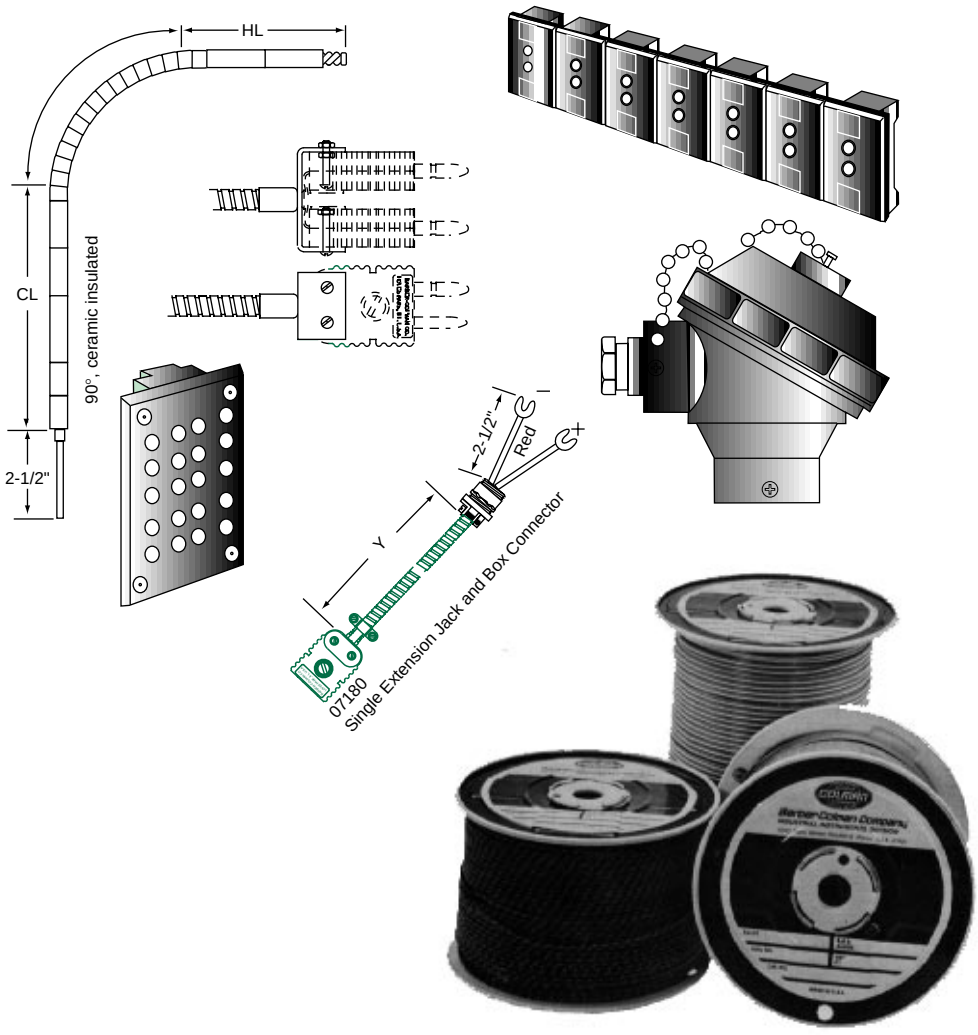
Wire and Accessories



BARCOPAC Thermocouple Wire
Metal Sheathed – MgO Insulated

Introduction

Each BARCOPAC thermocouple wire is uniformly insulated with compacted magnesium oxide, and protected by a stainless steel or Inconel sheath. Bulk wire is provided without junction or terminal connections; its ends are sealed to prevent contamination.

Specifications

Sheath Thickness and AWG

Sheath o.d.	Tolerance o.d.	Wall Thickness	Nominal AWG Wire Size	
			Single	Dual
0.040”	+0.001/-0.0005”	0.006”	33	n/a
0.063”	±0.001”	0.009”	28*	20
0.125”	+0.002/-0.001”	0.017”	22*	23
0.188”	+0.002/-0.001”	0.025”	19	20
0.250”	+0.002/-0.001”	0.033”	16	19

*AWG for types R and S is 30 for 0.063” o.d., and 26 for 0.125” o.d.

Weight

Sheath o.d.	Pounds per 100 feet	Standard Maximum Length
0.040”	0.4	500 feet
0.063”	0.8	250 feet*
0.125”	2.8	80 feet*
0.188”	5.0	35 feet
0.250”	12.5	30 feet

*Standard length for types R and S is 20 feet. Consult factory for longer length.

Ordering Information

Schedule: S2

Note: an alpha code in Field 2 indicates special limits; a numeric code indicates standard limits. Also, code “0” in Field 5 indicates single element; code “9” indicates dual element.

Special Limits

Model Number	Type	Elements	Sheath	Dia.	Per Foot
MJ14 - 00000-000-0-00	J	single	304 SS	0.125”	$3.50
MJ15 - 00000-000-0-00	J	single	304 SS	0.187”	$5.40
MJ16 - 00000-000-0-00	J	single	304 SS	0.250”	$8.10
MJ16 - 90000-000-0-00	J	dual	304 SS	0.250”	$8.40
MJ24 - 00000-000-0-00	J	single	Inconel 600	0.125”	$3.80
MJ26 - 00000-000-0-00	J	single	Inconel 600	0.250”	$9.40
MJ36 - 00000-000-0-00	J	single	316 SS	0.250”	$8.70
MK12 - 00000-000-0-00	K	single	304 SS	0.040”	$2.40
MK13 - 00000-000-0-00	K	single	304 SS	0.063”	$2.80
MK16 - 00000-000-0-00	K	single	304 SS	0.250”	$11.50
MK16 - 90000-000-0-00	K	dual	304 SS	0.250”	$12.00
MK22 - 00000-000-0-00	K	single	Inconel 600	0.040”	$4.80
MK23 - 00000-000-0-00	K	single	Inconel 600	0.063”	$3.40
MK24 - 00000-000-0-00	K	single	Inconel 600	0.125”	$5.60

Ordering Information (continued)

Model Number	Type	Elements	Sheath	Dia.	Per Foot
MK25 - 00000-000-0-00	K	single	Inconel 600	0.188”	$7.50
MK26 - 00000-000-0-00	K	single	Inconel 600	0.250”	$14.50
MK26 - 90000-000-0-00	K	dual	Inconel 600	0.250”	$16.00
MK64 - 00000-000-0-00	K	single	Hoskins 2300	0.125”	$23.30
ME16 - 00000-000-0-00	E	single	304 SS	0.250”	$8.30
ME16 - 90000-000-0-00	E	dual	304 SS	0.250”	$17.20
MT16 - 00000-000-0-00	T	single	304 SS	0.250”	$10.70
MT16 - 90000-000-0-00	T	dual	304 SS	0.250”	$12.60
Standard Limits					
M112 - 00000-000-0-00	J	single	304 SS	0.040”	$2.60
M113 - 00000-000-0-00	J	single	304 SS	0.063”	$1.70
M114 - 00000-000-0-00	J	single	304 SS	0.125”	$2.20
M114 - 90000-000-0-00	J	dual	304 SS	0.125”	$3.90
M115 - 00000-000-0-00	J	single	304 SS	0.188”	$3.70
M115 - 90000-000-0-00	J	dual	304 SS	0.188”	$5.20
M116 - 00000-000-0-00	J	single	304 SS	0.250”	$6.00
M116 - 90000-000-0-00	J	dual	304 SS	0.250”	$8.50
M117 - 00000-000-0-00	J	single	304 SS	0.375”	$11.00
M123 - 00000-000-0-00	J	single	Inconel 600	0.063”	$2.20
M124 - 00000-000-0-00	J	single	Inconel 600	0.125”	$2.80
M125 - 00000-000-0-00	J	single	Inconel 600	0.188”	$7.80
M126 - 00000-000-0-00	J	single	Inconel 600	0.250”	$11.50
M126 - 90000-000-0-00	J	dual	Inconel 600	0.250”	$11.50
M133 - 00000-000-0-00	J	single	316 SS	0.063”	$2.10
M133 - 90000-000-0-00	J	dual	316 SS	0.063”	$3.80
M134 - 00000-000-0-00	J	single	316 SS	0.125”	$3.00
M134 - 90000-000-0-00	J	dual	316 SS	0.125”	$3.40
M135 - 00000-000-0-00	J	single	316 SS	0.188”	$7.80
M136 - 00000-000-0-00	J	single	316 SS	0.250”	$7.50
M136 - 90000-000-0-00	J	dual	316 SS	0.250”	$9.50
M143 - 00000-000-0-00	J	single	310 SS	0.063”	$5.60
M144 - 00000-000-0-00	J	single	310 SS	0.125”	$7.00
M213 - 00000-000-0-00	K	single	304 SS	0.063”	$1.70
M214 - 00000-000-0-00	K	single	304 SS	0.125”	$3.00
M215 - 00000-000-0-00	K	single	304 SS	0.188”	$3.70
M216 - 00000-000-0-00	K	single	304 SS	0.250”	$6.30
M216 - 90000-000-0-00	K	dual	304 SS	0.250”	$9.40
M222 - 00000-000-0-00	K	single	Inconel 600	0.040”	$3.00
M223 - 00000-000-0-00	K	single	Inconel 600	0.063”	$2.70
M223 - 90000-000-0-00	K	dual	Inconel 600	0.073”	$3.40
M224 - 00000-000-0-00	K	single	Inconel 600	0.125”	$3.60
M224 - 90000-000-0-00	K	dual	Inconel 600	0.125”	$4.90
M225 - 00000-000-0-00	K	single	Inconel 600	0.188”	$6.10
M225 - 90000-000-0-00	K	dual	Inconel 600	0.188”	$8.00
M226 - 00000-000-0-00	K	single	Inconel 600	0.250”	$9.40
M226 - 90000-000-0-00	K	dual	Inconel 600	0.250”	$11.30
M227 - 00000-000-0-00	K	single	Inconel 600	0.375”	$25.50
M233 - 00000-000-0-00	K	single	316 SS	0.063”	$1.90
M234 - 00000-000-0-00	K	single	316 SS	0.125”	$3.00
M235 - 00000-000-0-00	K	single	316 SS	0.188”	$4.70
M236 - 00000-000-0-00	K	single	316 SS	0.250”	$8.00
M236 - 90000-000-0-00	K	dual	316 SS	0.250”	$9.80
M244 - 00000-000-0-00	K	single	310 SS	0.125”	$3.40
M245 - 00000-000-0-00	K	single	310 SS	0.188”	$6.70
M246 - 00000-000-0-00	K	single	310 SS	0.188”	$17.20

Ordering Information (continued)

	Model Number	Type	Elements	Sheath	Dia.	Per Foot
	M313 - 00000-000-0-00	E	single	304 SS	0.063”	$2.20
	M314 - 00000-000-0-00	E	single	304 SS	0.125”	$3.50
	M314 - 00000-000-0-00	E	dual	304 SS	0.125”	$20.60
	M315 - 00000-000-0-00	E	single	304 SS	0.188”	$4.70
	M316 - 00000-000-0-00	E	single	304 SS	0.250”	$5.60
	M334 - 00000-000-0-00	E	single	316 SS	0.125”	$3.70
	M336 - 00000-000-0-00	E	single	316 SS	0.250”	$8.60
	M336 - 90000-000-0-00	E	dual	316 SS	0.250”	$9.80
	M413 - 00000-000-0-00	T	single	304 SS	0.063”	$2.50
	M414 - 00000-000-0-00	T	single	304 SS	0.125”	$3.90
	M415 - 00000-000-0-00	T	single	304 SS	0.188”	$7.00
	M416 - 00000-000-0-00	T	single	304 SS	0.250”	$9.30
	M436 - 00000-000-0-00	T	single	316 SS	0.250”	$9.80
	M436 - 90000-000-0-00	T	dual	316 SS	0.250”	$12.30
Ungrounded junction only	M624 - 00000-000-0-00	S	single	Inconel 600	0.125”	$330.00
	M726 - 00000-000-0-00	N	single	Inconel 600	0.250”	$1.30

Extension Wire

Introduction

Barber-Colman offers bare and insulated thermocouple wire as well as insulated extension wire. Two conductor and three conductor insulated extension wire is commonly used with thermocouples; and three conductor wire with RTD's. We also offer multi-pair insulated thermocouple extension wire and cable for panel or other wiring needs.

Color Codes

Thermocouple Compensating Cable Color Codes.

Thermocouple Material	British BS 1843	American ANSI MC 96.1	German DIN 43710	French NFE 18001
Copper	+ White	+ Blue	+ Red	+ Yellow
T Constantan	- Blue	- Red	- Brown	- Blue
	Blue	Blue	Brown	Blue
Iron	+ Yellow	+ White	+ Red	+ Yellow
J/L Constantan	- Blue	- Red	- Blue	- Black
	Black	Black	Blue	Black
Nickel Chromium	+ Brown	+ Yellow	+ Red	+ Yellow
K Nickel Aluminum	- Blue	- Red	- Green	- Purple
	Red	Yellow	Green	Yellow
Platinum/Platinum	+ White	+ Black	+ Red	+ Yellow
R 13% Rhodium	- Blue	- Red	- White	- Green
	Green	Green	White	Green
Platinum/Platinum	+ White	+ Black	+ Red	+ Yellow
S 10% Rhodium	- Blue	- Red	- White	- Green
	Green	Green	White	Green
Chromel	+ Brown	+ Violet	Red	+ Yellow
E Constantan	- Blue	- Red	Black	- Purple
	Brown	Violet	Black	Purple
Platinum 30% Rh	-	+ Grey	Red	
B Platinum 6% Rh	-	- Red	Black	
		Grey	Black	
N Nicrosil / Nisil	+ Orange	+ Orange	+ Orange	+ Orange
	- Red	- Red	- Red	- Red
	Orange	Orange	Orange	Orange

Specifications

Bare Thermocuple Wire

Bare, solid wire is available in 8, 14, 16, 18, 20 and 22 gauge, and calibration Types J, K, T and E.

Insulated Multi-pair Wire

20 gauge, insulated, solid, multi-pair extension wire is available in calibration Types J, K and T. Insulation (Fields 6 through 9, code 1900) is 0.015" PVC 0.015" aluminum backed Mylar taped (50% overlaid) with drain and signal wire, 0.045" PVC overall. Individual pairs are twisted.

