESCRIPTION
26310	Male Plug, Assembled
26410	Male Plug, Unassembled
26340	Female Jack, Assembled
26440	Female Jack, Unassembled



## HARDWARE, 2 and 3-PIN MINIATURE CONNECTORS

PART #	DESCRIPTION
271180	Neoprene Wire Entrance Grommet
271275	Standard Wire Clamp Bracket (2-Pin Only)
271105	Neoprene Wire Clamp Grommet
271201	Brass Crimp Adapter, 1/16" OD Sheath
271202	Brass Crimp Adapter, 1/8" OD Sheath
271203	Brass Crimp Adapter, 3/16" OD Sheath
TPCT-10	Crimping Tool For Above
271255	Neoprene Protective Boot



## MINIATURE JACK PANELS and FS BOXES

PART #	CIRCUITS	DESCRIPTION
28200-*		Snap-in Miniature Panel Jack
28225-*	1	Circular, 7/8" OD (1/2" KO), Plastic Frame
28401-*	1	FS Box Panel, 2-13/16" X 4-9/16"
28402-*	2	FS Box Panel, 2-13/16" X 4-9/16"
28403-*	3	FS Box Panel, 2-13/16" X 4-9/16"
28404-*	4	FS Box Panel, 2-13/16" X 4-9/16"
28405-*	5	FS Box Panel, 2-13/16" X 4-9/16"
28406-*	6	FS Box Panel, 2-13/16" X 4-9/16"
28408-*	8	Single Row, 2" X 6"
28410-*	10	Single Row, 2" X 7-1/4"
28412-*	12	Single Row, 2" X 8-1/2"

\* INSERT CALIBRATION: E, J, K, R, S, T, U, RTD (3-PIN)

## STANDARD JACK PANELS and FS BOXES

PART #	CIRCUITS	DESCRIPTION
28100-*		Snap-in Standard Size Panel Jack
28125-*	1	Circular, 1-1/8" OD (3/4" KO), Plastic Frame
28127-*	1	Circular, 1-1/8" OD (3/4" KO), Metal Frame
28301-*	1	FS Box Panel, 2-13/16" X 4-9/16"
28302-*	2	FS Box Panel, 2-13/16" X 4-9/16"
28303-*	3	FS Box Panel, 2-13/16" X 4-9/16"
28304-*	4	FS Box Panel, 2-13/16" X 4-9/16"
28305-*	5	FS Box Panel, 2-13/16" X 4-9/16"
28306-*	6	FS Box Panel, 2-13/16" X 4-9/16"
28312-*	12	Single Row, 2-5/8" X 10-1/4"
28318-*	18	Single Row, 2-5/8" X 14-3/4"
28324-*	24	Double Row, 4-3/8" X 10-1/4"

\* INSERT CALIBRATION: E, J, K, R, S, T, U, RTD (3-PIN)

## FS PANEL BOXES (3/4" CONDUIT OPENING)

28500	Glass Filled Nylon, Up To 6 Circuit Panels
28505	Cast Aluminum, Up To 4 Circuit Panels
28510	Cast Aluminum, Up To 6 Circuit Panels

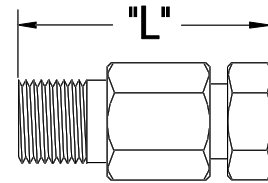
NOTE: WE HAVE SEVERAL OTHER PANEL SIZES AVAILABLE PLEASE CONSULT FACTORY FOR A COMPLETE LISTING

# SENSOR MOUNTING FITTINGS

## COMPRESSION FITTINGS

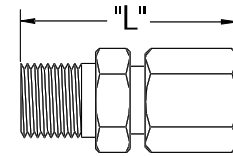
ONE TIME ADJUSTABLE		AVAILABLE SIZES and "L" LENGTH					
PART #	DESCRIPTION	NPT	1/16"	1/8"	3/16"	1/4"	3/8"
43200-*	Stainless Steel	1/8	1.27	1.24	1.29	1.29	--
43205-*	Stainless Steel	1/4	1.22	1.40	1.43	1.49	1.57
43210-*	Stainless Steel	1/2	--	1.66	--	1.76	1.82
43215-*	Brass	1/8	1.03	1.02	1.10	1.15	--
43220-*	Brass	1/4	1.22	1.40	1.18	1.24	1.28
43225-*	Brass	1/2	1.40	1.35	1.25	1.44	1.53

\* INSERT SHEATH SIZE (1/16, 1/8, 3/16, 1/4, or 3/8")

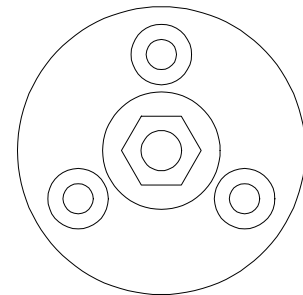
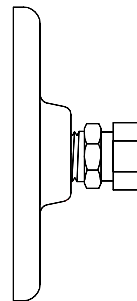
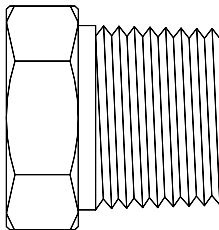


RE-ADJUSTABLE, WITH TEFLON FERRULE		AVAILABLE SIZES and "L" LENGTH					
PART #	DESCRIPTION	NPT	1/16"	1/8"	3/16"	1/4"	3/8"
43250-*	Stainless Steel	1/8	1.21	1.21	1.21	--	--
43255-*	Stainless Steel	1/4	--	1.40	1.43	2.50	2.50
43260-*	Stainless Steel	1/2	--	1.66	--	1.76	1.82

\* INSERT SHEATH SIZE (1/16, 1/8, 3/16, 1/4, or 3/8")



NOTE: CONSULT FACTORY FOR NEOPRENE OR LAVA FERRULES



## HEX REDUCING BUSHINGS

PART #	DESCRIPTION	NPT
42250	316 Stainless Steel	1/4 X 1/8
42255	316 Stainless Steel	3/8 X 1/8
42260	316 Stainless Steel	3/8 X 1/4
42265	316 Stainless Steel	1/2 X 1/8
42270	316 Stainless Steel	1/2 X 1/4
42275	316 Stainless Steel	3/4 X 1/8
42280	316 Stainless Steel	3/4 X 1/4
42285	316 Stainless Steel	3/4 X 1/2
41250	Brass	1/4 X 1/8
41265	Brass	1/2 X 1/8
41270	Brass	1/2 X 1/4
41275	Brass	3/4 X 1/8
41280	Brass	3/4 X 1/4
41285	Brass	3/4 X 1/2

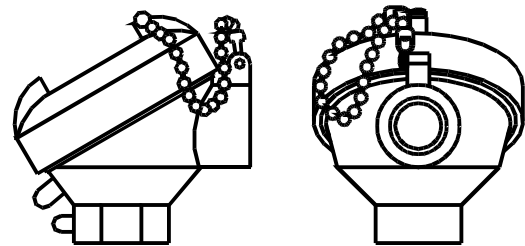
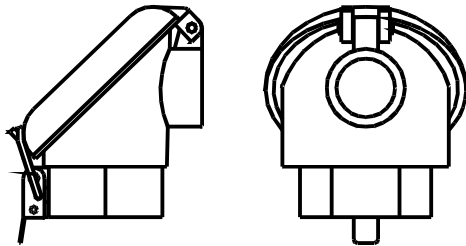
## MOUNTING FLANGES

PART #	DESCRIPTION
44275-*	Flange w/Brass Compression, Adjustable
44280-*	Flange w/SS Compression, Adjustable
44270-*	Flange Only, 1/4" NPT