Insulated Duplex Wire

Thermocouple extension wire must be compatible with the alloys used in the thermocouple. Extension wire for base metal thermocouples is usually constructed of the same alloys as the element. For noble metal elements, base metal alloys are selected to match the characteristics of the element within the operating range of 0° to 150°C.

Two types of wire available – thermocouple grade and extension grade. Thermocouple grade wire is manufactured with alloys to meet the required tolerance. Extension grade wire for base metal thermocouples is made with similar material but is not rated for accuracty at high temperature.

Insulation is the largest factor determining performance of extension wire. Moisture resistance, abrasion resistance, temperature rating and cost are factors to be considered. The following table identifies the characteristics of Barber-Colman thermocouple insulated wire. "Code" is the characters that appears in Fields 6 through 9 of the part number.

RTD Extension Wire

Insulated strand wire is available for RTD's with three 16 gauge copper conductors; and two and three 22 gauge nickel clad copper conductors.

Specifications (continued)

Insulation Construction and Characteristics					Rating °C (°F)		Moisture Resistance	Abrasion Resistance	ANSI Color Coded	Comments
Code	Insulation									
	Each Conductor	Impreg-nation	Overall	Impreg-nation	Cont.	Single Read-Ing				
151	Felted synthetic fiber. 0.015" to #24	Hot melt compound	Braided synthetic fiber .030"	Moisture resistant compound	290 (550)	–	Y	G	F	Impregnation retained to 150°C (300°F)
153	Teflon TFE tape not fused 0.004"/Felted synthetic fiber 0.020"	Silicone modified resin	Braided synthetic fiber	Moisture resistance compound	290 (550)	–	Y	G	G	Impregnation retained to 204°C (400°F); Teflon good to 260°C (500°F)
251	Felted synthetic fiber 0.010"	Silicone modified resin	Glass braid 0.006"	Silicone modified resin	288 (550)	343 (650)	Y	G	F	Impregnation retained to 204°C (400°F)
301	Vitreous Silica fiber 0.015"	None	Vitreous Silica fiber 0.020"	None	871 (1600)	1093 (2000)	N	F	F	
302	Double glass braid 0.006"	Silicone modified resin	Glass braid 0.006"	Silicone modified resin	482 (900)	538 (1000)	Y	G	G	Impregnation retained to 204°C (400°F)
303	Enamel/glass braid 0.006"	Silicone modified resin	Glass braid 0.006"	Silicone modified resin	482 (900)	–	Y	F	G	
304	Glass braid 0.006"	Silicone modified resin	Glass braid 0.006"	Silicone modified resin	482 (900)	538 (1000)	Y	F	G	Impregnation retained to 204°C (400°F)
305	Double glass wrap 0.005"	High temp. varnish	Glass braid 0.006"	Silicone modifed resin	482 (900)	538 (1000)	Y	F	G	Impregnation retained to 204°C (400°F)
307	Teflon TFE tape (not fused) 0.004" TFE coated glass 0.006"		Teflon coated glass braid 0.006"		482 (900)	538 (1000)	Y	G	E	
309	High temp glass braid 0.012"	–	High temp glass braid 0.012"	Silicone modified resin	704 (1300)	871 (1600)	Y (2)	G	F	Impregnation retained to 204°C (400°F)
311	High temp glass braid 0.012"	–	High temp glass braid 0.012"	Lacquer coated	704 (1300)	871 (1600)	N	F	F	Impregnation retained to 149°FC (300°F)
313	Glass braid 0.008/0.006"	Silicone modified resin	Glass braid .008/.006"	Silicone modified resin	482 (900)	538 (1000)	Y	G	G	Impregnation retained to 204°C (400°F)
314	High temp glass braid 0.008"	Silicone modified resin	None – twisted	–	704 (1300)	871 (1600)	Y	G	G	Impregnation retained to 204°C (400°F)
315	Glass braid 0.008"	Silicone Modifed resin	None – twisted	–	482 (900)	538 (1000)	Y	G	G	Impregnation retained to 204°C (400°F)
316	Glass braid 0.008/0.006"	Silicone modified resin	High temp glass braid .013/.012"	Silicone modified resin	482 (900)	538 (1000)	Y	G	G	Impregnation retained to 149°C (300°F)
350	Ceramic fiber 0.018"	–	Ceramic fiber 0.018"	–	1430 (2600)	1430 (2600)	N	G	F	
355	Ceramic fiber 0.014"	–	Ceramic fiber 0.014"	–	1430 (2600)	1430 (2600)	N	G	F	

Y=yes, N=No, T=tracers, F=fair, G=good, VG=very good, E=excellent, (2) = both legs

Specifications (continued)

Insulation Construction and Characteristics (continued)					Moisture Resistance / Abrasion Resistance / ANSI Color Coded / Rating °C (°F)					Comments
Code	Insulation: Each Conductor	Impreg-nation	Overall	Impreg-nation	Cont.	Single Read-Ing	Y	G	E	
401	PVC 0.013" to #20, 0.014" to #16, 0.016" to #14	–	Cotton braid	Wax	88 (190)	–	Y	G	E	
502	PVC 0.013" to #20, 0.014" to #16, 0.016" to #14	–	PVC 0.016"	–	-29 to +105 (-20 to +221)	–	Y	G	E	
503	PVC 0.015"	–	Twisted with filler cotton serve/PVC 0.030"	–	-29 to +105 (-20 to +221)	–	Y	G	E	Strand conductor only
504	Nylon 0.010"	–	Nylon 0.008" to 0.010"	–	177 (356)	–	Y	E	F	
505	PVC 0.012" to 0.014"	–	Ripcord	–	-29 to +105 (-20 to +221)	–	Y	G	E	
507	Teflon FEP extr. 0.008"	–	Teflon FEP extr. 0.010"	–	204 (400)	316 (600)	Y	V-G	E	
508	Teflon TFE tape fused 0.005"	–	Teflon TFE tape fused 0.0075"	–	260 (500)	316 (600)	Y	G	E	
509	Teflon FEP extr. 0.009"	–	Teflon FEP extr. 0.010"	–	204 (400)	316 (600)	Y	V-G	E	Aluminum/Mylar shield with #20 drain wire
510	PVC 0.015"	–	pvc 0.020" twisted	–	-29 to +105 (-20 to +221)	–	Y	G	E	Aluminum/Mylar shield for computer app. #16 uses #18 drain wire, #20 uses #20 drain wire
512	Fused Kapton tape 0.004"	–	Fused Kapton tape 0.004"	–	316 (600)	427 (800)	T	E	E	
513	Fused Kapton tape 0.006"	–	Fused Kapton tape 0.004"	–	316 (600)	427 (800)	T	E	E	
514	Tefzel 0.008"	–	Tefzel 0.010"	–	150 (302)	–	Y	E	E	
515	Tefzel 0.008"	–	Tefzel 0.010" twisted	–	150 (302)	–	Y	E	E	Aluminum/Mylar shield with #20 drain wire
591	Kapton/Kapton tape 0.007/0.004"	–	Kapton tape w/ SS overtraid	–	316 (600)	427 (800)	Y	E	E	

Y=yes, N=No, T=tracers, F=fair, G=good, VG=very good, E=excellent, (2) = both legs

Trade Names

Teflon and Kapton are trade names of E. I. duPont de Nemours & Co. Chromel and Alumel are trade names of Hoskins Mfg. Co. Platinel is a trade name of Englehard Industries.

Bare, Insulated Duplex, and Insulated Multi-pair Thermocouple Extension Wire

Following is a list of our standard wire products. Additional wire products are available through special order. Consult Barber-Colman for all your wiring needs.

Model No. W □□□ - □□□□ - □□□ - 0 - 0 0

Field No. 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

Schedule: S4, except
Schedule: S3 for some noble metal wires noted in price table

Field 1. BASE MODEL

W - Wire $0

Field 2. WIRE TYPE (ANSI DESIGNATION)

Base Metal

J - Iron-Constantan ..... See following table
K - Chromel-Alumel ..... See following table
T - Copper-Constantan ..... See following table
E - Chromel-Constantan ..... See following table

Noble Metal

B - Platinum, 30% Rhodium-Platinum, 6% Rhodium ..... See following table
C - Tungsten, 5% Rhenium-Tungsten, 26% Rhenium ..... See following table
F - Platinel II ..... See following table
R - Platinum, 13% Rhodium-Platinum ..... See following table
S - Platinum, 10% Rhodium-Platinum ..... See following table

Fields 3, 4. AMERICAN WIRE GAUGE

08 - 8 gauge ..... See following table
14 - 14 gauge ..... See following table
16 - 16 gauge ..... See following table
18 - 18 gauge ..... See following table
20 - 20 gauge ..... See following table
22 - 22 gauge ..... See following table

Field 5. WIRE GRADE, CONSTRUCTION, AND LIMITS OF ERROR

1 - T/C grade, solid, standard limits ..... See following table
2 - T/C grade, solid, special limits ..... See following table
3 - T/C grade, stranded, standard limits ..... See following table
4 - T/C grade, stranded, special limits ..... See following table
5 - Extension grade, solid, standard limits ..... See following table
6 - Extension grade, solid, special limits ..... See following table
7 - Extension grade, stranded, standard limits ..... See following table
8 - Extension grade, stranded, special limits ..... See following table

Field 6. STAINLESS STEEL OVERBRAID

1 - No
2 - Yes

Ordering Information (continued)

Fields 7 through 9. INSULATION

Bare Wire

000 - None ..... See following table

Insulated Duplex Wire

151 - Felted synthetic fiber larger than 0.010” ..... See following table
153 - Teflon TFE ..... See following table
251 - Felted synthetic fiber 0.010” ..... See following table
301 - Viterous Silica fiber ..... See following table
302 - Double glass braid ..... See following table
303 - Enamel/glass braid ..... See following table
304 - Glass braid ..... See following table
305 - Double glass wrap ..... See following table
307 - Teflon coated glass wrap ..... See following table
309 - High temperature glass braid ..... See following table
311 - High temperature glass braid ..... See following table
313 - Glass braid ..... See following table
314 - High temperature glass braid ..... See following table
315 - Glass braid ..... See following table
316 - Glass braid ..... See following table
350 - Ceramic fiber ..... See following table
355 - Ceramic fiber ..... See following table
401 - PVC ..... See following table
502 - PVC ..... See following table
503 - PVC ..... See following table
504 - Nylon ..... See following table
505 - PVC ..... See following table
507 - Teflon FEP ..... See following table
508 - Teflon TFE ..... See following table
509 - Teflon FEP ..... See following table
510 - PVC ..... See following table
512 - Fused Kapton tape ..... See following table
513 - Fused Kapton tape ..... See following table
514 - Tefzel ..... See following table
515 - Tefzel ..... See following table
591 - Kapton/Kapton tape ..... See following table

Insulated Multi-pair Cable

900 - PVC/Aluminum/Mylar ..... See following page

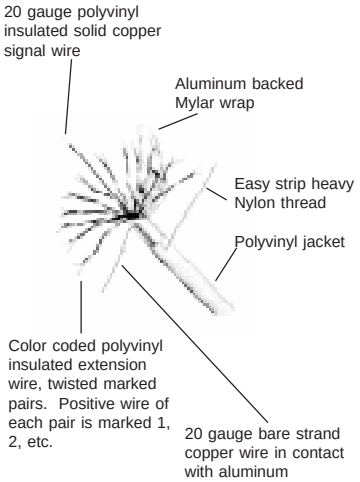
Field 10. CONDUCTOR ALLOY

Insulated Duplex Wire and Insulated Multi-pair Cable

0 - Not applicable ..... See following table

Bare Wire

1 - Positive leg only (first alloy listed in Wire Type, Field 2) ..... See following table
2 - Negative leg only (second alloy listed in Wire Type, Field 2) See following table



Fields 11, 12. NUMBER OF CONDUCTORS

Insulated Duplex Wire

00 - One pair ..... See following table

Bare Wire

01 - Single conductor ..... See following table

Insulated Multi-pair Cable

04 - Four pair ..... See following table
08 - Eight pair ..... See following table
12 - Twelve pair ..... See following table
16 - Sixteen pair ..... See following table
20 - Twenty pair ..... See following table
24 - Twenty-four pair ..... See following table

Fields 13 through 15. RESERVED

Wire Price Table

Spooling Charge (if less than 1000 feet per spool) $10.00

Base Metal Wire

	Per Foot
WE08-11000-101-0-00	Use WK08-11000-101-0-00
WE08-11000-201-0-00	$2.25
WE14-11000-101-0-00	Use WK14-11000-101-0-00
WE14-11000-201-0-00	$0.94
WE16-11000-101-0-00	Use WK16-11000-101-0-00
WE16-11000-201-0-00	$0.38
WE16-71515-000-0-00 (minimum order 1000 feet)	$1.43
WE20-11000-101-0-00	Use WK20-11000-101-0-00
WE20-11000-201-0-00	$0.15
WE20-11304-000-0-00	$0.60
WE20-12304-000-0-00	$0.89
WE20-32591-000-0-00	$1.02
WE20-51502-000-0-00 (minimum order 1000 feet)	$0.41
WE20-61502-000-0-00 (minimum order 1000 feet)	$0.44
WJ06-11000-101-0-00	$1.83
WJ06-11000-201-0-00	$1.87
WJ08-11000-101-0-00	$0.18
WJ08-11000-201-0-00	$1.84
WJ14-11000-101-0-00	$0.10
WJ14-11000-201-0-00	$0.32
WJ14-51151-000-0-00	$1.01
WJ14-51502-000-0-00	$0.64
WJ14-71151-000-0-00	$1.32
WJ16-11000-101-0-00	$0.10
WJ16-11000-201-0-00	$0.20
WJ16-21000-101-0-00	$0.12
WJ16-21000-201-0-00	$0.43
WJ16-51151-000-0-00	$0.79
WJ16-51153-000-0-00 (minimum order 1000 feet)	$1.03
WJ16-51303-000-0-00	$0.63
WJ16-51401-000-0-00	$0.53
WJ16-51502-000-0-00	$0.37
WJ16-51510-000-0-00	$0.46
WJ16-71151-000-0-00	$0.94
WJ16-71515-000-0-00 (minimum order 1000 feet)	$1.43
WJ18-31304-000-0-00	$0.73
WJ18-31513-000-0-00	$1.53
WJ18-71503-000-0-00	$0.70
WJ20-11000-101-0-00	$0.07
WJ20-11000-201-0-00	$0.11
WJ20-11251-000-0-00	$0.46
WJ20-11304-000-0-00	$0.43
WJ20-11305-000-0-00	$0.44
WJ20-11307-000-0-00	$0.99
WJ20-11314-000-0-00 (minimum order 1000 feet)	$0.36
WJ20-11504-000-0-00	$0.47
WJ20-11505-000-0-00	$0.57
WJ20-11507-000-0-00	$0.49
WJ20-11508-000-0-00	$0.55

Wire Price Table (continued)

Spooling Charge (if less than 1000 feet per spool) $10.00

Base Metal Wire

	Per Foot
WJ20-11509-000-0-00 (minimum order 1000 feet)	$0.65
WJ20-11513-000-0-00	$1.14
WJ20-12305-000-0-00	$0.67
WJ20-21305-000-0-00	$0.52
WJ20-31302-000-0-00	$0.70
WJ20-31304-000-0-00 (minimum order 1000 feet)	$0.79
WJ20-31508-000-0-00	$0.68
WJ20-32302-000-0-00	$0.77
WJ20-31512-000-0-00	$1.09
WJ20-51501-000-0-00	$0.48
WJ20-51502-000-0-00	$0.19
WJ20-51510-000-0-00	$0.28
WJ20-51514-000-0-00	$0.73
WJ20-51900-004-0-00 (minimum order 1000 feet)	$1.54
WJ20-51900-008-0-00	$2.42
WJ20-51900-012-0-00 (minimum order 1000 feet)	$3.56
WJ20-51900-016-0-00 (minimum order 1000 feet)	$4.35
WJ20-51900-020-0-00 (minimum order 1000 feet)	$6.00
WJ20-51900-024-0-00 (minimum order 1000 feet)	$6.65
WJ20-52502-000-0-00 (minimum order 1000 feet)	$0.55
WJ20-71502-000-0-00	$0.44
WJ20-71510-000-0-00 (minimum order 1000 feet)	$0.78
WJ24-11304-000-0-00	$0.35
WJ24-11305-000-0-00	$0.25
WJ24-11505-000-0-00	$0.16
WJ24-11508-000-0-00 (minimum order 1000 feet)	$0.84
WJ24-11511-000-0-00 (minimum order 1000 feet)	$0.38
WJ24-12305-000-0-00	$0.47
WJ24-21305-000-0-00	$0.40
WJ24-31305-000-0-00	$0.45
WJ24-31502-000-0-00	$0.30
WJ24-32305-000-0-00	$0.53
WJ28-11305-000-0-00 (minimum order 1000 feet)	$0.30
WJ30-11304-000-0-00	$0.30
WJ30-11305-000-0-00 (minimum order 1000 feet)	$0.47
WJ30-11513-000-0-00 (minimum order 1000 feet)	$1.87
WK06-11000-101-0-00	$2.15
WK06-11000-201-0-00	$2.80
WK08-11000-101-0-00	$1.92
WK08-11000-201-0-00	$1.84
WK14-11000-101-0-00	$0.51
WK14-11000-201-0-00	$0.48
WK14-11309-000-0-00	$1.52
WK14-21000-101-0-00 (minimum order 1000 feet)	$0.45
WK14-21000-201-0-00 (minimum order 1000 feet)	$0.43
WK14-51151-000-0-00	$1.39
WK14-51502-000-0-00	$0.96
WK14-71151-000-0-00	$1.68

Wire Price Table (continued)

Spooling Charge (if less than 1000 feet per spool) $10.00

Per Foot

Base Metal Wire

WK16-11000-101-0-00 ..... $0.23
WK16-11000-201-0-00 ..... $0.21
WK16-11507-000-0-00 (minimum order 1000 feet) $1.10
WK16-51151-000-0-00 ..... $1.01
WK16-51153-000-0-00 ..... $1.26
WK16-51303-000-0-00 ..... $0.96
WK16-51401-000-0-00 ..... $0.70
WK16-51502-000-0-00 ..... $0.50
WK16-51510-000-0-00 ..... $0.80
WK16-71151-000-0-00 ..... $1.06
WK16-71515-000-0-00 ..... $1.85

WK18-11000-101-0-00 ..... $0.18
WK18-11000-201-0-00 ..... $0.16
WK18-71503-000-0-00 ..... $0.70

WK20-11000-101-0-00 ..... $0.13
WK20-11000-201-0-00 ..... $0.13
WK20-11251-000-0-00 ..... $0.53
WK20-11301-000-0-00 ..... $1.29
WK20-11304-000-0-00 (minimum order 1000 feet) $0.60
WK20-11305-000-0-00 ..... $0.59
WK20-11311-000-0-00 ..... $0.72
WK20-11313-000-0-00 (minimum order 1000 feet) $0.71
WK20-11314-000-0-00 ..... $0.53
WK20-11315-000-0-00 (minimum order 1000 feet) $0.64
WK20-11316-000-0-00 (minimum order 1000 feet) $0.65
WK20-11321-000-0-00 (minimum order 1000 feet) $0.60
WK20-11350-000-0-00 (minimum order 1000 feet) $2.16
WK20-11355-000-0-00 (minimum order 1000 feet) $1.66
WK20-11507-000-0-00 (minimum order 1000 feet) $0.64
WK20-11508-000-0-00 (minimum order 1000 feet) $0.70
WK20-11509-000-0-00 ..... $0.94
WK20-11511-000-0-00 (minimum order 1000 feet) $0.92
WK20-11513-000-0-00 (minimum order 1000 feet) $1.32
WK20-12305-000-0-00 ..... $0.75
WK20-21000-101-0-00 ..... $0.21
WK20-21000-201-0-00 ..... $0.20
WK20-21301-000-0-00 (minimum order 1000 feet) $1.57
WK20-21304-000-0-00 (minimum order 1000 feet) $0.56
WK20-21305-000-0-00 (minimum order 1000 feet) $0.66
WK20-21311-000-0-00 (minimum order 1000 feet) $0.75
WK20-21314-000-0-00 (minimum order 1000 feet) $0.52
WK20-21315-000-0-00 (minimum order 1000 feet) $0.75
WK20-21350-000-0-00 ..... $2.10
WK20-21507-000-0-00 (minimum order 1000 feet) $0.73
WK20-31302-000-0-00 ..... $0.79
WK20-32591-000-0-00 ..... $1.43
WK20-51502-000-0-00 ..... $0.29
WK20-51510-000-0-00 (minimum order 1000 feet) $0.40
WK20-51514-000-0-00 ..... $0.65
WK20-51900-004-0-00 (minimum order 1000 feet) $2.08

Wire Price Table (continued)

Spooling Charge (if less than 1000 feet per spool) $10.00

Per Foot

Base Metal Wire

WK20-51900-008-0-00 (minimum order 1000 feet) $3.67
WK20-51900-012-0-00 (minimum order 1000 feet) $5.00
WK20-51900-016-0-00 (minimum order 1000 feet) $6.50
WK20-51900-020-0-00 (minimum order 1000 feet) $8.10
WK20-51900-024-0-00 (minimum order 1000 feet) $9.00
WK20-71502-000-0-00 ..... $0.50
WK20-71510-000-0-00 (minimum order 1000 feet) $0.93

WK24-11304-000-0-00 ..... $0.42
WK24-11305-000-0-00 ..... $0.43
WK24-11505-000-0-00 (minimum order 1000 feet) $0.26
WK24-11508-000-0-00 (minimum order 1000 feet) $0.55
WK24-21505-000-0-00 (minimum order 1000 feet) $0.28

WK26-11305-000-0-00 ..... $0.68
WK28-11304-000-0-00 ..... $0.29
WK28-11305-000-0-00 (minimum order 1000 feet) $0.39
WK30-11305-000-0-00 ..... $0.32

WN08-11000-101-0-00 ..... $2.50
WN08-11000-201-0-00 ..... $2.35
WN16-31302-000-0-00 (minimum order 1000 feet) $1.69
WN20-11000-101-0-00 ..... $0.50
WN20-11000-201-0-00 ..... $0.50
WN20-31302-000-0-00 ..... $0.86
WN20-31305-000-0-00 ..... $0.50

WT14-11000-101-0-00 ..... $0.13
WT14-11000-201-0-00 ..... $0.61

WT16-51502-000-0-00 ..... $0.40
WT16-61502-000-0-00 (minimum order 1000 feet) $0.46
WT16-71515-000-0-00 (minimum order 1000 feet) $1.47

WT20-11000-101-0-00 ..... $0.07
WT20-11000-201-0-00 ..... $0.15
WT20-11304-000-0-00 ..... $0.44
WT20-11305-000-0-00 ..... $0.44
WT20-11507-000-0-00 ..... $0.53
WT20-11508-000-0-00 (minimum order 1000 feet) $1.00
WT20-12304-000-0-00 ..... $0.72
WT20-21000-101-0-00 ..... $0.10
WT20-21000-201-0-00 ..... $0.18
WT20-21508-000-0-00 ..... $0.58
WT20-31512-000-0-00 (minimum order 1000 feet) $0.90
WT20-51502-000-0-00 ..... $0.19
WT20-51510-000-0-00 ..... $0.30
WT20-51900-004-0-00 (minimum order 1000 feet) $1.50
WT20-51900-008-0-00 (minimum order 1000 feet) $2.71
WT20-51900-012-0-00 (minimum order 1000 feet) $3.50
WT20-51900-024-0-00 (minimum order 1000 feet) $7.50
WT20-71502-000-0-00 ..... $0.29

Wire Price Table (continued)

Spooling Charge (if less than 1000 feet per spool) $10.00

Per Foot

Base Metal Wire

WT24-11304-000-0-00 ..... $0.30
WT24-11305-000-0-00 (minimum order 1000 feet) $0.34
WT24-11505-000-0-00 ..... $0.15
WT24-11508-000-0-00 (minimum order 1000 feet) $0.44
WT24-11513-000-0-00 (minimum order 1000 feet) $0.72

WT30-11305-000-0-00 (minimum order 1000 feet) $0.33

Noble Metal Wire

WB20-51304-000-0-00 ..... $0.74/foot
WB20-51502-000-0-00 (minimum order 2000 feet) $0.60/foot

WB24-11000-101-0-00 ..... Schedule S3 ..... (no spooling charge) $5.00/inch
WB24-11000-201-0-00 ..... Schedule S3 ..... (no spooling charge) $5.00/inch

WC24-11000-101-0-00 ..... Schedule S3 ..... (no spooling charge) $3.79/inch
WC24-11000-201-0-00 ..... Schedule S3 ..... (no spooling charge) $3.79/inch
WC24-51251-000-0-00 ..... $0.86/foot
WC24-51507-000-0-00 (minimum order 1000 feet) $0.85/foot

WF24-11000-101-0-00 ..... Schedule S3 ..... (no spooling charge) $3.10/inch
WF24-11000-201-0-00 ..... Schedule S3 ..... (no spooling charge) $3.43/inch

WR16-51151-000-0-00 ..... $0.77/foot
WR16-51153-000-0-00 ..... $0.82/foot
WR16-71151-000-0-00 ..... $0.90/foot
WR20-51304-000-0-00 ..... $0.46/foot
WR20-51501-000-0-00 ..... $0.42/foot
WR20-51502-000-0-00 ..... $0.23/foot
WR20-51507-000-0-00 ..... $0.51/foot

WR24-11000-101-0-00 ..... Schedule S3 ..... (no spooling charge) $5.00/inch
WR24-11000-201-0-00 ..... Schedule S3 ..... (no spooling charge) $5.00/inch
WR24-51304-000-0-00 ..... $0.34/foot
WR26-11000-101-0-00 ..... Schedule S3 ..... (no spooling charge) $3.30/inch
WR26-11000-201-0-00 ..... Schedule S3 ..... (no spooling charge) $3.30/inch

WS24-11000-101-0-00 ..... Schedule S3 ..... (no spooling charge) $5.00/inch
WS24-11000-201-0-00 ..... Schedule S3 ..... (no spooling charge) $5.00/inch
WS26-11000-101-0-00 ..... Schedule S3 ..... (no spooling charge) $3.30/inch
WS26-11000-201-0-00 ..... Schedule S3 ..... (no spooling charge) $3.30/inch

RTD Extension Wire

Schedule: S6

Spooling Charge (if less than 1000 feet per spool) $10.00

		Per Foot
46-001	16 gauge copper (3 wire); rubber insulation	$0.94
E26-27	22 gauge nickel clad copper (3 wire); fiberglass insulation	$0.61
E26-27-100	22 gauge nickel clad copper (3 wire); SS overbraid	$1.10
E26-26	22 gauge nickel clad copper (2 wire); fiberglass insulation	$0.50
E26-26-100	22 gauge nickel clad copper (2 wire); SS overbraid	$1.10

T/C Elements

Thermocouple Elements

Introduction

Elements are available in both base metal and noble metal. Noble metal elements are listed near the end of this section.

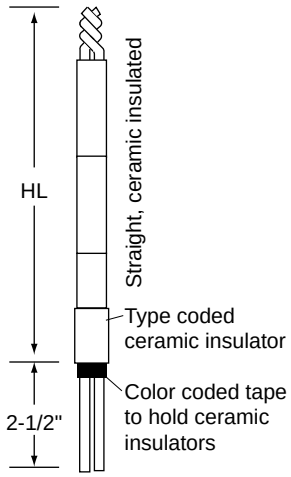
Base metal thermocouples are used directly as temperature sensing elements, or as replacement or component items for insertion into a protection tube. Part numbers for elements for most common sensor configurations can be easily composed as illustrated later in this section. However, sensors with code 24, 30, 41 or 42 protection tubes (Fields 5, 6 of the sensor part number) may require special element assemblies as indicated in the table below. Complete part numbers for these special assemblies are listed immediately after the common configuration listing. (See Quick Reference Index below).