\* INSERT SHEATH SIZE (1/16, 1/8, 3/16, 1/4, or 3/8")

NOTE: All Fitting Lengths Listed are Nominal Overall Length

# TEMPERATURE SENSOR CONNECTION HEADS

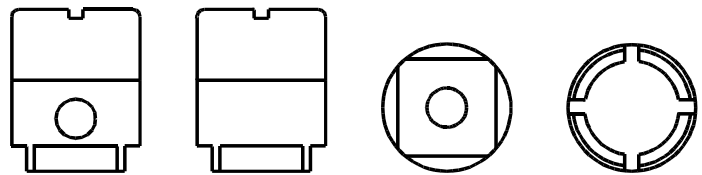
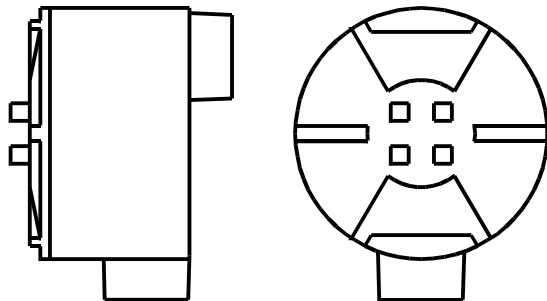


<b>Snap Cover Connection Head</b>		
Rated NEMA 4, 12 3/4" NPT Conduit Connection, Spring loadable		
Part#	Description	Process Connection
ST-1018*	Aluminum Snap Cover <sup>1</sup>	1/8" NPT
ST-1012	Aluminum Snap Cover <sup>1</sup>	1/2" NPT
ST-1034	Aluminum Snap Cover <sup>1</sup>	3/4" NPT
ST-1212	White Polypropylene Snap Cover <sup>3</sup>	1/2" NPT
ST-1234	White Polypropylene Snap Cover <sup>3</sup>	3/4" NPT
ST-1318*	Black Polypropylene Snap Cover <sup>2</sup>	1/8" NPT
ST-1312	Black Polypropylene Snap Cover <sup>2</sup>	1/2" NPT
ST-1334	Black Polypropylene Snap Cover <sup>2</sup>	3/4" NPT

<b>Screw Cover Connection Head</b>		
Rated NEMA 4, 12 3/4" NPT Conduit Connection, Spring loadable		
Part#	Description	Process Connection
ST-1418*	Aluminum Screw Cover <sup>1</sup>	1/8" NPT
ST-1412	Aluminum Screw Cover <sup>1</sup>	1/2" NPT
ST-1434	Aluminum Screw Cover <sup>1</sup>	3/4" NPT
ST-1512	Cast Iron Screw Cover <sup>1</sup>	1/2" NPT
ST-1534	Cast Iron Screw Cover <sup>1</sup>	3/4" NPT
ST-1510	Cast Iron Screw Cover <sup>1</sup>	1" NPT
ST-1812	Stainless Steel Screw Cover <sup>1</sup>	1/2" NPT
ST-1834	Stainless Steel Screw Cover <sup>1</sup>	3/4" NPT

\* Limited availability consult factory

\* Limited availability consult factory



<b>Aluminum Explosion Proof Connection Head</b>		
Rated NEMA 7, 12 <sup>1</sup> Class I, DIV 1 & 2, Groups C & D <sup>2</sup> Class II, DIV 1 & 2, Groups E, F & G Class III, DIV 1 & 2 <sup>1</sup> NEMA 4 also available upon request <sup>2</sup> Groups A & B also available upon request Conduit connection is the same as the process connection		
Part#	Description	Process Connection
ST-GALB-1	Aluminum Exp. Screw Cover <sup>1</sup>	1/2" NPT
ST-GALB-2	Aluminum Exp. Screw Cover <sup>1</sup>	3/4" NPT

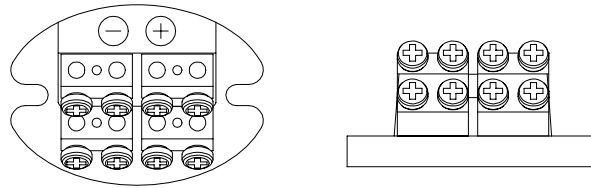
<b>Stainless Steel Screw Cover Connection Head, 304 SST</b>		
Not Rated at this time, Complies with NEMA 4X, 12 1/2" NPT Conduit Connection, Spring loadable		
Part#	Description	Process Connection
ST-241200	Stainless Steel Screw Cover <sup>1</sup>	1/2" NPT
ST-241210	Stainless Steel Screw Cover <sup>1</sup>	3/4" NPT

<sup>1</sup>Rated for 200°C

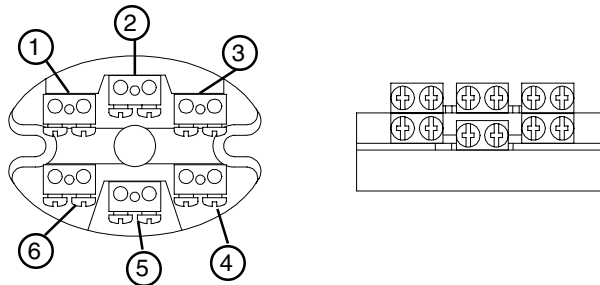
<sup>2</sup>Rated for 90°C

<sup>3</sup>Rated for 90°C, FDA Compliant for food applications

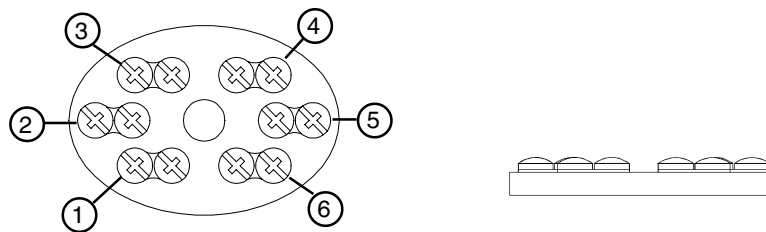
# TERMINAL BLOCKS FOR CONNECTION HEADS



Ceramic Terminal Blocks - Bottom Feed Used with industrial style elements and bulk MgO elements	
Part#	Description
ST-402	Ceramic Bottom Feed Block - 2 pole
ST-404	Ceramic Bottom Feed Block - 4 pole



Ceramic Terminal Blocks - Center Feed Used with RTD's and MgO Assemblies w/ flexible leads		
Part#	Description	Terminal #
ST-502	Ceramic Center Feed Block w/ 2 terminals	1,3
ST-503	Ceramic Center Feed Block w/ 3 terminals	1,3,5
ST-504	Ceramic Center Feed Block w/ 4 terminals	1,3,4,6
ST-506	Ceramic Center Feed Block w/ 6 terminals	1,2,3,4,5,6



Plastic Terminal Blocks - Center Feed Used with RTD's and MgO Assemblies w/ flexible leads Shock Resistant, will not break or crack like ceramic, economical		
Part#	Description	Terminal #
ST-602	Plastic Center Feed Block w/ 2 terminals	3,4
ST-603	Plastic Center Feed Block w/ 3 terminals	3,4,6
ST-604	Plastic Center Feed Block w/ 4 terminals	1,3,4,6
ST-606	Plastic Center Feed Block w/ 6 terminals	1,2,3,4,5,6

The terminal blocks listed above will fit in any of 10XX, 12XX, 13XX, 14XX, or 15XX series heads. For availability on terminal blocks for other style heads please contact our sales department.