<table>
<tr><th></th><th></th><th colspan="2">Straight</th><th colspan="2">90°</th></tr>
<tr><th>Gauge</th><th>Tube*</th><th>Single</th><th>Dual</th><th>Single</th><th>Dual</th></tr>
<tr><td rowspan="3">8</td><td>24 or 30</td><td colspan="2">A-11727</td><td></td><td></td></tr>
<tr><td>41</td><td>A-11888</td><td rowspan="2">A-11712</td><td>A-11809</td><td></td></tr>
<tr><td>42</td><td>A-11711</td><td>A-10462</td><td></td></tr>
<tr><td rowspan="2">14 or 20</td><td>41</td><td>A-11888</td><td></td><td>A-11809</td><td rowspan="2">A-10504</td></tr>
<tr><td>42</td><td>A-11711</td><td>A-11712</td><td>A-10462</td></tr>
<tr><td colspan="6">*These are codes that appear in Fields 5, 6 of the sensor model number.
They are defined as follows:
24 - 11/16" o.d. high temperature Mullite
30 - 11/16" o.d. aluminum oxide
41 - 1-1/4" o.d. ceramic coated steel
42 - 1-1/4" o.d. ceramic coated steel with spring</td></tr>
</table>

Quick Reference Index

Base metal, common configuration ..... Page 6-18
Base metal, special configuration ..... Page 6-25
Noble metal ..... Page 6-28

Element Construction



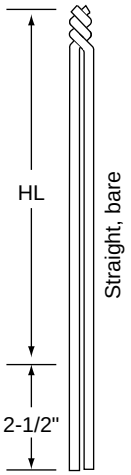
Element construction codes I and H (Field 4) define ceramic insulated elements on which the following insulators are used:

Gauge	Single Element Insulator	Dual Element Insulator
8	51-008	51-008 (two separate elements)
14	51-022	51-051
20	51-027	51-052

Compatibility between these constructions and a given protection tube depends on the inside diameter of the tube. Inside diameter must be at least as large as the maximum outside diameter listed in the following compatibility table (C = compatible):

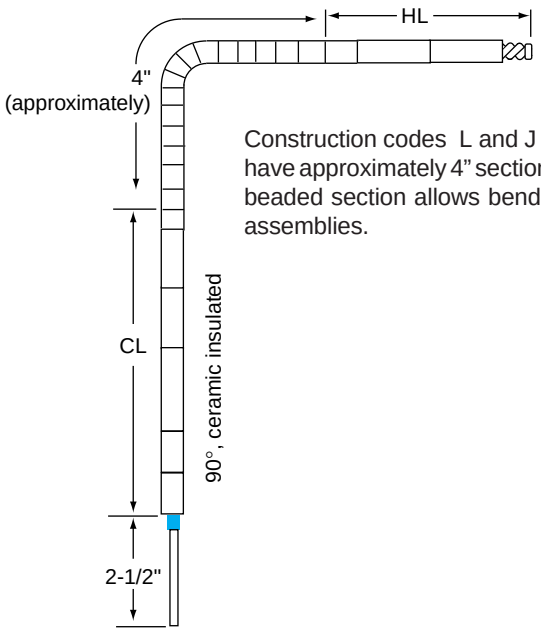
Gauge Code	Thermocouple Type (Field 1)					Max o.d. w/insulators	
(Fields 2, 3)	J	K	T	E	N	Single	Dual
08, 09	C	C	n/a	C	C	31/64”	9/16”
14, 15	C	C	C	C	C	5/16”	5/16”
20, 21	C	C	C	C	C	9/64”	3/16”

Element Construction (continued)



Element construction code O (Field 4) defines non-insulated (bare)elements for which the user must provide suitable insulation.

Compatible base metal element codes (Field 4) are shown in the table below for each protection tube/wire gauge combination.
I = I, 2, 3, 4
H = H, 5, 6



Construction codes L and J (Field 4) define ceramic insulated elements which have approximately 4" section of bead insulation between hot and cold legs. This beaded section allows bending the element for placement into the 90° elbow assemblies.

Element Compatibility

Note: "I" is the letter "I," not the numeral "1."

Field 4. Element, Junction Style Definition	Field 4 Code		
	Straight	90° Elbow	90° Bend
Single, twisted, grounded	I	L	A
Single, twisted, ungrounded	2	C	R
Single, butt welded, grounded	3	E	S
Single, butt welded, ungrounded	4	F	T
Dual, twisted, grounded	H	J	K
Dual, common butt welded, ungrounded	5	G	U
Dual, isolated butt welded, ungrounded	6	M	V

Element Compatibility (continued)

Compatible element codes (Field 4) are shown in the table below for each protection tube/wire gauge combination.

Note: "I" is the letter "I," not the numeral "1."

Fields 5, 6. Protection Tube		Fields 2, 3. Wire Gauge Codes		
Code / Description		08 or 09	14 or 15	20 or 21
01	Cast iron coated	I, 2, 3, 4, H, 5, 6, L, C, E, F, J, G, M	I, 2, 3, 4, H, 5, 6, L, C, E, F, J, G, M	
02	Black steel, 1/4" NPS	n/a		
03	Black steel, 1/2" NPS	I, 2, 3, 4, L, C, E, F, A, R, S, T		
04	Black steel, 3/4" NPS	All except K, U, V	All	
05	Black steel, 1" NPS			
06	Welded steel, 1/8" NPS	n/a	n/a	I, 2, 3, 4, H, 5, 6, L, C, E, F, J, G, M
07	Welded steel, 1/4" NPS	n/a	I, 2, 3, 4, H, 5, 6, L, C, E, F, J, G, M	
08	Welded steel, 1" NPS	All except K, U, V	All	
09	Cast iron	I, 2, 3, 4, H, 5, 6, L, C, E, F, J, G, M	I, 2, 3, 4, H, 5, 6, L, C, E, F, J, G, M	
11	446 SS, 3/4" NPS	All except K, U, V	All except A, R, S, T	
12	446 SS, 1/2" NPS	I, 2, 3, 4, L, C, E, F, A, R, S, T		
13	446 SS, 1" NPS	All except K, U, V		
14	Pure nickel, 1/2" NPS	I, 2, 3, 4, L, C, E, F		
15	Pure nickel, 3/4" NPS	I, 2, 3, 4, H, 5, 6, L, C, E, F, J, G, M		
16	Inconel 601, 1/2" NPS	I, 2, 3, 4, L, C, E, F, A, R, S, T		
17	Inconel 601, 3/4" NPS	All except K, U, V		
18	304 SS, 1/4" NPS	n/a	I, 2, 3, 4, H, 5, 6, L, C, E, F, J, G, M	
19	304 SS, 1/2" NPS	I, 2, 3, 4, L, C, E, F, A, R, S, T	All	
21	Silicon carbide, 1-3/4" o.d.	I, 2, 3, 4, H, 5, 6, L, C, E, F	I, 2, 3, 4, H, 5, 6, L, C, E, F, J, G, M	
22	Silicon carbide w/collar	I, 2, 3, 4, H, 5, 6	n/a	I, 2, 3, 4, H, 5, 6, L, C, E, F, J, G, M
23	H.T. Mullite, 3/8" o.d.	n/a	I, 4, L, F	I, 4, H, 5, 6, L, F, G, M
24	H.T. Mullite, 11/16" o.d.	I, 4, L, F	I, 4, H, 5, 6, L, F, J, G, M	
25	H.T. Mullite, 1" o.d.	I, 4, H, 5, 6, L, F, J, G, M		
26	Incoloy 800, 1/2" NPS	I, 2, 3, 4, L, C, E, F, A, R, S, T	I, 2, 3, 4, H, 5, 6, L, C, E, F, J, G, M	
27	Incoloy 800, 3/4" NPS	I, 2, 3, 4, H, 5, 6, L, C, E, F, J, G, M		
28	Metal ceramic, 7/8" o.d.	I, L, F		
29	Aluminum oxide, 3/8" o.d.	n/a	I, 4, L, F	I, 4, H, 5, 6, L, F, J, G, M
30	Aluminum oxide, 11/16" o.d.	I, 4, L, F	I, 4, H, 5, 6, L, F, J, G, M	
31	Aluminum oxide, 1" o.d.	I, 4, H, 5, 6, L, F, J, G, M		
41	Ceramic clad	I, 2, 3, 4, L, C, E, F	I, 2, 3, 4, H, 5, 6, L, C, E, F, J, G, M	
42	Ceramic clad w/spring			
44	316 SS, 1/2" NPS	I, 2, 3, 4, L, C, E, F, A, R, S, T	All	
46	Silicon carbide pipe, reinforced	I, 2, 3, 4, L, C, E, F	I, 2, 3, 4, H, 5, 6, L, C, E, F, J, G, M	
47	316 SS, 3/4" NPS	All except K, U, V	All	
65	304 SS, 0.160" x 0.185"	n/a	n/a	I
66	304 SS, 0.194" x 0.250"			
67	304 SS, 0.305" x 0.375"	n/a	I, 4	I, 2, 3, 4, H, 5, 6
68	316 SS, 0.160" x 0.185"	n/a	n/a	I, 4
69	316 SS, 0.194" x 0.250"			
70	316 SS, 0.305" x 0.375"	n/a	I	I, 2, 3, 4, H, 5, 6
72	Inconel 601, 0.194" x 0.250	n/a	n/a	I
73	Inconel 601, 0.305" x 0.375"	n/a	I	I, 2, 3, 4, H, 5, 6

Ordering Information

Complete this part number, then obtain price from tables on following pages. Straight element part numbers are listed first, followed by 90° element part numbers.

Model No. □ □ □ □ **- 0 0 0** □ □ **- 0** □ □ **- 0 - 0 0**

Field No.	1	2	3	4		5	6	7	8	9		10	11	12		13	14	15

Schedule: S2

Field 1. THERMOCOUPLE TYPE

- J - Iron-Constantan
- K - Chromel-Alumel
- T - Copper-Constantan
- E - Chromel-Constantan

Fields 2, 3. WIRE GAUGE; LIMITS OF ERROR

- 08 - 8 gauge; standard (not compatible with Field 1, code T)
- 09 - 8 gauge; special (not compatible with Field 1, code T)
- 14 - 14 gauge; standard
- 15 - 14 gauge; special
- 20 - 20 gauge; standard
- 21 - 20 gauge; special

Field 4. ELEMENT CONSTRUCTION

Note: "I" is the letter "I," not the numeral "1."

I -	Straight	single element	two hole ceramic insulators
L -	90°	single element	two hole ceramic insulators
O -	Bare wire element		no insulators
H -*	Straight	dual element	two hole ceramic insul (2 separate elements)
J -	90°	dual element	two hole ceramic insulators
2 -	Twisted	single	ungrounded
B -	Twisted	single	beaded
3 -	Butt welded	single	grounded
4 -	Butt welded	single	ungrounded
5 -	Butt welded	dual common	ungrounded
6 -	Butt welded	dual isolated	ungrounded

*Dual 14 and 20 gauge elements are supplied with four hole insulators on straight element styles; 8 gauge uses two separate elements

Fields 5, 6, 7. RESERVED

Fields 8, 9. HOT LEG (DIMENSION "HL")

- HL - Length "HL" in whole inches

Field 10. RESERVED

Fields 11, 12. COLD LEG (DIMENSION "CL")

- 00 - None. Straight element
- CL - Length "CL" in whole inches

Fields 13, 14, 15. RESERVED

T/C Element Price Table

Straight Elements

Note: in this list "I" is the letter "I," not the numeral "1."

	First 12"	Ea. Add'l 6"
E082- 000HL-000-0-00	$12.40	$2.40
E083- 000HL-000-0-00	$11.90	$2.40
E084- 000HL-000-0-00	$14.40	$2.40
E085- 000HL-000-0-00	$23.80	$4.80
E086- 000HL-000-0-00	$25.80	$4.80
E08B- 000HL-000-0-00	$12.40	$3.90
E08H- 000HL-000-0-00	$18.80	$4.80
E08I- 000HL-000-0-00	$9.40	$2.40
E08O- 000HL-000-0-00	$7.60	$1.60
E092- 000HL-000-0-00	$13.75	$2.65
E093- 000HL-000-0-00	$13.25	$2.65
E094- 000HL-000-0-00	$15.75	$2.65
E095- 000HL-000-0-00	$26.50	$5.30
E096- 000HL-000-0-00	$28.50	$5.30
E09B- 000HL-000-0-00	$13.75	$4.15
E09H- 000HL-000-0-00	$21.50	$5.30
E09I- 000HL-000-0-00	$10.75	$2.65
E09O- 000HL-000-0-00	$8.95	$1.85
E142- 000HL-000-0-00	$9.80	$1.65
E143- 000HL-000-0-00	$9.30	$1.65
E144- 000HL-000-0-00	$11.80	$1.65
E145- 000HL-000-0-00	$18.60	$3.30
E146- 000HL-000-0-00	$20.60	$3.30
E14B- 000HL-000-0-00	$9.80	$3.15
E14H- 000HL-000-0-00	$13.60	$3.30
E14I- 000HL-000-0-00	$6.80	$1.65
E14O- 000HL-000-0-00	$5.00	$0.85
E152- 000HL-000-0-00	$10.50	$1.80
E153- 000HL-000-0-00	$10.00	$1.80
E154- 000HL-000-0-00	$12.50	$1.80
E155- 000HL-000-0-00	$20.00	$3.60
E156- 000HL-000-0-00	$22.00	$3.60
E15B- 000HL-000-0-00	$10.50	$3.30
E15H- 000HL-000-0-00	$15.00	$3.60
E15I- 000HL-000-0-00	$7.50	$1.80
E15O- 000HL-000-0-00	$5.70	$1.00
E202- 000HL-000-0-00	$9.10	$1.60
E203- 000HL-000-0-00	$8.60	$1.60
E204- 000HL-000-0-00	$11.10	$1.60
E205- 000HL-000-0-00	$17.20	$3.20
E206- 000HL-000-0-00	$19.20	$3.20
E20B- 000HL-000-0-00	$9.10	$3.10
E20H- 000HL-000-0-00	$12.20	$3.20
E20I- 000HL-000-0-00	$6.10	$1.60
E20O- 000HL-000-0-00	$4.30	$1.10

T/C Element Price Table (continued)

Straight Elements

	First 12"	Ea. Add'l 6"
E212- 000HL-000-0-00	$9.70	$1.75
E213- 000HL-000-0-00	$9.20	$1.75
E214- 000HL-000-0-00	$11.70	$1.75
E215- 000HL-000-0-00	$18.40	$3.50
E216- 000HL-000-0-00	$20.40	$3.50
E21B- 000HL-000-0-00	$9.70	$3.25
E21H- 000HL-000-0-00	$13.40	$3.50
E21I- 000HL-000-0-00	$6.70	$1.75
E21O- 000HL-000-0-00	$4.90	$0.95
J082- 000HL-000-0-00	$10.80	$1.80
J083- 000HL-000-0-00	$10.30	$1.80
J084- 000HL-000-0-00	$12.80	$1.80
J085- 000HL-000-0-00	$20.60	$3.60
J086- 000HL-000-0-00	$22.60	$3.60
J08B- 000HL-000-0-00	$10.80	$3.30
J08H- 000HL-000-0-00	$15.60	$3.60
J08I- 000HL-000-0-00	$7.80	$1.80
J08O- 000HL-000-0-00	$6.00	$1.00
J092- 000HL-000-0-00	$11.60	$2.00
J093- 000HL-000-0-00	$11.10	$2.00
J094- 000HL-000-0-00	$13.60	$2.00
J095- 000HL-000-0-00	$22.20	$4.00
J096- 000HL-000-0-00	$24.20	$4.00
J09B- 000HL-000-0-00	$11.60	$3.50
J09H- 000HL-000-0-00	$17.20	$4.00
J09I- 000HL-000-0-00	$8.60	$2.00
J09O- 000HL-000-0-00	$6.80	$1.20
J142- 000HL-000-0-00	$9.40	$1.35
J143- 000HL-000-0-00	$8.90	$1.35
J144- 000HL-000-0-00	$11.40	$1.35
J145- 000HL-000-0-00	$17.80	$2.70
J146- 000HL-000-0-00	$19.80	$2.70
J14B- 000HL-000-0-00	$9.40	$2.85
J14H- 000HL-000-0-00	$12.80	$2.70
J14I- 000HL-000-0-00	$6.40	$1.35
J14O- 000HL-000-0-00	$7.70	$0.85
J152- 000HL-000-0-00	$10.05	$1.50
J153- 000HL-000-0-00	$9.55	$1.50
J154- 000HL-000-0-00	$12.05	$1.50
J155- 000HL-000-0-00	$19.10	$3.00
J156- 000HL-000-0-00	$21.10	$3.00
J15B- 000HL-000-0-00	$10.05	$3.00
J15H- 000HL-000-0-00	$14.10	$3.00
J15I- 000HL-000-0-00	$7.05	$1.50
J15O- 000HL-000-0-00	$5.75	$1.00

T/C Element Price Table (continued)

Straight Elements

	First 12"	Ea. Add'l 6"
J202- 000HL-000-0-00	$8.50	$1.30
J203- 000HL-000-0-00	$8.00	$1.30
J204- 000HL-000-0-00	$10.50	$1.30
J205- 000HL-000-0-00	$16.00	$2.60
J206- 000HL-000-0-00	$18.00	$2.60
J20B- 000HL-000-0-00	$8.50	$2.80
J20H- 000HL-000-0-00	$11.00	$2.60
J20I- 000HL-000-0-00	$5.50	$1.30
J20O- 000HL-000-0-00	$4.20	$0.80
J212- 000HL-000-0-00	$9.05	$1.45
J213- 000HL-000-0-00	$8.55	$1.45
J214- 000HL-000-0-00	$11.05	$1.45
J215- 000HL-000-0-00	$17.10	$2.90
J216- 000HL-000-0-00	$19.10	$2.90
J21B- 000HL-000-0-00	$9.05	$2.95
J21H- 000HL-000-0-00	$12.10	$2.90
J21I- 000HL-000-0-00	$6.05	$1.45
J21O- 000HL-000-0-00	$4.75	$0.95
K06I- 000HL-000-0-00	$12.00	$3.00
K06O- 000HL-000-0-00	$11.50	$2.50
K082- 000HL-000-0-00	$12.40	$2.40
K083- 000HL-000-0-00	$11.90	$2.40
K084- 000HL-000-0-00	$14.40	$2.40
K085- 000HL-000-0-00	$23.80	$4.80
K086- 000HL-000-0-00	$25.80	$4.80
K08B- 000HL-000-0-00	$12.40	$3.90
K08H- 000HL-000-0-00	$18.80	$4.80
K08I- 000HL-000-0-00	$9.40	$2.40
K08O- 000HL-000-0-00	$8.10	$1.90
K092- 000HL-000-0-00	$13.75	$2.65
K093- 000HL-000-0-00	$13.25	$2.65
K094- 000HL-000-0-00	$15.75	$2.65
K095- 000HL-000-0-00	$26.50	$5.30
K096- 000HL-000-0-00	$28.50	$5.30
K09B- 000HL-000-0-00	$13.75	$4.15
K09H- 000HL-000-0-00	$21.50	$5.30
K09I- 000HL-000-0-00	$10.75	$2.65
K09O- 000HL-000-0-00	$9.45	$2.15
K142- 000HL-000-0-00	$9.80	$1.65
K143- 000HL-000-0-00	$9.30	$1.65
K144- 000HL-000-0-00	$11.80	$1.65
K145- 000HL-000-0-00	$18.60	$3.30
K146- 000HL-000-0-00	$20.60	$3.30
K14B- 000HL-000-0-00	$9.80	$3.15
K14H- 000HL-000-0-00	$13.60	$3.30
K14I- 000HL-000-0-00	$6.80	$1.65
K14O- 000HL-000-0-00	$5.50	$1.15

T/C Element Price Table (continued)

Straight Elements

	First 12"	Ea. Add'l 6"
K152- 000HL-000-0-00	$10.50	$1.80
K153- 000HL-000-0-00	$10.00	$1.80
K154- 000HL-000-0-00	$12.50	$1.80
K155- 000HL-000-0-00	$20.00	$3.60
K156- 000HL-000-0-00	$22.00	$3.60
K15B- 000HL-000-0-00	$10.50	$3.30
K15H- 000HL-000-0-00	$15.00	$3.60
K15I- 000HL-000-0-00	$7.50	$1.80
K15O- 000HL-000-0-00	$6.20	$1.30
K202- 000HL-000-0-00	$9.10	$1.60
K203- 000HL-000-0-00	$8.60	$1.60
K204- 000HL-000-0-00	$11.10	$1.60
K205- 000HL-000-0-00	$17.20	$3.20
K206- 000HL-000-0-00	$19.20	$3.20
K20B- 000HL-000-0-00	$9.10	$3.10
K20H- 000HL-000-0-00	$12.20	$3.20
K20I- 000HL-000-0-00	$6.10	$1.60
K20O- 000HL-000-0-00	$4.80	$1.10
K212- 000HL-000-0-00	$9.70	$1.75
K213- 000HL-000-0-00	$9.20	$1.75
K214- 000HL-000-0-00	$11.70	$1.75
K215- 000HL-000-0-00	$18.40	$3.50
K216- 000HL-000-0-00	$20.40	$3.50
K21B- 000HL-000-0-00	$9.70	$3.25
K21H- 000HL-000-0-00	$13.40	$3.50
K21I- 000HL-000-0-00	$6.70	$1.75
K21O- 000HL-000-0-00	$5.40	$1.25
N082- 000HL-000-0-00	$16.40	$3.40
N083- 000HL-000-0-00	$15.90	$3.40
N084- 000HL-000-0-00	$18.40	$3.40
N085- 000HL-000-0-00	$18.40	$6.80
N086- 000HL-000-0-00	$33.80	$6.80
N08B- 000HL-000-0-00	$16.40	$4.90
N08H- 000HL-000-0-00	$26.80	$6.80
N08I- 000HL-000-0-00	$13.40	$3.40
N08O- 000HL-000-0-00	$12.10	$2.90
N202- 000HL-000-0-00	$12.00	$2.30
N203- 000HL-000-0-00	$11.50	$2.30
N204- 000HL-000-0-00	$12.70	$2.30
N205- 000HL-000-0-00	$23.00	$4.60
N206- 000HL-000-0-00	$25.00	$4.60
N20B- 000HL-000-0-00	$12.00	$3.80
N20H- 000HL-000-0-00	$18.00	$4.60
N20I- 000HL-000-0-00	$9.00	$2.30
N20O- 000HL-000-0-00	$7.70	$1.80

T/C Element Price Table (continued)

Straight Elements

	First 12"	Ea. Add'l 6"
T142- 000HL-000-0-00	$9.40	$1.35
T143- 000HL-000-0-00	$8.90	$1.35
T144- 000HL-000-0-00	$11.40	$1.35
T145- 000HL-000-0-00	$17.80	$2.70
T146- 000HL-000-0-00	$19.80	$2.70
T14B- 000HL-000-0-00	$9.40	$2.85
T14H- 000HL-000-0-00	$12.80	$2.70
T14I- 000HL-000-0-00	$6.40	$1.35
T14O- 000HL-000-0-00	$5.10	$0.85
T152- 000HL-000-0-00	$10.05	$1.50
T153- 000HL-000-0-00	$9.55	$1.50
T154- 000HL-000-0-00	$12.05	$1.50
T155- 000HL-000-0-00	$19.10	$3.00
T156- 000HL-000-0-00	$21.10	$3.00
T15B- 000HL-000-0-00	$10.05	$3.00
T15H- 000HL-000-0-00	$14.10	$3.00
T15I- 000HL-000-0-00	$7.05	$1.50
T15O- 000HL-000-0-00	$5.75	$1.00
T202- 000HL-000-0-00	$8.50	$1.30
T203- 000HL-000-0-00	$8.00	$1.30
T204- 000HL-000-0-00	$10.50	$1.30
T205- 000HL-000-0-00	$16.00	$2.60
T206- 000HL-000-0-00	$18.00	$2.60
T20B- 000HL-000-0-00	$8.50	$2.80
T20H- 000HL-000-0-00	$11.00	$2.60
T20I- 000HL-000-0-00	$5.50	$1.30
T20O- 000HL-000-0-00	$4.20	$0.80
T212- 000HL-000-0-00	$9.05	$1.45
T213- 000HL-000-0-00	$8.55	$1.45
T214- 000HL-000-0-00	$11.05	$1.45
T215- 000HL-000-0-00	$17.10	$2.90
T216- 000HL-000-0-00	$19.10	$2.90
T21B- 000HL-000-0-00	$9.05	$2.95
T21H- 000HL-000-0-00	$12.10	$2.90
T21I- 000HL-000-0-00	$6.05	$1.45
T21O- 000HL-000-0-00	$4.75	$0.95

T/C Element Price Table (continued)

90° Elements

	First 12"	Ea. Add'l 6"
☞To obtain total length, add hot leg (Fields 8, 9) and cold leg (Fields 11, 12)		
E08L- 000HL-0CL-0-00	$21.10	$2.40
E09L- 000HL-0CL-0-00	$23.20	$2.65
E14J- 000HL-0CL-0-00	$33.40	$3.30
E14L- 000HL-0CL-0-00	$16.70	$1.65
E15J- 000HL-0CL-0-00	$36.75	$3.65
E15L- 000HL-0CL-0-00	$18.35	$1.80
E20J- 000HL-0CL-0-00	$33.40	$3.20
E20L- 000HL-0CL-0-00	$16.70	$1.60
E21J- 000HL-0CL-0-00	$36.75	$3.50
E21L- 000HL-0CL-0-00	$18.35	$1.75
J08L- 000HL-0CL-0-00	$17.60	$1.80
J09L- 000HL-0CL-0-00	$19.35	$2.00
J14J- 000HL-0CL-0-00	$30.60	$2.70
J14L- 000HL-0CL-0-00	$15.30	$1.35
J15J- 000HL-0CL-0-00	$33.65	$2.95
J15L- 000HL-0CL-0-00	$16.85	$1.50
J20J- 000HL-0CL-0-00	$30.60	$2.60
J20L- 000HL-0CL-0-00	$15.30	$1.30
J21J- 000HL-0CL-0-00	$33.65	$2.85
J21L- 000HL-0CL-0-00	$16.85	$1.45
K08L- 000HL-0CL-0-00	$21.10	$2.40
K09L- 000HL-0CL-0-00	$23.20	$2.65
K14J- 000HL-0CL-0-00	$33.40	$3.30
K14L- 000HL-0CL-0-00	$16.70	$1.65
K15J- 000HL-0CL-0-00	$36.75	$3.65
K15L- 000HL-0CL-0-00	$18.35	$1.80
K20J- 000HL-0CL-0-00	$33.40	$3.20
K20L- 000HL-0CL-0-00	$16.70	$1.60
K21J- 000HL-0CL-0-00	$36.75	$3.50
K21L- 000HL-0CL-0-00	$18.35	$1.75
N14J- 000HL-0CL-0-00	$45.10	$4.80
N20L- 000HL-0CL-0-00	$45.10	$4.60
T14J- 000HL-0CL-0-00	$30.60	$2.70
T14L- 000HL-0CL-0-00	$15.30	$1.35
T15J- 000HL-0CL-0-00	$33.65	$2.95
T15L- 000HL-0CL-0-00	$16.85	$1.50
T20J- 000HL-0CL-0-00	$30.60	$2.60
T20L- 000HL-0CL-0-00	$15.30	$1.30
T21J- 000HL-0CL-0-00	$33.65	$2.85
T21L- 000HL-0CL-0-00	$16.85	$1.50

Thermocouple Elements
Special Assemblies

Introduction

Code 24, 30 Tubes

Element is insulated with a single hole 51-009 insulator on the positive leg only.

Code 41, 42 Tubes

Straight elements: Leads have approximately 2" of insulating beads at cold end to provide flexibility required by ceramic coated steel tubes (code 42). 8 gauge element uses 51-052 insulators

90° Elements: Code 41 protection tube requires a special 8 gauge element because of its small inside diameter. Code 42 protection tube requires special elements because of the spring extension which requires a bead section about 10" long.

Ordering Information

Complete this part number, then obtain price from the tables on following pages.