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# THERMOCOUPLE WIRE REFERENCE DATA

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## THERMOCOUPLE WIRE

A thermocouple is a temperature measuring device consisting of two conductors of dissimilar metals or alloys that are connected only at the ends. When the ends are at different temperatures a small voltage is produced in the wire that can be related directly to the temperature difference between the ends. If the temperature at one end is known, the temperature at the other end can be determined.

Thermocouple wire or extension grade wire is recommended to be used to connect thermocouples to the sensing or control instrumentation. The conditions of measurement determine the type of thermocouple wire and insulation to be used. Temperature range, environment, insulation requirements, response, and service life should be considered.

## CALIBRATION TYPE CHARACTERISTICS

TYPE J (Iron vs Constantan <sup>TM</sup>) is used in vacuum, oxidizing, inert or reducing atmospheres. Iron element oxidizes rapidly at temperatures exceeding 1000°F (538°C), and therefore heavier gauge wire is recommended for longer life at these temperatures.

TYPE K (Chromel <sup>TM</sup> vs Alumel <sup>TM</sup>) is used in oxidizing, inert or dry reducing atmospheres. Exposure to vacuum is limited to short time periods. Must be protected from sulfurous and marginally oxidizing atmospheres. Reliable and accurate at high temperature.

TYPE T (Copper vs Constantan <sup>TM</sup>) is used for service in oxidizing, inert or reducing atmospheres or in vacuum. It is highly resistant to corrosion from atmospheric moisture and condensation and exhibits high stability at low temperatures; it is the only type with limits of error guaranteed for cryogenic temperatures.

TYPE E (Chromel <sup>TM</sup> vs Constantan <sup>TM</sup>) may be used in oxidizing, inert or dry reducing atmospheres, or for short periods of time under vacuum. Must be protected from sulfurous and marginally oxidizing atmospheres. Produces the highest EMF per degree of any standardized thermocouple.

TYPE N (Nicrosil <sup>TM</sup> vs Nisil <sup>TM</sup>) is used in oxidizing, inert or dry reducing atmospheres. Must be protected from sulfurous atmospheres. Very reliable and accurate at high temperatures.



# THERMOCOUPLE WIRE REFERENCE DATA

## ACCURACY OF SENSORTEC THERMOCOUPLE WIRE

SENSORTEC's insulated thermocouple wire is matched to meet standard or special limits of error for temperatures above 32 °F (0 °C), as given in ANSI MC 96.1 and shown in tables below.

INITIAL CALIBRATION TOLERANCES FOR THERMOCOUPLE WIRE							
THERMOCOUPLE TYPE		°F			°C		
Wire Alloys	ANSI Symbol	Temperature Range	Standard Limits	Special Limits	Temperature Range	Standard Limits	Special Limits
Iron (+) vs. Constantan™(-)	J	+32° to +545° +545° to +1400°	±4° ±0.75%	±2° ±0.4%	0° to +285° +285° to +750°	±2.2° ±0.75%	±1.1° ±.4%
Chromel™ (+) vs *Alumel™ (-)	K	-330° to -165° -165° to +32° +32° to +545° +545° to +2300°	±2% ±4° ±4° ±0.75%	±2° ±0.4%	-200° to -110° -110° to 0° 0° to +285° +285° to +1250°	±2% ±2.2° ±2.2° ±0.75%	±1.1° ±.4%
Copper (+) vs Constantan™ (-)	T	-330° to -85° -85° to +270° +270° to +660°	±1.5% ±1.8° ±0.75%	±0.8% ±0.9° ±0.4%	-200° to -65° -65° to +130° +130° to +350°	±1.5% ±1° ±0.75%	±.8% ±.5° ±.4%
Chromel™ (+) vs Constantan™ (-)	E	-330° to -270° -270° to +480° +480° to +640° +640° to +1600°	±1% ±3° ±3° ±0.5%	±1.8° ±1.8° ±0.4% ±0.4%	-200° to -170° -170° to +250° +250° to +340° +340° to +900°	±1% ±1.7° ±1.7° ±0.5%	±1° ±1° ±.4% ±.4%
Nicrosil™ (+) vs Nisil™ (-)	N	+32° to +545° +545° to +2300°	±4° ±0.75%	±2° ±0.4%	0° to +285° +285° to +1250°	±2.2° ±0.75%	±1.1° ±.4%

\*Magnetic

NOTE: Percent limits apply directly to temperatures in °C units, but for °F equivalents are applied to the number of °F above or below the ice point (+32 °F). (i.e., Limit (°F) = (Temp. F-32 °F) x Percentage.

Thermocouple wire cannot be expected to meet limits of error at temperatures below the ice point unless specified at time of purchase.

## ACCURACY OF SENSORTEC EXTENSION WIRE

Thermocouple extension wire has approximately the same thermoelectric characteristics as thermocouple wire, but its accuracy is guaranteed over a more limited range of temperatures. Thermocouple extension wire can offer advantages in cost when used for connections between thermocouples and instruments. For base metal types of thermocouples, extension wire is of substantially the same composition as the corresponding thermocouple type. For noble metal types, however, an entirely different alloy is formulated to match the noble metal characteristics over a specified temperature range. This is necessary due to the high cost of the noble metals which could otherwise be necessary for the interconnection. The "X" in the ANSI and ordering codes denotes extension grade wire.

INITIAL CALIBRATION TOLERANCES FOR THERMOCOUPLE EXTENSION WIRE							
THERMOCOUPLE TYPE		°F			°C		
Extension Wire Alloys	ANSI Symbol	Temperature Range	Standard Limits	Special Limits	Temperature Range	Standard Limits	Special Limits
Iron (+) vs. Constantan™(-) Chromel™ (+) vs *Alumel™ (-)	JX KX	+32° to +400° +32° to +400°	±4° ±4°	±2° ±2°	0° to +200° 0° to +200°	±2.2° ±2.2%	±1.1° ±1.1°
Copper (+) vs Constantan™ (-) Chromel™ (+) vs Constantan™ (-)	TX EX	-75° to +210° +32° to +400°	±2° ±3°	±1° ±2°	-60° to +100° 0° to +200°	±1.1% ±1.7%	±.5° ±1.1°
Nicrosil™ (+) vs Nisil™ (-) Copper vs Copper Alloy	NX SX RX	+32° to +400° +75° to +400°	±4° ±12°	±2°	0° to +200° +25° to +200°	±2.2° ±7°	±1.1°
PCLW630 vs Copper Copper vs Copper	BX 2CU†	+32° to +400° +32° to +150°	±4° ±2°		0° to +200° 0° to +65°	±2.2° ±1.1°	
Alloy 203 vs Alloy 2235 Alloy 405 vs Alloy 426	W3X† W5X†	+32° to +500° +32° to +1600°	±12° ±12°		0° to +260° 0° to +870°	±7° ±7°	

\*Magnetic

† Not ANSI Symbol

™ Trademark, Hoskins Mfg. Co.