Model No. 0 0 0 A - □□□□□ - □□□ - □ - □□

Field No. 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

Schedule: S6

Fields 1 through 3. RESERVED

Fields 4 through 9. BASE MODEL

Specify Field 13 first

		Fields 4 through 9			
		Straight		90°	
Field 13	Tube	Single	Dual	Single	Dual
1	24 or 30	**A-11727**			
	41	**A-11888**	**A-11712**	**A-11809**	
	42	**A-11711**		**A-10462**	
2 or 3	41	**A-11888**		**A-11809**	**A-10504**
	42	**A-11711**	**A-11712**	**A-10462**	

Field 10. THERMOCOUPLE TYPE

1 - Type J
2 - Type K
3 - Type E
4 - Type T
5 - Type N

Fields 11, 12. HOT LENGTH (DIMENSION "HL")

XX - Specify in whole inches

Field 13. WIRE GAUGE

1 - 8 gauge
2 - 14 gauge (not Type N)
3 - 20 gauge

Fields 14, 15. LIMITS OF ERROR (FOR STRAIGHT TUBES) OR COLD LENGTH (DIMENSION "CL" FOR 90° TUBES)

Straight Tubes
00 - Standard limits of error
01 - Special limits of error
90° Tubes
XX - Specify "CL" dimension in whole inches.

Special Elements Price Table

☞To obtain total length, add HL (Fields 11, 12) and CL (Fields 14, 15 – 90° only)

				First 12"	Ea. Add'l 6"
A-10462					
	A-10462-1HL-1-CL	Type J, 8 gauge	standard limits	$19.35	$2.00
	A-10462-1HL-2-CL	Type J, 14 gauge	standard limits	$16.85	$1.50
	A-10462-1HL-3-CL	Type J, 20 gauge	standard limits	$16.85	$1.45
	A-10462-2HL-1-CL	Type K, 8 gauge	standard limits	$23.20	$2.65
	A-10462-2HL-2-CL	Type K, 14 gauge	standard limits	$18.35	$1.80
	A-10462-2HL-3-CL	Type K, 20 gauge	standard limits	$18.35	$1.75
	A-10462-3HL-1-CL	Type E, 8 gauge	standard limits	$23.20	$2.65
	A-10462-3HL-2-CL	Type E, 14 gauge	standard limits	$18.35	$1.80
	A-10462-3HL-3-CL	Type E, 20 gauge	standard limits	$18.35	$1.75
	A-10462-4HL-2-CL	Type T, 14 gauge	standard limits	$16.85	$1.50
	A-10462-4HL-3-CL	Type T, 20 gauge	standard limits	$16.85	$1.45
A-10504					
	A-10504-1HL-2-CL	Type J, 14 gauge	standard limits	$33.65	$2.95
	A-10504-1HL-3-CL	Type J, 20 gauge	standard limits	$33.65	$2.85
	A-10504-2HL-2-CL	Type K, 14 gauge	standard limits	$36.75	$3.65
	A-10504-2HL-3-CL	Type K, 20 gauge	standard limits	$36.75	$3.50
	A-10504-3HL-2-CL	Type E, 14 gauge	standard limits	$36.75	$3.65
	A-10504-4HL-2-CL	Type T, 14 gauge	standard limits	$33.65	$2.95
	A-10504-4HL-3-CL	Type T, 20 gauge	standard limits	$33.65	$2.85
A-11711					
	A-11711-1HL-1-00	Type J, 8 gauge	standard limits	$7.80	$1.80
	A-11711-1HL-1-01	Type J, 8 gauge	special limits	$8.60	$2.00
	A-11711-1HL-2-00	Type J, 14 gauge	standard limits	$6.40	$1.35
	A-11711-1HL-2-01	Type J, 14 gauge	special limits	$7.05	$1.50
	A-11711-1HL-3-00	Type J, 20 gauge	standard limits	$5.50	$1.30
	A-11711-1HL-3-01	Type J, 20 gauge	special limits	$6.05	$1.45
	A-11711-2HL-1-00	Type K, 8 gauge	standard limits	$9.40	$2.40
	A-11711-2HL-1-01	Type K, 8 gauge	special limits	$10.75	$2.65
	A-11711-2HL-2-00	Type K, 14 gauge	standard limits	$6.80	$1.65
	A-11711-2HL-2-01	Type K, 14 gauge	special limits	$7.50	$1.80
	A-11711-2HL-3-00	Type K, 20 gauge	standard limits	$6.10	$1.60
	A-11711-2HL-3-01	Type K, 20 gauge	special limits	$6.70	$1.75
	A-11711-3HL-1-00	Type E, 8 gauge	standard limits	$9.40	$2.40
	A-11711-3HL-1-01	Type E, 8 gauge	special limits	$10.75	$2.65
	A-11711-3HL-2-00	Type E, 14 gauge	standard limits	$6.80	$1.65
	A-11711-3HL-2-01	Type E, 14 gauge	special limits	$7.50	$1.80
	A-11711-3HL-3-00	Type E, 20 gauge	standard limits	$6.10	$1.60
	A-11711-3HL-3-01	Type E, 20 gauge	special limits	$6.70	$1.75
	A-11711-4HL-2-00	Type T, 14 gauge	standard limits	$6.40	$1.35
	A-11711-4HL-2-01	Type T, 14 gauge	special limits	$7.05	$1.50
	A-11711-4HL-3-00	Type T, 20 gauge	standard limits	$5.50	$1.30
	A-11711-4HL-3-01	Type T, 20 gauge	special limits	$6.05	$1.45
A-11712					
	A-11712-1HL-1-00	Type J, 8 gauge	standard limits	$15.60	$3.60
	A-11712-1HL-1-01	Type J, 8 gauge	special limits	$17.20	$4.00
	A-11712-1HL-2-00	Type J, 14 gauge	standard limits	$12.80	$2.70
	A-11712-1HL-2-01	Type J, 14 gauge	special limits	$14.10	$3.00
	A-11712-1HL-3-00	Type J, 20 gauge	standard limits	$11.00	$2.60
	A-11712-1HL-3-01	Type J, 20 gauge	special limits	$12.10	$2.90
	A-11712-2HL-1-00	Type K, 8 gauge	standard limits	$18.80	$4.80
	A-11712-2HL-1-01	Type K, 8 gauge	special limits	$21.50	$5.30
	A-11712-2HL-2-00	Type K, 14 gauge	standard limits	$13.60	$3.30
	A-11712-2HL-2-01	Type K, 14 gauge	special limits	$15.00	$3.60
	A-11712-2HL-3-00	Type K, 20 gauge	standard limits	$12.20	$3.20

Special Elements Price Table (continued)

				First 12"	Ea. Add'l 6"
A-11712 (continued)					
	A-11712-2HL-3-01	Type K, 20 gauge	special limits	$13.40	$3.50
	A-11712-3HL-1-00	Type E, 8 gauge	standard limits	$18.80	$4.80
	A-11712-3HL-1-01	Type E, 8 gauge	special limits	$21.50	$5.30
	A-11712-3HL-2-00	Type E, 14 gauge	standard limits	$13.60	$3.30
	A-11712-3HL-2-01	Type E, 14 gauge	special limits	$15.00	$3.60
	A-11712-3HL-3-00	Type E, 20 gauge	standard limits	$12.20	$3.20
	A-11712-3HL-3-01	Type E, 20 gauge	special limits	$13.40	$3.50
	A-11712-4HL-2-00	Type T, 14 gauge	standard limits	$12.80	$2.70
	A-11712-4HL-2-01	Type T, 14 gauge	special limits	$14.10	$3.00
	A-11712-4HL-3-00	Type T, 20 gauge	standard limits	$11.00	$2.60
	A-11712-4HL-3-01	Type T, 20 gauge	special limits	$12.10	$2.90
A-11727					
	A-11727-1HL-1-00	Type J, 8 gauge	standard limits	$7.80	$1.80
	A-11727-1HL-1-01	Type J, 8 gauge	special limits	$8.60	$2.00
	A-11727-2HL-1-00	Type K, 8 gauge	standard limits	$9.40	$2.40
	A-11727-2HL-1-01	Type K, 8 gauge	standard limits	$10.75	$2.65
	A-11727-3HL-1-00	Type E, 8 gauge	standard limits	$9.40	$2.40
	A-11727-3HL-1-01	Type E, 8 gauge	special limits	$10.75	$2.65
A-11809					
	A-11809-1HL-1-CL	Type J, 8 gauge	standard limits	$19.35	$2.00
	A-11809-1HL-2-CL	Type J, 14 gauge	standard limits	$16.85	$1.50
	A-11809-1HL-3-CL	Type J, 20 gauge	standard limits	$16.85	$1.45
	A-11809-2HL-1-CL	Type K, 8 gauge	standard limits	$23.20	$2.65
	A-11809-2HL-2-CL	Type K, 14 gauge	standard limits	$18.35	$1.80
	A-11809-2HL-3-CL	Type K, 20 gauge	standard limits	$18.35	$1.75
	A-11809-3HL-1-CL	Type E, 8 gauge	standard limits	$23.20	$2.65
	A-11809-3HL-2-CL	Type E, 14 gauge	standard limits	$18.35	$1.80
	A-11809-3HL-3-CL	Type E, 20 gauge	standard limits	$18.35	$1.75
	A-11809-4HL-2-CL	Type T, 14 gauge	standard limits	$16.85	$1.50
	A-11809-4HL-3-CL	Type T, 20 gauge	standard limits	$16.85	$1.45
A-11888					
	A-11888-1HL-1-00	Type J, 8 gauge	standard limits	$7.80	$1.80
	A-11888-1HL-1-01	Type J, 8 gauge	special limits	$8.60	$2.00
	A-11888-1HL-2-00	Type J, 14 gauge	standard limits	$6.40	$1.35
	A-11888-1HL-2-01	Type J, 14 gauge	special limits	$7.05	$1.50
	A-11888-1HL-3-00	Type J, 20 gauge	standard limits	$5.50	$1.30
	A-11888-1HL-3-01	Type J, 20 gauge	special limits	$6.05	$1.45
	A-11888-2HL-1-00	Type K, 8 gauge	standard limits	$9.40	$2.40
	A-11888-2HL-1-01	Type K, 8 gauge	special limits	$10.75	$2.65
	A-11888-2HL-2-00	Type K, 14 gauge	standard limits	$6.80	$1.65
	A-11888-2HL-2-01	Type K, 14 gauge	special limits	$7.50	$1.80
	A-11888-2HL-3-00	Type K, 20 gauge	standard limits	$6.10	$1.60
	A-11888-2HL-3-01	Type K, 20 gauge	special limits	$6.70	$1.75
	A-11888-3HL-1-00	Type E, 8 gauge	standard limits	$9.40	$2.40
	A-11888-3HL-1-01	Type E, 8 gauge	special limits	$10.75	$2.65
	A-11888-3HL-2-00	Type E, 14 gauge	standard limits	$6.80	$1.65
	A-11888-3HL-2-01	Type E, 14 gauge	special limits	$7.50	$1.80
	A-11888-3HL-3-00	Type E, 20 gauge	standard limits	$6.10	$1.60
	A-11888-3HL-3-01	Type E, 20 gauge	special limits	$6.70	$1.75
	A-11888-4HL-2-00	Type T, 14 gauge	standard limits	$6.40	$1.35
	A-11888-4HL-2-01	Type T, 14 gauge	special limits	$7.05	$1.50
	A-11888-4HL-3-00	Type T, 20 gauge	standard limits	$5.50	$1.30
	A-11888-4HL-3-01	Type T, 20 gauge	special limits	$6.05	$1.45

Noble Metal and Other High Temperature Thermocouple Elements

Introduction

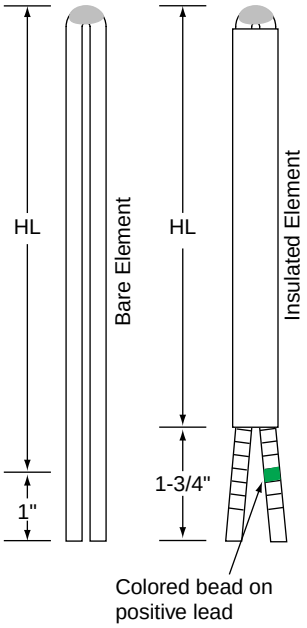
The elements consist of standardized and matched wires, individually checked. The hot junctions of noble metal elements are end contact welded. Cold ends are terminated with butt connectors.

Both bare elements and insulated elements are available. The positive lead of an insulated element is identified with a colored glass bead as follows: Type R - blue or black; type S - clear; type B - yellow; type F - yellow and blue or black; and, type C - green. Insulated elements are for use with general purpose or weatherproof heads.

Contamination

Platinum and platinum alloy thermocouple wire is extremely susceptible to contamination from elements such as silicon, iron, zinc, calcium, etc. Keep platinum and platinum alloy thermocouple wire clean both before and during use. Contamination causes negative direction drift and weakening of the wire.

Ordering Information



Note: "I" is the letter "I," not the numeral "1."

Complete this part number, then obtain price from table on following page.

Model No. □ □ □ □ **- 0 0 0** □ □ **- 0 0 0 - 0 - 0 0**

Field No. 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

Schedule: S3

Field 1. THERMOCOUPLE TYPE
- R - Platinum, 13% Rhodium - Platinum
- S - Platinum, 10% Rhodium - Platinum
- B - Platinum, 30% Rhodium - Platinum, 6% Rhodium
- C - Tungsten, 5% Rhenium - Tungsten, 26% Rhenium
- F - Platinel II

Fields 2, 3. WIRE GAUGE; LIMITS OF ERROR

See compatability table at front of Industrial Sensors section
- 24 - 24 gauge, standard limits
- 25 - 24 gauge, special limits (Types B, S, and R only)
- 26 - 26 gauge, standard limits

Field 4. ELEMENT CONSTRUCTION
- I - Straight single element two hole ceramic insulators
- O - Bare wire element no insulators
- H - Straight dual element two hole ceramic insulators

Fields 5, 6, 7. RESERVED

Fields 8, 9. HOT LEG ("HL" DIMENSION)
- HL - Length "HL" in whole inches

Field 10 through 15 RESERVED

Noble Metal T/C Elements Price Table

Note: in this list "I" is the letter "l," not the numeral "1."