# THERMOCOUPLE WIRE REFERENCE DATA

<b>PROPERTIES OF THERMOELEMENT MATERIAL</b>										
Property	JP	JN, EN, TN	TP	KP, EP	KN	RP	SP	RN, SN	BP	BN
Melting point (Solid Temperatures): °C °F	1,490 2,715	1,220 2,228	1,083 1,981	1,427 2,600	1,399 2,550	1,860 3,380	1,860 3,360	1,769 3,216	1,927 3,501	1,826 3,319
Resistivity: μW - cm: 0°C 20°C W - cmil/ft.: 0°C 20°C	8.57 9.67 51.5 58.2	48.9 48.9 294.2 294	1.56 1.724 9.38 10.37	70 70.6 421 425	28.1 29.4 169 177	19.0 19.6 114.3 117.7	18.4 18.9 110.7 114.0	9.83 10.4 59.1 62.4	--- 19.0 --- 1147.5	--- 17.5 --- 106
Temperature coefficient of resistance, W/W °C (0 to 100°C)	65 x 10 <sup>-4</sup>	-0.1 x 10 <sup>-4</sup>	43 x 10 <sup>-4</sup>	4.1 x 10 <sup>-4</sup>	23.9 x 10 <sup>-4</sup>	15.6 x 10 <sup>-4</sup>	16.6 x 10 <sup>-4</sup>	39.2 x 10 <sup>-4</sup>	13.3 x 10 <sup>-4</sup>	20.0 x 10 <sup>-4</sup>
Coefficient of thermal expansion, in./in. °C (20 to 100°C)	11.7 x 10 <sup>-6</sup>	14.9 x 10 <sup>-6</sup>	16.6 x 10 <sup>-6</sup>	13.1 x 10 <sup>-6</sup>	12.0 x 10 <sup>-6</sup>	9.0 x 10 <sup>-6</sup>	9.0 x 10 <sup>-6</sup>	9.0 x 10 <sup>-6</sup>	---	---
Thermal conductivity at 100°C: Cal. cm/s . cm <sup>2</sup> . °C Btu . ft/h . ft <sup>2</sup> . °F	0.162 39.2	0.0506 12.2	0.901 218	0.046 11.1	0.071 17.2	0.088 21.3	0.090 21.8	0.171 41.4	---	---
Specific heat at 20°C cal/g . °C	0.107	0.094	0.092	0.107	0.125	---	---	0.032	---	---
Density: g/cm <sup>3</sup> . b/in <sup>3</sup>	7.86 0.284	8.92 0.322	8.92 0.322	8.73 0.315	8.60 0.311	19.61 0.708	19.97 0.721	21.45 0.775	17.60 0.626	20.55 0.743
Tensile strength (annealed): kgf/cm <sup>2</sup> psi	3,500 50,000	5,600 80,000	2,500 35,000	6,700 95,000	6,000 85,000	3,200 46,000	3,200 45,000	1,400 20,000	4,900 70,000	2,800 40,000
Magnetic attraction	strong	none	none	none	moderate	none	none	none	none	none

<b>NOMINAL CHEMICAL COMPOSITION OF THERMOELEMENTS</b>										
ELEMENT	JP	JN, EN <sup>a</sup> , TN	TP	KP, EP	KN	RP	SP	RN, SN	BP	BN
<b>NOMINAL CHEMICAL COMPOSITION, %</b>										
Iron	99.5	...	...	...	...	...	...	...	...	...
Carbon	... <sup>b</sup>	...	...	...	...	...	...	...	...	...
Manganese	... <sup>b</sup>	...	...	...	2	...	...	...	...	...
Sulfur	... <sup>b</sup>	...	...	...	...	...	...	...	...	...
Phosphorus	... <sup>b</sup>	...	...	...	...	...	...	...	...	...
Silicon	... <sup>b</sup>	...	...	...	1	...	...	...	...	...
Nickel	... <sup>b</sup>	45	...	90	95	...	...	...	...	...
Copper	... <sup>b</sup>	55	100	...	...	...	...	...	...	...
Chromium	... <sup>b</sup>	...	...	10	...	...	...	...	...	...
Aluminum	...	...	...	...	2	...	...	...	...	...
Platinum	...	...	...	...	...	87	90	100*	70.4	93.9
Rhodium	...	...	...	...	...	13	10	...	29.6	6.1

<sup>a</sup> Types JN, TN and EN thermoelements usually contain small amounts of various elements for control of thermal emf, with corresponding reductions in the nickel or copper content, or both

<sup>b</sup> Thermoelectric iron (JP) contains small but varying amounts of these elements



# THERMOCOUPLE WIRE REFERENCE DATA

## STRANDED WIRE DATA

A.W.G.	STRANDING	APPROX. O.D.	A.W.G. SIZE	STRANDING	APPROX. O.D.	A.W.G. SIZE	STRANDING	APPROX. O.D.
30	7/38	.012	22	19/34	.031	12	7/20	.096
30	19/42	.012	20	7/28	.037	12	19/25	.093
28	7/36	.015	20	19/32	.037	10	37/26	.110
28	19/40	.016	18	7/26	.048	10	105/30	.111
26	7/34	.019	18	19/30	.050	8	133/29	.161
26	19/38	.020	16	7/24	.060	6	133/27	.202
24	7/32	.024	16	19/29	.058	4	133/25	.255
24	19/36	.024	14	7/22	.073	2	665/30	.331
22	7/30	.030	14	19/27	.076			

## NOMINAL THERMOCOUPLE RESISTANCE Ohms per Double Foot @ 68°F (20°C)

Wire GA B & S	Wire Size Dia.	ANSI TYPES						
		J	K	T	E	S	R	B
6	.162	.014	.023	.012	.027	.007	.007	.008
*7	.144	.021						
8	.128	.022	.036	.019	.044	.010	.010	.013
14	.064	.089	.147	.074	.176	.044	.044	.054
16	.050	.141	.232	.117	.277	.069	.069	.086
18	.040	.229	.377	.190	.450	.112	.113	.139
20	.032	.357	.588	.297	.702	.175	.178	.218
24	.020	.905	1.488	.754	1.778	.449	.453	.550
26	.015	1.441	2.45	1.20	2.84	.701	.708	.875
28	.012	2.297	3.59	1.92	4.33	1.062	1.073	1.392
30	.010	3.65	6.02	2.94	7.19	1.794	1.813	2.213
36	.005	14.66	24.08	12.22	28.80	7.150	7.226	8.897

\* Double feet 7 Ga Type J = 7 Ga Iron/8 Ga Constantan

## ANSI COLOR CODE FOR THERMOCOUPLE AND THERMOCOUPLE EXTENSION WIRE

ANSI SYMBOL	WIRE ALLOYS	POLARITY	THERMOCOUPLE WIRE COLOR		T/C EXTENSION WIRE COLOR	
			INDIVIDUAL	JACKET	INDIVIDUAL	JACKET
J	IRON CONSTANTAN™	+JP -JN	WHITE RED	BROWN	WHITE RED	BLACK
K	CHROMEL™ ALUMEL™	+KP -KN	YELLOW RED	BROWN	YELLOW RED	YELLOW
T	COPPER CONSTANTAN™	+TP -TN	BLUE RED	BROWN	BLUE RED	BLUE
E	CHROMEL™ CONSTANTAN™	+EP -EN	PURPLE RED	BROWN	PURPLE RED	PURPLE
N	NICROSIL™ NISIL™	+NP -NN	ORANGE RED	BROWN	ORANGE RED	ORANGE
RSX	COPPER COPPER ALLOY	+RSP -RSN			BLACK RED	GREEN
BX	PCLW630/COPPER COPPER	+BP -BN			GREY RED	GREY
W3X W5X	ALLOY 203; ALLOY 405 ALLOY 225; ALLOY 426	+WP -WN			WHITE/RED RED	WHITE/RED

™ Trademark, Hoskins Mfg. Co.

# THERMOCOUPLE WIRE REFERENCE DATA

## THERMOCOUPLE WIRE INSULATIONS

The following table lists the most common insulation types.

PRODUCT CODE	INSULATION SINGLES	SATURANT	JACKET	SATURANT	SERVICE TEMPERATURE LIMITS °F (°C)		ANSI COLOR CODED	ABRASION RESISTANCE	MOISTURE RESISTANCE	NOTES
					CONTINUOUS	SINGLE				
P/P	PVC .014" - .015"	---	PVC .015" - .020"	---	-15 to 221 °F (-26 to 105 °C)	---	Y	Good	Excellent	Polyvinyl Chloride
P/AP	PVC .014" - .015"	---	PVC .015" - .020"	---	-15 to 221 °F (-26 to 105 °C)	---	Y	Good	Excellent	Aluminum/Mylar shield w/drain wire
N/N	Nylon .005" - .006"	---	Nylon .006" - .008"	---	248 °F (120 °C)	---	Y	Excellent	Fair	
Z/Z	Tefzel* .008"	---	Tefzel* .010"	---	302 °F (150 °C)	392 °F (200 °C)	Y	Excellent	Excellent	
F/F	Teflon * FEP .008"	---	Teflon * FEP .010"	---	400 °F (204 °C)	482 °F (250 °C)	Y	Very Good	Excellent	
F/AF	Teflon * FEP .009"	---	Teflon * FEP .010" twisted	None	400 °F (204 °C)	500 °F (260 °C)	X	Excellent	Excellent	Aluminum/Mylar shield w/drain wire
A/A	Teflon * PFA .008"	---	Teflon * PFA .010"	---	500 °F (260 °C)	550 °F (288 °C)	Y	Very Good	Excellent	
T/T	Teflon * TFE .006"	---	Teflon * TFE .008"	---	500 °F (260 °C)	550 °F (288 °C)	Y	Good	Excellent	Taped and Fused
K/K	Kapton * Tape .006" color coded	---	Kapton * Tape .004"	---	500 °F (260 °C)	800 °F (427 °C)	N	Excellent	Excellent	FEP Binder melts at 500 °F (260 °C)
K/TW	Kapton * Tape .004"	None	Twisted	None	500 °F (260 °C)	800 °F (427 °C)	N	Excellent	Excellent	FEP Binder melts at 500 °F (260 °C)
G/G	Fiberglass Braid .006"	Modified Silicone	Fiberglass Braid .006"	Modified Silicone	900 °F (482 °C)	1000 °F (537 °C)	Y	Good	Good	Saturant good to 400 °F (204 °C)
G2/G	Double Glass Braid .012"	Modified Silicone	Glass Braid .006"	Modified Silicone	900 °F (482 °C)	1000 °F (537 °C)	Y	Good	Good	Saturant good to 400 °F (204 °C)
G/TW	Glass Braid .009"	Modified Silicone	None Singles twisted	---	900 °F (482 °C)	1000 °F (537 °C)	Y	Good	Good	Saturant good to 400 °F (204 °C)
W2/G	Two Passes Glass Wrap .0055"	Modified Varnish	Glass Braid .006"	Modified Silicone	900 °F (482 °C)	1000 °F (537 °C)	Y	Good	Good	Saturant good to 400 °F (204 °C)
R/R	Hi-temp glassbraid	---	Hi-temp glassbraid	Hi-temp Varnish	1400 °F (760 °C)	1600 °F (871 °C)	Y	Good	Good	Saturant good to 400 °F (204 °C)
R/TW	Hi-temp glassbraid .008"	Modified Silicone	None Singles twisted	---	1400 °F (760 °C)	1600 °F (871 °C)	Y	Good	Good	Saturant good to 400 °F (204 °C)
V/V	Vitreous Silica Fiber, .015"	None	Vitreous Silica Fiber, .015"	None	1600 °F (871 °C)	2000 °F (1093 °C)	N	Poor	Fair	
C/C	Ceramic Fiber .012"/.015"	None	Ceramic Fiber .015"	None	2200 °F (1204 °C)	2600 °F (1427 °C)	N	Good	Fair	

\* Registered Trademark of E.I. DuPont

### How to read SensorTec Part Numbers

Example:

**J 20 3 - S - T/T**

ANSI Thermocouple Type

Wire Gauge

Conductor Type				
Code	Description			
T/C Grades	Solid	Stranded	Std. Limits	Special
1	X		X	
2	X			X
3		X	X	
4		X		X
Ext. Grades	Solid	Stranded	Std. Limits	Special
5	X		X	
6	X			X
7		X	X	
8		X		X

Optional Overbraid Selection	
Code	Description
S	Stainless Steel Braid
C	Tinned Copper Braid
F	Flat SST Ribbon Wrap
N	Inconel 600 Braid

Wire Insulation Code



# INSULATED THERMOCOUPLE WIRE

**ANSI TYPE "J" (Iron/Constantan)**

Color Code: Negative - Red, Positive - White, Brown Overall Jacket

Catalog Number	Gauge	Conductor Type	Insulation, Individual Conductor	Insulation, Overall Jacket	Nominal Over-All Size (major x minor)	Approx.* Weight, lbs.	Stock Item***
J141-R/R	14	Solid	Hi-temp Glass Braid	Hi-temp Glass Braid	.200 X .112	39	Y
J201-G/G	20	Solid	Fiberglass Braid	Fiberglass Braid	.106 X .060	11	Y
J201-S-G/G	20	Solid	Fiberglass Braid	Fiberglass Braid with Stainless Overbraid	.127 X .081	19	N
J201-G/TW	20	Solid	Fiberglass Braid	None, Twisted	.098	9	Y
J201-S-G	20	Solid	Fiberglass Braid	Stainless Overbraid	.120 X .074	17	Y
J201-W2/G	20	Solid	Double Glass Wrap	Fiberglass Braid	.098 X .055	10	N
J203-G/G	20	Stranded	Fiberglass Braid	Fiberglass Braid	.118 X .066	11	Y
J203-S-G/G	20	Stranded	Fiberglass Braid	Fiberglass Braid with Stainless Overbraid	.139 X .087	19	N
J203-G/TW	20	Stranded	Fiberglass Braid	None, Twisted	.101	9	Y
J203-S-G	20	Stranded	Fiberglass Braid	Stainless Overbraid	.124 X .075	17	Y
J201-R/TW	20	Solid	Hi-temp Glass Braid	None, Twisted	.120	9	N
J201-R/R	20	Solid	Hi-temp Glass Braid	Hi-temp Glass Braid	.140 X .085	15	Y
J201-F/F	20	Solid	Extruded FEP Teflon	Extr. FEP Teflon	.116 X .068	12	Y
J201-A/A	20	Solid	Extruded PFA Teflon	Extr. PFA Teflon	.116 X .068	12	N
J201-F/AF	20	Solid	Extruded FEP Teflon	Extr. FEP, Twisted with Alum./Mylar	.135	16	N
J201-T/T	20	Solid	Fused TFE Teflon Tape	Fused TFE Tape	.104 X .060	10	N
J203-F/F	20	Stranded	Extruded FEP Teflon	Extr. FEP Teflon	.128 X .074	13	Y
J203-S-F/F	20	Stranded	Extruded FEP Teflon	Extr. FEP Teflon with Stainless Overbraid	.149 X .095	21	Y
J201-K/K	20	Solid	Fused Kapton Tape	Fused Kapton Tape	.096 X .052	9	N
J201-K/TW	20	Solid	Fused Kapton Tape	None, Twisted	.087	10	N
J203-K/K	20	Stranded	Fused Kapton Tape	Fused Kapton Tape	.108 X .158	11	N
J241-G/G	24	Solid	Fiberglass Braid	Fiberglass Braid	.082 X .048	6	Y
J241-S-G/G	24	Solid	Fiberglass Braid	Fiberglass Braid with Stainless Overbraid	.103 X .069	11	Y
J241-W2/G	24	Solid	Double Glass Wrap	Fiberglass Braid	.074 X .043	5	N
J243-G/G	24	Stranded	Fiberglass Braid	Fiberglass Braid	.086 X .047	6	Y
J243-S-G/G	24	Stranded	Fiberglass Braid	Fiberglass Braid with Stainless Overbraid	.107 X .068	11	Y
J241-F/F	24	Solid	Extruded FEP Teflon	Extr. FEP Teflon	.092 X .056	6	Y
J241-T/T	24	Solid	Fused TFE Teflon Tape	Fused TFE Tape	.080 X .048	4	N
J243-F/F	24	Stranded	Extruded FEP Teflon	Extr. FEP Teflon	.100 X .060	7	Y
J241-K/K	24	Solid	Fused Kapton Tape	Fused Kapton Tape	.072 X .040	6	N
J241-K/TW	24	Solid	Fused Kapton Tape	None, Twisted	.063	5	N
J281-W2/G	28	Solid	Double Glass Wrap	Fiberglass Braid	.060 X .036	3	N
J301-G/G	30	Solid	Fiberglass Braid	Fiberglass Braid	.059 X .037	3	N
J301-W2/G	30	Solid	Double Glass Wrap	Fiberglass Braid	.054 X .033	3	N
J301-F/F	30	Solid	Extruded FEP Teflon **	Extruded FEP Teflon	.050 X .030	4	N
J301-K/K	30	Solid	Fused Kapton Tape	Fused Kapton Tape	.052 X .030	4	N