Noble Metal Thermocouple Elements	First 12"	Ea. Add'l 1"
B24H-000HL-000-0-00	$292.00	$21.00
B24I-000HL-000-0-00	$146.00	$10.50
B24O-000HL-000-0-00	$140.00	$10.00
B25H-000HL-000-0-00	$346.00	$25.00
B25I-000HL-000-0-00	$173.00	$12.50
B25O-000HL-000-0-00	$167.00	$12.00
C24H-000HL-000-0-00	$172.00	$12.00
C24I-000HL-000-0-00	$86.00	$6.00
C24O-000HL-000-0-00	$80.00	$5.50
F24H-000HL-000-0-00	$172.00	$12.00
F24I-000HL-000-0-00	$86.00	$6.00
F24O-000HL-000-0-00	$80.00	$5.50
R24H-000HL-000-0-00	$292.00	$21.00
R24I-000HL-000-0-00	$146.00	$10.50
R24O-000HL-000-0-00	$140.00	$10.00
R25H-000HL-000-0-00	$346.00	$25.00
R25I-000HL-000-0-00	$173.00	$12.50
R25O-000HL-000-0-00	$167.00	$12.00
R26H-000HL-000-0-00	$200.00	$14.00
R26I-000HL-000-0-00	$100.00	$7.00
R26O-000HL-000-0-00	$94.00	$6.50
S24H-000HL-000-0-00	$292.00	$21.00
S24I-000HL-000-0-00	$146.00	$10.50
S24O-000HL-000-0-00	$140.00	$10.00
S25H-000HL-000-0-00	$346.00	$25.00
S25I-000HL-000-0-00	$173.00	$12.50
S25O-000HL-000-0-00	$167.00	$12.00
S26H-000HL-000-0-00	$200.00	$14.00
S26I-000HL-000-0-00	$100.00	$7.00
S26O-000HL-000-0-00	$94.00	$6.50

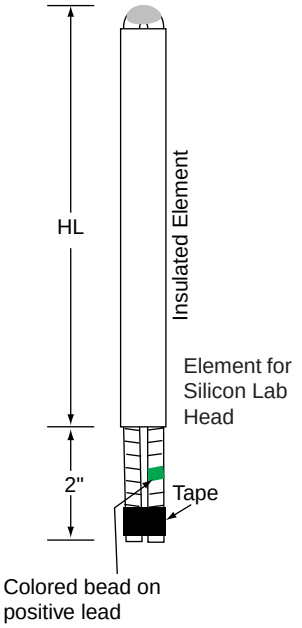
Noble Metal Thermocouples for Laboratory Head Assemblies, and Silicon Carbide Protection Tube Assemblies

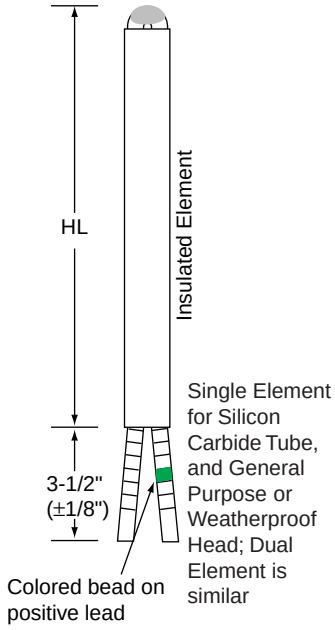
Ordering Information

Complete this part number, then obtain price from table on following page.

Model No. 0 0 0 A - □ □ □ □ □ - □ 0 0 - 0 - □ □

Field No. 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15





Schedule: S3

Fields 1 through 3. RESERVED

Fields 4 through 9. BASE MODEL

For Laboratory Head Assemblies

A-10769 - 24 gauge, single element, standard limits
A-13734 - 26 gauge, single element, standard limits

For Silicon Carbide Protection Tube Assemblies

A-11670 - 24 gauge, single element, standard limits
A-11675 - 24 gauge, dual element, standard limits
A-13732 - 26 gauge, single element, standard limits
A-13733 - 26 gauge, dual element, standard limits

Field 10. THERMOCOUPLE TYPE

0 - Type R
1 - Type S
2 - Type B
3 - Type C
4 - Type F

Fields 11, 12, 13. RESERVED

Fields 14, 15. HOT LEG (HL DIMENSION)

HL - "HL" length in whole inches

Price Table

Laboratory Head Assemblies	First 12"	Ea. Add'l 1"
A-10769- 000-0-HL	$152.00	$10.50
A-10769- 100-0-HL	$152.00	$10.50
A-10769- 200-0-HL	$152.00	$10.50
A-10769- 300-0-HL	$90.00	$6.00
A-10769- 400-0-HL	$90.00	$6.00
A-13734- 000-0-HL	$103.00	$7.00
A-10769- 100-0-HL	$103.00	$7.00
Silicon Carbide Protection Tube Assemblies		
A-11670- 000-0-HL	$160.00	$10.50
A-11670- 100-0-HL	$160.00	$10.50
A-11670- 200-0-HL	$160.00	$10.50
A-11670- 300-0-HL	$94.00	$6.00
A-11670- 400-0-HL	$94.00	$6.00
A-11675- 000-0-HL	$320.00	$21.00
A-11675- 100-0-HL	$320.00	$21.00
A-11675-200-0-HL	$320.00	$21.00
A-11675- 300-0-HL	$188.00	$12.00
A-11675- 400-0-HL	$188.00	$12.00
A-13732- 000-0-HL	$109.00	$7.00
A-13732- 100-0-HL	$109.00	$7.00
A-13733- 000-0-HL	$218.00	$14.00
A-13733- 100-0-HL	$218.00	$14.00

Extensions

Introduction

Extensions connect a thermocouple to an instrument. Types J and K extensions have 20 gauge, strand, fiberglass insulated wire. Types T, E and R/S are 20 gauge solid, with fiberglass insulation

Ordering Information

Model No. 0 0 0 A - □ □ □ □ □ - □ □ □ - □ - □ □

Field No. 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

Schedule: S6

Fields 1 through 4. ASSEMBLY

000A - Assembly $0

Fields 5 through 9. BASE MODEL

Single Element with

07180 - Jack and junction box connector ..... See following table
07181 - Solid pin plug and box connector ..... See following table
13972 - Hollow pin plug and box connector ..... See following table
07182 - Solid pin plug and jack ..... See following table
13973 - Hollow pin plug and jack ..... See following table

Dual Element with

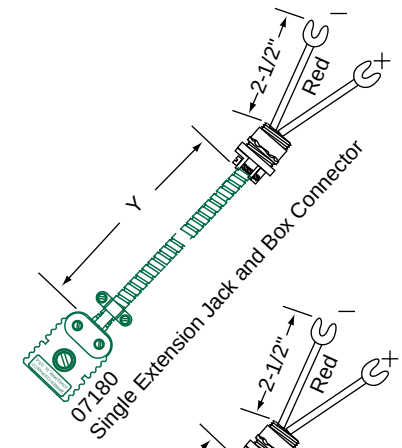
09254 - Jacks and junction box connector ..... See following table
09255 - Solid pin plugs and box connector ..... See following table
13975 - Hollow pin plugs and box connector ..... See following table
09256 Solid pin plugs and jacks ..... See following table

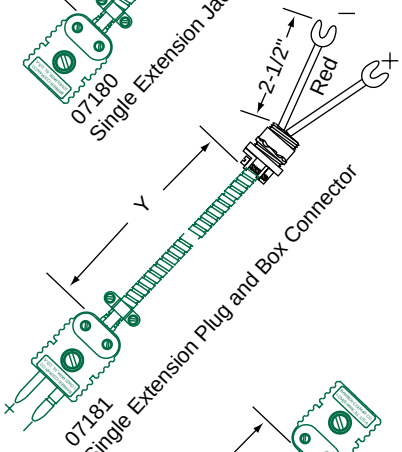
Fields 10, 11, 12. TYPE

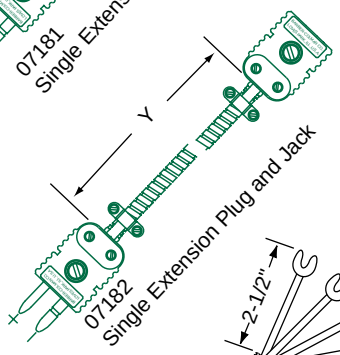
100 - Type J ..... See following table
200 - Type K ..... See following table
300 - Type R or S ..... See following table
400 - Type T ..... See following table
500 - Type E ..... See following table
600 - Uncompensated ..... See following table
700 - Three wire RTD ..... See following table

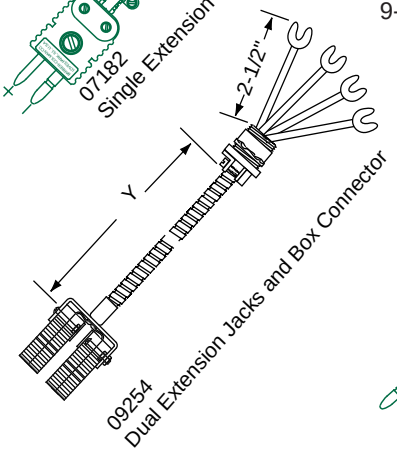
Fields 13, 14, 15. FLEXIBLE LENGTH ("Y" DIMENSION")

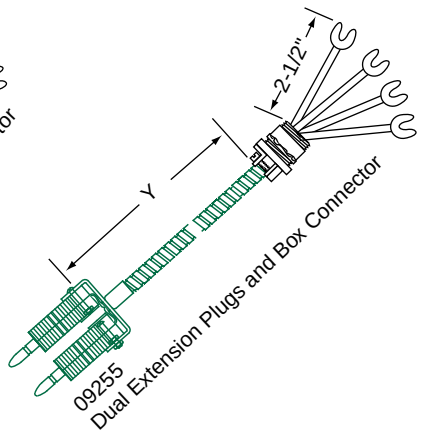
Y-YY - "Y" dimension in whole inches – up to 99 inches $0
9-99 - "Y" dimension 100 inches or greater. Specify on order $0

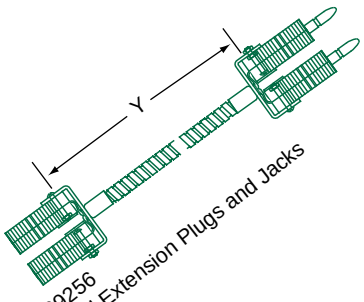












Price Table

Extensions Assembly Prices

Single Element	First 36”	Ea. Add’l 6”
A-07180 - 100-0-00	$22.00	$0.65
A-07180 - 200-0-00	$22.65	$0.70
A-07180 - 300-0-00	$22.00	$0.65
A-07180 - 400-0-00	$22.00	$0.65
A-07180 - 500-0-00	$22.00	$0.70
A-07180 - 600-0-00	$25.50	$0.65
A-07180 - 700-0-00	$34.75	$0.85
A-07181 - 100-0-00	$24.00	$0.65
A-07181 - 200-0-00	$26.50	$0.70
A-07181 - 300-0-00	$24.50	$0.65
A-07181 - 400-0-00	$24.00	$0.65
A-07181 - 500-0-00	$24.00	$0.70
A-07181 - 600-0-00	$26.50	$0.65
A-07181 - 700-0-00	$28.50	$0.85
A-13972 - 100-0-00	$22.00	$0.65
A-07182 - 100-0-00	$29.50	$0.65
A-07182 - 200-0-00	$32.00	$0.70
A-07182 - 300-0-00	$29.50	$0.65
A-07182 - 400-0-00	$29.50	$0.65
A-07182 - 500-0-00	$29.50	$0.70
A-07182 - 600-0-00	$32.00	$0.65
A-07182 - 700-0-00	$46.75	$0.85
A-13973 - 100-0-00	$27.50	$0.65
Dual Element		
A-09254 - 100-0-00	$30.00	$0.90
A-09254 - 200-0-00	$31.30	$1.00
A-09254 - 300-0-00	$30.00	$0.90
A-09254 - 400-0-00	$30.00	$0.90
A-09254 - 500-0-00	$31.30	$1.00
A-09254 - 600-0-00	$30.00	$0.90
A-09255 - 100-0-00	$34.00	$0.90
A-09255 - 200-0-00	$39.00	$1.00
A-09255 - 300-0-00	$34.00	$0.90
A-09255 - 400-0-00	$34.00	$0.90
A-09255 - 500-0-00	$34.00	$1.00
A-09255 - 600-0-00	$39.00	$0.90
A-13975 -100-0-00	$30.00	$0.90
A-09256 - 100-0-00	$47.60	$0.90
A-09256 - 200-0-00	$52.60	$1.00
A-09256 - 300-0-00	$47.60	$0.90
A-09256 - 400-0-00	$47.60	$0.90
A-09256 - 500-0-00	$47.60	$1.00
A-09256 - 600-0-00	$52.60	$0.90

Insulators

Introduction

Insulators are available in various materials and sizes to meet any thermocouple requirement. Operating temperatures and material compositions are shown under "specifications."

Mullite, Steatite and Codierite are recommended only for base metal thermocouples.

Alumina — Recommended for noble metal thermocouples since there are few impurities to react with noble metal thermocouples at high temperatures. High physical strength. Good electrical properties. Fair resistance to thermal and electrical shock.

Mullite — Excellent high temperature material. Good thermal shock resistance. Low thermal expansion.

Steatite — High physical strength. Good electrical properties. Loses resistance at high temperatures. Poor heat shock resistance.

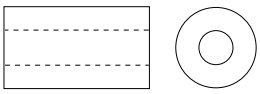
Cordierite — Excellent heat shock resistance. Fair physical strength and fair electrical properties.