\* Per 1000 Ft. Spool

\*\* Thin Wall Insulation

\*\*\* Call for actual availability



# INSULATED THERMOCOUPLE WIRE

**ANSI TYPE "K" (Chromel/Alumel)**

Color Code: Negative - Red, Positive - Yellow, Brown Overall Jacket

Catalog Number	Gauge	Conductor Type	Insulation, Individual Conductor	Insulation, Overall Jacket	Nominal Over-All Size (major x minor)	Approx.* Weight, lbs.	Stock Item***
K141-R/R	14	Solid	Hi-temp Glass Braid	Hi-temp Glass Braid	.200 X .112	39	Y
K201-G/G	20	Solid	Fiberglass Braid	Fiberglass Braid	.106 X .060	11	Y
K201-S-G/G	20	Solid	Fiberglass Braid	Fiberglass Braid with Stainless Overbraid	.127 X .081	19	N
K201-G/TW	20	Solid	Fiberglass Braid	None, Twisted	.098	9	Y
K201-S-G	20	Solid	Fiberglass Braid	Stainless Overbraid	.120 X .074	17	Y
K201-W2/G	20	Solid	Double Glass Wrap	Fiberglass Braid	.098 X .055	10	N
K203-G/G	20	Stranded	Fiberglass Braid	Fiberglass Braid	.118 X .066	11	Y
K203-S-G/G	20	Stranded	Fiberglass Braid	Fiberglass Braid with Stainless Overbraid	.139 X .087	19	N
K203-G/TW	20	Stranded	Fiberglass Braid	None, Twisted	.101	9	Y
K203-S-G	20	Stranded	Fiberglass Braid	Stainless Overbraid	.124 X .075	17	Y
K201-R/TW	20	Solid	Hi-temp Glass Braid	None, Twisted	.120	9	N
K201-R/R	20	Solid	Hi-temp Glass Braid	Hi-temp Glass Braid	.140 X .085	15	Y
K201-V/V	20	Solid	Vitreous Silica Braid	Vitreous Silica Braid	.154 X .092	10	Y
K201-C/C	20	Solid	Ceramic Fiber Braid	Ceramic Fiber Braid	.154 X .092	10	Y
K201-F/F	20	Solid	Extruded FEP Teflon	Extr. FEP Teflon	.116 X .068	12	Y
K201-A/A	20	Solid	Extruded PFA Teflon	Extr. PFA Teflon	.116 X .068	12	N
K201-F/AF	20	Solid	Extruded FEP Teflon	Extr. FEP, Twisted with Alum./Mylar	.135	16	N
K201-T/T	20	Solid	Fused TFE Teflon Tape	Fused TFE Tape	.104 X .060	10	N
K203-F/F	20	Stranded	Extruded FEP Teflon	Extr. FEP Teflon	.128 X .074	13	Y
K203-S-F/F	20	Stranded	Extruded FEP Teflon	Extr. FEP Teflon with Stainless Overbraid	.149 X .095	21	Y
K201-K/K	20	Solid	Fused Kapton Tape	Fused Kapton Tape	.096 X .052	9	N
K201-K/TW	20	Solid	Fused Kapton Tape	None, Twisted	.087	10	N
K203-K/K	20	Stranded	Fused Kapton Tape	Fused Kapton Tape	.108 X .158	11	N
K241-G/G	24	Solid	Fiberglass Braid	Fiberglass Braid	.082 X .048	6	Y
K241-S-G/G	24	Solid	Fiberglass Braid	Fiberglass Braid with Stainless Overbraid	.103 X .069	11	Y
K241-W2/G	24	Solid	Double Glass Wrap	Fiberglass Braid	.074 X .043	5	N
K243-G/G	24	Stranded	Fiberglass Braid	Fiberglass Braid	.086 X .047	6	Y
K243-S-G/G	24	Stranded	Fiberglass Braid	Fiberglass Braid with Stainless Overbraid	.107 X .068	11	Y
K241-F/F	24	Solid	Extruded FEP Teflon	Extr. FEP Teflon	.092 X .056	6	Y
K241-T/T	24	Solid	Fused TFE Teflon Tape	Fused TFE Tape	.080 X .048	4	N
K243-F/F	24	Stranded	Extruded FEP Teflon	Extr. FEP Teflon	.100 X .060	7	Y
K241-K/K	24	Solid	Fused Kapton Tape	Fused Kapton Tape	.072 X .040	6	N
K281-W2/G	28	Solid	Double Glass Wrap	Fiberglass Braid	.060 X .036	3	N
K301-G/G	30	Solid	Fiberglass Braid	Fiberglass Braid	.059 X .037	3	N
K301-W2/G	30	Solid	Double Glass Wrap	Fiberglass Braid	.054 X .033	3	N
K301-F/F	30	Solid	Extruded FEP Teflon **	Extruded FEP Teflon	.050 X .030	4	N
K301-K/K	30	Solid	Fused Kapton Tape	Fused Kapton Tape	.052 X .030	4	N

\* Per 1000 Ft. Spool

\*\* Thin Wall Insulation

\*\*\* Call for actual availability



# INSULATED THERMOCOUPLE WIRE

## ANSI TYPE "E" (Chromel/Constantan)

Color Code: Negative - Red, Positive - Purple, Brown Overall Jacket

Catalog Number	Gauge	Conductor Type	Insulation, Individual Conductor	Insulation, Overall Jacket	Nominal Over-All Size (major x minor)	Approx.* Weight, lbs.	Stock Item***
E201-G/G	20	Solid	Fiberglass Braid	Fiberglass Braid	.106 X .060	11	Y
E201-T/T	20	Solid	Fused TFE Teflon Tape	Fused TFE Tape	.104 X .060	10	N
E243-F/F	24	Stranded	Extruded FEP Teflon	Extr. FEP Teflon	.100 X .060	7	Y

## ANSI TYPE "T" (Copper/Constantan)

Color Code: Negative - Red, Positive - Blue, Brown Overall Jacket

Catalog Number	Gauge	Conductor Type	Insulation, Individual Conductor	Insulation, Overall Jacket	Nominal Over-All Size (major x minor)	Approx.* Weight, lbs.	Stock Item***
T201-G/G	20	Solid	Fiberglass Braid	Fiberglass Braid	.106 X .060	11	Y
T201-S-G/G	20	Solid	Fiberglass Braid	Fiberglass Braid with Stainless Overbraid	.127 X .081	19	Y
T201-W2/G	20	Solid	Double Glass Wrap	Fiberglass Braid	.098 X .055	10	N
T201-F/F	20	Solid	Extruded FEP Teflon	Extr. FEP Teflon	.116 X .068	12	Y
T201-A/A	20	Solid	Extruded PFA Teflon	Extr. PFA Teflon	.116 X .068	12	N
T201-F/AF	20	Solid	Extruded FEP Teflon	Extr. FEP, Twisted with Alum./Mylar	.135	16	N
T201-T/T	20	Solid	Fused TFE Teflon Tape	Fused TFE Tape	.104 X .060	10	N
T201-K/K	20	Solid	Fused Kapton Tape	Fused Kapton Tape	.096 X .052	9	N
T203-K/K	20	Stranded	Fused Kapton Tape	Fused Kapton Tape	.108 X .158	11	N
T241-G/G	24	Solid	Fiberglass Braid	Fiberglass Braid	.082 X .048	6	Y
T241-S-G/G	24	Solid	Fiberglass Braid	Fiberglass Braid with	.103 X .069	11	Y
T241-W2/G	24	Solid	Double Glass Wrap	Fiberglass Braid	.074 X .043	5	N
T241-P	24	Solid	Polyvinyl (PVC)	None (Rip-Cord Style)			N
T241-F/F	24	Solid	Extruded FEP Teflon	Extr. FEP Teflon	.092 X .056	6	Y
T241-T/T	24	Solid	Fused TFE Teflon Tape	Fused TFE Tape	.080 X .048	4	N
T243-F/F	24	Stranded	Extruded FEP Teflon	Extr. FEP Teflon	.100 X .060	7	Y
T241-K/K	24	Solid	Fused Kapton Tape	Fused Kapton Tape	.072 X .040	6	N
T301-W2/G	30	Solid	Double Glass Wrap	Fiberglass Braid	.054 X .033	3	N
T301-F/F	30	Solid	Extruded FEP Teflon **	Extruded FEP Teflon	.050 X .030	4	N
T301-K/K	30	Solid	Fused Kapton Tape	Fused Kapton Tape	.072 X .040	6	N
T361-F/F	30	Solid	Extruded FEP Teflon **	Extruded FEP Teflon	.042 X .029	4	N

## ANSI TYPE "N" (Nicrosil/Nisil)

Color Code: Negative - Red, Positive - Orange, Brown Overall Jacket

Catalog Number	Gauge	Conductor Type	Insulation, Individual Conductor	Insulation, Overall Jacket	Nominal Over-All Size (major x minor)	Approx.* Weight, lbs.	Stock Item***
N201-G/G	20	Solid	Fiberglass Braid	Fiberglass Braid	.106 X .060	11	N

\* Per 1000 Ft. Spool

\*\* Thin Wall Insulation

\*\*\* Call for actual availability



# INSULATED THERMOCOUPLE EXTENSION WIRE

## ANSI TYPE "JX" (Iron/Constantan)

Color Code: Negative - Red, Positive - White, Black Overall Jacket

Catalog Number	Gauge	Conductor Type	Insulation, Individual Conductor	Insulation, Overall Jacket	Nominal Over-All Size (major x minor)	Approx.* Weight, lbs.	Stock Item***
J145-P/P	14	Solid	Polyvinyl Chloride (PVC)	Polyvinyl Chloride (PVC)	.228 x .134	38	N
J165-P/P	16	Solid	Polyvinyl Chloride (PVC)	Polyvinyl Chloride (PVC)	.192 x .112	27	Y
J165-P/AP	16	Solid	Polyvinyl Chloride (PVC)	Polyvinyl Chloride (PVC) with Alum./Mylar	.190 x .112	28	N
J165-G/G	16	Solid	Fiberglass Braid	Fiberglass Braid	.144 x .080	22	N
J205-P/P	20	Solid	Polyvinyl Chloride (PVC)	Polyvinyl Chloride (PVC)	.154 x .092	14	Y
J205-P/AP	20	Solid	Polyvinyl Chloride (PVC)	Polyvinyl Chloride (PVC) with Alum./Mylar	0.17	20	Y
J207-P/P	20	Stranded	Polyvinyl Chloride (PVC)	Polyvinyl Chloride (PVC)	.166 x .098	16	Y
J207-P/AP	20	Stranded	Polyvinyl Chloride (PVC)	Polyvinyl Chloride (PVC) with Alum./Mylar	0.194	20	N

## ANSI TYPE "KX" (Chromel/Alumel)

Color Code: Negative - Red, Positive - Yellow, Yellow Overall Jacket

Catalog Number	Gauge	Conductor Type	Insulation, Individual Conductor	Insulation, Overall Jacket	Nominal Over-All Size (major x minor)	Approx.* Weight, lbs.	Stock Item***
K145-P/P	14	Solid	Polyvinyl Chloride (PVC)	Polyvinyl Chloride (PVC)	.228 x .134	38	N
K165-P/P	16	Solid	Polyvinyl Chloride (PVC)	Polyvinyl Chloride (PVC)	.192 x .112	27	Y
K165-P/AP	16	Solid	Polyvinyl Chloride (PVC)	Polyvinyl Chloride (PVC) with Alum./Mylar	.190 x .112	28	N
K165-G/G	16	Solid	Fiberglass Braid	Fiberglass Braid	.144 x .080	22	N
K205-P/P	20	Solid	Polyvinyl Chloride (PVC)	Polyvinyl Chloride (PVC)	.154 x .092	14	Y
K205-P/AP	20	Solid	Polyvinyl Chloride (PVC)	Polyvinyl Chloride (PVC) with Alum./Mylar	0.17	20	Y
K207-P/P	20	Stranded	Polyvinyl Chloride (PVC)	Polyvinyl Chloride (PVC)	.166 x .098	16	Y
K207-P/AP	20	Stranded	Polyvinyl Chloride (PVC)	Polyvinyl Chloride (PVC) with Alum./Mylar	0.194	20	N

## ANSI TYPE "EX" (Chromel/Constantan)

Color Code: Negative - Red, Positive - Purple, Purple Overall Jacket

Catalog Number	Gauge	Conductor Type	Insulation, Individual Conductor	Insulation, Overall Jacket	Nominal Over-All Size (major x minor)	Approx.* Weight, lbs.	Stock Item***
E205-P/P	20	Solid	Polyvinyl Chloride (PVC)	Polyvinyl Chloride (PVC)	.154 x .092	14	Y

## ANSI TYPE "TX" (Copper/Constantan)

Color Code: Negative - Red, Positive - Blue, Blue Overall Jacket

Catalog Number	Gauge	Conductor Type	Insulation, Individual Conductor	Insulation, Overall Jacket	Nominal Over-All Size (major x minor)	Approx.* Weight, lbs.	Stock Item***
T165-P/P	16	Solid	Polyvinyl Chloride (PVC)	Polyvinyl Chloride (PVC)	.192 x .112	27	Y
T205-P/P	20	Solid	Polyvinyl Chloride (PVC)	Polyvinyl Chloride (PVC)	.154 x .092	14	Y
T205-P/AP	20	Solid	Polyvinyl Chloride (PVC)	Polyvinyl Chloride (PVC) with Alum./Mylar	0.17	20	Y
T207-P/P	20	Stranded	Polyvinyl Chloride (PVC)	Polyvinyl Chloride (PVC)	.166 x .098	16	Y

## ANSI TYPE "NX" (Nicrosil/Nisil)

Color Code: Negative - Red, Positive - Orange, Orange Overall Jacket

Catalog Number	Gauge	Conductor Type	Insulation, Individual Conductor	Insulation, Overall Jacket	Nominal Over-All Size (major x minor)	Approx.* Weight, lbs.	Stock Item***
N205-P/P	20	Solid	Polyvinyl Chloride (PVC)	Polyvinyl Chloride (PVC)	.154 x .092	14	Y
N205-P/AP	20	Solid	Polyvinyl Chloride (PVC)	Polyvinyl Chloride (PVC) with Alum./Mylar	0.17	20	Y

\* Per 1000 Ft. Spool

\*\*\* Call for actual availability

# MULTI-PAIR T/C EXTENSION WIRE

## COMMON FEATURES:

- Extruded PVC single conductor insulation, 221°F (105°C) rated noise
- Communication wire for start-up and maintenance servicing
- Rugged 194°F (90°C) PVC jacket for excellent mechanical strength
- Nylon ripcored for easy jacket splitting/stripping
- Overall Aluminum/Mylar shield with drain wire to minimize electrostatic noise
- 20 AWG solid conductors for high system accuracy
- Individual pairs are numbered for easy identification

## MULTI-PAIRS with OVERALL SHIELD

- WITH • Twisted pairs for reduced electromagnetic interference

### ANSI TYPE "JX" (Iron/Constantan)

Color Code: Negative - Red, Positive - White, Black Overall Jacket

Catalog Number	No. of Pairs	Conductor Type	Nominal OD (inch)	Approx.* Weight, lbs.
J205-2-P/AP	2	20 Solid	.290	72
J205-4-P/AP	4	20 Solid	.350	94
J205-6-P/AP	6	20 Solid	.405	116
J205-8-P/AP	8	20 Solid	.440	140
J205-12-P/AP	12	20 Solid	.535	188
J205-16-P/AP	16	20 Solid	.610	240
J205-20-P/AP	20	20 Solid	.650	292
J205-24-P/AP	24	20 Solid	.710	344
J205-36-P/AP	36	20 Solid	.817	422

### ANSI TYPE "KX" (Chromel/Alumel)

Color Code: Negative - Red, Positive - Yellow, Yellow Overall Jacket

Catalog Number	No. of Pairs	Conductor Type	Nominal OD (inch)	Approx.* Weight, lbs.
K205-2-P/AP	2	20 Solid	.290	72
K205-4-P/AP	4	20 Solid	.350	94
K205-6-P/AP	6	20 Solid	.405	116
K205-8-P/AP	8	20 Solid	.440	140
K205-12-P/AP	12	20 Solid	.535	188
K205-16-P/AP	16	20 Solid	.610	240
K205-20-P/AP	20	20 Solid	.650	292
K205-24-P/AP	24	20 Solid	.710	344
K205-36-P/AP	36	20 Solid	.817	422

### ANSI TYPE "TX" (Copper/Constantan)

Color Code: Negative - Red, Positive - Blue, Blue Overall Jacket

Catalog Number	No. of Pairs	Conductor Type	Nominal OD (inch)	Approx.* Weight, lbs.
T205-2-P/AP	2	20 Solid	.290	72
T205-4-P/AP	4	20 Solid	.350	94
T205-6-P/AP	6	20 Solid	.405	116
T205-8-P/AP	8	20 Solid	.440	140
T205-12-P/AP	12	20 Solid	.535	188
T205-24-P/AP	24	20 Solid	.710	344

### ANSI TYPE "EX" (Chromel/Constantan)

Color Code: Negative - Red, Positive - Purple, Purple Overall Jacket

Catalog Number	No. of Pairs	Conductor Type	Nominal OD (inch)	Approx.* Weight, lbs.
E205-2-P/AP	2	20 Solid	.290	72
E205-4-P/AP	4	20 Solid	.350	94
E205-6-P/AP	6	20 Solid	.405	116
E205-8-P/AP	8	20 Solid	.440	140
E205-12-P/AP	12	20 Solid	.535	188
E205-24-P/AP	24	20 Solid	.710	344

## MULTI-PAIRS with INDIVIDUAL AND OVERALL SHIELD

- WITH • Shielded twisted pairs with drain wire for maximum reduction of electromagnetic interference

### ANSI TYPE "JX" (Iron/Constantan)

Color Code: Negative - Red, Positive - White, Black Overall Jacket

Catalog Number	No. of Pairs	Conductor Type	Nominal OD (inch)	Approx.* Weight, lbs.
J205-2-P/IAP	2	20 Solid	.305	77
J205-4-P/IAP	4	20 Solid	.385	104
J205-6-P/IAP	6	20 Solid	.445	131
J205-8-P/IAP	8	20 Solid	.490	160
J205-12-P/IAP	12	20 Solid	.610	218
J205-16-P/IAP	16	20 Solid	.640	280
J205-20-P/IAP	20	20 Solid	.710	342
J205-24-P/IAP	24	20 Solid	.805	404
J205-36-P/IAP	36	20 Solid	1.008	577

### ANSI TYPE "KX" (Chromel/Alumel)

Color Code: Negative - Red, Positive - Yellow, Yellow Overall Jacket

Catalog Number	No. of Pairs	Conductor Type	Nominal OD (inch)	Approx.* Weight, lbs.
K205-2-P/IAP	2	20 Solid	.305	77
K205-4-P/IAP	4	20 Solid	.385	104
K205-6-P/IAP	6	20 Solid	.445	131
K205-8-P/IAP	8	20 Solid	.490	160
K205-12-P/IAP	12	20 Solid	.610	218
K205-16-P/IAP	16	20 Solid	.640	280
K205-20-P/IAP	20	20 Solid	.710	342
K205-24-P/IAP	24	20 Solid	.805	404
K205-36-P/IAP	36	20 Solid	1.008	577

### ANSI TYPE "TX" (Copper/Constantan)

Color Code: Negative - Red, Positive - Blue, Blue Overall Jacket

Catalog Number	No. of Pairs	Conductor Type	Nominal OD (inch)	Approx.* Weight, lbs.
T205-2-P/IAP	2	20 Solid	.305	77
T205-4-P/IAP	4	20 Solid	.385	104
T205-8-P/IAP	8	20 Solid	.490	160
T205-12-P/IAP	12	20 Solid	.610	218
T205-24-P/IAP	24	20 Solid	.805	404

### ANSI TYPE "EX" (Chromel/Constantan)

Color Code: Negative - Red, Positive - Purple, Purple Overall Jacket

Catalog Number	No. of Pairs	Conductor Type	Nominal OD (inch)	Approx.* Weight, lbs.
E205-2-P/IAP	2	20 Solid	.305	77
E205-4-P/IAP	4	20 Solid	.385	104
E205-8-P/IAP	8	20 Solid	.490	160
E205-12-P/IAP	12	20 Solid	.610	218
E205-24-P/IAP	24	20 Solid	.805	404