Specifications

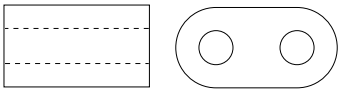
	Temp. (°F)		Chemical Composition							
	Useful	Max.	Al_2O_3	SiO_2	MgO	Na_2O	Fe_2O	CaO	K_2O	TiO_2
Alumina	3400	3600	99.00	00.70	00.09	00.07	00.09	00.05	00.00	00.00
Mullite	3000	3200	55.40	42.00	00.04	00.46	00.80	00.10	00.70	00.50
Steatite	1850	2450	04.60	64.90	27.80	00.90	00.85	00.28	00.47	00.20
Cordierite	2050	2475	24.70	54.80	11.70	00.27	00.59	01.60	00.14	01.20

Ordering Information

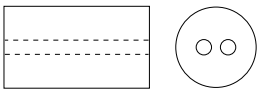
In the following tables:
Wire = B&S gauge
Hole = Minimum/Maximum
O.D. = Outside diameter
L (Length)
W (Weight) = Number of ounces for ten pieces



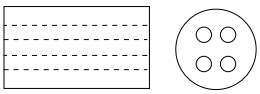
One Hole Round



Two Hole Oval



Two Hole Round



Four Hole Round

Schedule: S6

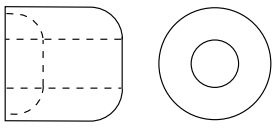
Number	Wire	Material	Hole	O.D.	L	W	Each
One Hole Round							
51-00004-000-0-00	6	Cordierite	0.199"/0.219"	23/64"	1"	1	$0.55
51-00009-000-0-00	8	Mullite	0.182"/0.192"	1/4"	3"	1	$1.05
51-00010-000-0-00	8	Cordierite	0.148"/0.168"	11/32"	1"	1	$0.10
51-00014-000-0-00	14	Cordierite	0.083"/0.103"	9/64"	1"	1	$0.20
Two Hole Round							
51-00012-000-0-00	8	Cordierite	0.144"/0.164"	31/64"	1"	1/2	$0.20
51-00018-000-0-00	14	Steatite	0.065"/0.085"	1/4"	1"	1/2	$0.40
51-00019-000-0-00	14	Steatite	0.065"/0.085"	1/4"	6'	3	$0.85
51-00021-000-0-00	14	Steatite	0.070"/0.090"	1/4"	2"	1	$0.40
51-00022-000-0-00	14	Steatite	0.070"/0.090"	1/4"	3"	1-1/2	$0.40
51-00056-000-0-00	15	Cordierite	0.062"/0.086"	1/4"	2-1/2"	1-1/2	$1.20
51-00027-000-0-00	19	Steatite	0.038"/0.058"	5/32"	2-1/4"	1/2	$0.40

Ordering Information (continued)

Number	Wire	Material	Hole	O.D.	L	W	Each
Two Hole Round (continued)							
51-00031-000-0-00	20	Mullite	0.037”/0.043”	1/8”	6”	1-1/2	$2.40
51-00032-001-0-00	20	Mullite	0.037”/0.043”	1/8”	11-1/2”	3	$5.25
51-00033-001-0-00	20	Mullite	0.037”/0.043”	1/8”	17-1/2”	4	$6.25
51-00035-001-0-00	20	Mullite	0.037”/0.043”	1/8”	35-1/2”	1-1/2	$17.00
51-00047-000-0-00	22	Alumina	0.037”/0.043”	1/8”	6”	1-1/2	$4.15
51-00048-001-0-00	22	Alumina	0.037”/0.043”	1/8”	11-1/2”	3	$8.30
51-00049-001-0-00	22	Alumina	0.037”/0.043”	1/8”	17-1/2”	4	$12.30
51-00050-001-0-00	22	Alumina	0.037”/0.043”	1/8”	23-1/2”	5-1/2	$15.30
51-00060-000-0-00	22	Alumina	0.035”/0.045”	1/8”	35-1/2”	8	$30.30
51-00078-000-0-00	22	Alumina	0.035”/0.045”	1/8”	47-1/2”		$37.60
Two Hole Oval							
51-00003-000-0-00	6	Cordierite	0.181”/0.201”	5/16 x 9/16”	1”	1/2	$0.20
51-00006-000-0-00	7	Cordierite	0.158”/0.178”	9/32 x 31/64”	1”	1	$0.20
51-00008-000-0-00	7	Cordierite	0.153”/0.173”	9/32 x 31/64”	3”	1	$0.25
51-00013-000-0-00	11	Steatite	0.100”/0.110”	3/16 x 5/16”	1”	1/2	$0.15
51-00017-000-0-00	14	Cordierite	0.070”/0.090”	3/16 x 5/16”	1”	1/2	$0.40
Two Hole Oval - Special used in Code 14, 41 and 42 Protection Tubes							
51-00062-000-0-00	8	Steatite	0.147”/0.153”	0.435 x 1/4”	1”	1	$0.40
Four Hole Round							
51-00070-000-0-00	8	Cordierite	0.135”/0.150”	1/2”	1”	2	$0.40
51-00051-000-0-00	14	Steatite	0.068”/0.088”	5/16”	1”	1	$0.20
51-00052-000-0-00	20	Cordierite	0.036”/0.056”	3/16”	1”	1	$0.60
51-00063-000-0-00	24	Alumina	0.044”/0.050”	3/16”	11-1/2”	5	$7.60
51-00064-000-0-00	24	Alumina	0.043”/0.051”	3/16”	17-1/2”	8	$13.05
51-00065-000-0-00	24	Alumina	0.043”/0.051”	3/16”	23-1/2”	11	$17.30
51-00066-000-0-00	24	Alumina	0.043”/0.051”	3/16”	29-1/2”	14	$21.75
51-00067-000-0-00	24	Alumina	0.043”/0.051”	3/16”	35-1/2”	16	$33.00

Bead (Ball and Socket Style for “Fish Spine”)

L = Approximate length per pound, in feet.
Q = Approximate quantity per pound
O.D. = Outside Diameter and Length (Dimensions are equal)



Number	Wire	Material	Hole	O.D.	L	Q	Per pound
52-00007-000-0-00	8	Steatite	0.142”/0.162”	17/64”	31.4	1575	$56.40
52-00007-100-0-00		Same as above in 6” tube. Price per tube					$3.40
52-00008-000-0-00	11	Steatite	0.106”/0.162”	17/64”	26.0	1300	$28.00
52-00009-000-0-00	13	Steatite	0.082”/0.102”	13/64”	47.9	2875	$28.00
52-00010-000-0-00	16	Steatite	0.058”/0.078”	11/64”	68.3	4825	$78.40
52-00010-100-0-00		Same as above in 6” tube. Price per tube					$3.70
52-00011-000-0-00	18	Steatite	0.046”/0.066”	1/8”	172.8	16,600	$312.00
52-00011-100-0-00		Same as above in 6” tube. Price per tube					$2.15
52-00014-100-0-00	18	Steatite	0.046”/0.066”	7/64”	0.004 lbs per tube		$4.00

Thermocouple Heads

Introduction

Thermocouple heads provide the means for making connection between thermocouple and extension wire, and protect the connection against corrosion, abrasion and breakage caused by handling. Thermocouple heads are easy to install and are convenient for checking purposes. An outlet for conduct connection is provided with a selection of threaded outlet sizes for the protection tube.

General Purpose Heads

Available in aluminum or cast iron, these heads are superior in durability and convenience. A quick acting, tempered wire clamp holds the molded cover tightly against a gasket, making a positive seat. Aluminum head weighs 10 ounces; cast iron head weighs 27 ounces.

Weatherproof Head with Internal Threads

Weatherproof heads provide complete protection from weather in outdoor locations. In sheltered areas they provide greater protection in chemical and petroleum plants. The screw on cover, with close fitting threads, tightens against a gasket. The internal threads are protected from ambient atmosphere by the gasket seal. Double lugs, integral with the cast cover provide for removal by means of a screwdriver or wrench. Weighs 52 ounces.

Explosionproof Heads

HD11 is cast iron body, and copper free aluminum screw on cover for hazardous areas. Class I, groups C and D; class II, groups E, F, and G; class III. One outlet for element and two outlets for conduit connectors. Weighs 40 ounces.

HD16 is aluminum, single conduit connector head; class I, II groups A, B, C, D, E, F, G.

Plastic Weatherproof Head

The 1/4 NPT fitting will accept two, three or four 16 gauge wires. Weighs 3 ounces.

Miniature Connecting Head

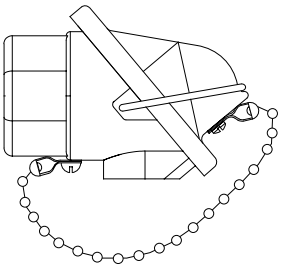
The natural finish aluminum head is drilled to receive a 1/8 NPT fitting or protection tube through which the thermocouple wires are run to make a solder connection with the lead wire binding screw posts. The cover is attached to the head by means of two screws. Weighs two ounces.

Open Terminal Head
(Available August 31, 1997)

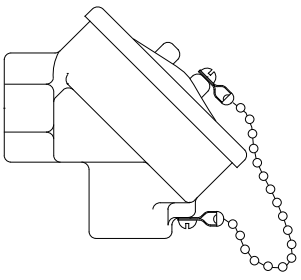
Generally for platinum thermocouples, this solid brass head is ideally suited for laboratory and many process applications. External terminal screws, with polarity encoded on heads, permit rapid change of lead wires for test purposes.

Open Ceramic Wafer Head

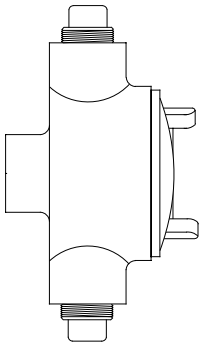
The open wafer head is designed for locations where protection is not required. The open head allows extension wires to be removed and replaced quickly and easily. Maximum temperature is 1000F°. Accepts 0.040", 0.062", 0.125", 0.188", and 0.250" diameter tubes. Weighs one ounce.



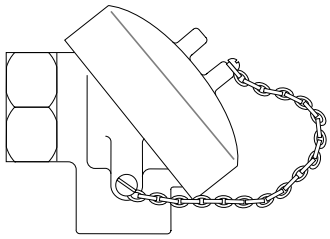
General Purpose
Code HD01, Cast Iron
Code HD03, Aluminum



Weatherproof,
Code HD04, Cast Iron
Code HD12, Aluminum

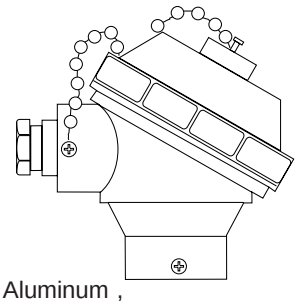


Explosion Proof
Cast Iron Body,
Aluminum Cover
Code HD11

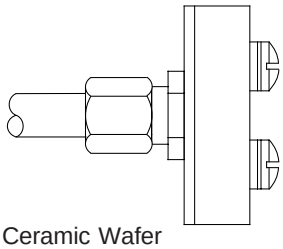


Explosion Proof
Class I, II; Groups
A, B, C, D, E, F, G
Code HD16

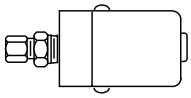
Ordering Information



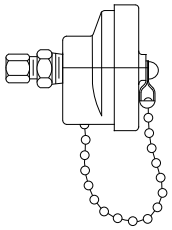
Aluminum ,
Transmitter Ready
Code HD17



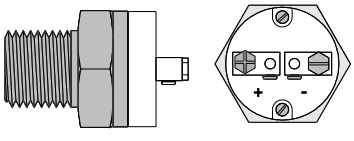
Ceramic Wafer
Code HD05



Miniature
Code HD06



Plastic Weatherproof
Codes HD08, HD09



Open Terminal
Code HD14
Code HD15 (illustrated)

Model No. H D □ □ - □ 0 □ □ 0 - □ □ □ - 0 - 0 0
Field No. 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

Schedule: S6

Compose model number from this list; obtain price from table on next page.

Fields 1, 2. BASE MODEL
HD - Head

Fields 3, 4. STYLE
01 - Cast iron general purpose
03 - Aluminum general purpose
04 - Cast iron, internal threads, weatherproof
05 - Open ceramic wafer
06 - Miniature connecting head
08 - Plastic weatherproof, 350°F maximum
09 - Plastic weatherpoof, 800°F maximum
11 - Cast iron explosionproof (Fields 7 and 8 must be same NPT)
12 - Aluminum, internal threads, weatherproof
14 - Brass open head, without process mount threads
15 - Brass open head, with process mount threads
16 - Aluminum explosionproof (extended lead time)
17 - Aluminum, transmitter ready

Field 5. TERMINAL BLOCK
0 - None
1 - Single, 2 wire
2 - Dual, 4 wire
Applicable only codes 14, 15, 16, 17 in Fields 3,4
3 - Single, 3 wire
4 - Dual, 6 wire

Field 6. RESERVED

Fields 7. TUBE NPT
0 - Not applicable.
1 - 1/8”
2 - 1/4”
4 - 1/2”
6 - 3/4”
8 - 1”

Field 8. CONDUIT NPT
4 - 1/2”
6 - 3/4”

Field 9. RESERVED

Filled cell = not compatible; blank cell = compatible										
Fields 3, 4	Field 7						Field 8			
	0	1	2	4	6	8	0	2	4	6
01	■	■					■	■		■
03	■						■	■		■
04	■	■					■	■		
05		■	■	■	■	■		■	■	■
06	■		■	■	■	■		■	■	■
08	■	■		■	■	■	■		■	■
09	■	■		■	■	■	■		■	■
11	■	■	■			■	■	■		
12	■	■					■	■	Note	■
14	■	■	■			■		■	■	■
15	■	■	■			■		■	■	■
16	■	■	■				■	■	■	
17	■	■	■			■	■	■	■	
Note:3/4" conduit connector with 1/2" reducing bushing supplied.										

Fields 10, 11, 12. TUBE SIZE
000 - Not applicable – other than Ceramic Wafer style.
040 - Ceramic Wafer style only - 0.040” tube
062 - Ceramic Wafer style only - 0.0625” tube
125 - Ceramic Wafer style only - 0.125” tube
188 - Ceramic Wafer style only - 0.188” tube
250 - Ceramic Wafer style only - 0.250” tube

Fields 13, 14, 15. RESERVED

Thermocouple Head Assembly Prices

Schedule: S6

HD01-00X40-000-0-00	$20.00
HD01-10X40-000-0-00	$26.00
HD01-20X40-000-0-00	$29.00
HD03-00X40-000-0-00	$14.00
HD03-10X40-000-0-00	$20.00
HD03-20X40-000-0-00	$23.00
HD04-00XX0-000-0-00	$30.00
HD04-10XX0-000-0-00	$36.00
HD04-20XX0-000-0-00	$39.00
HD05-10000-XXX-0-00	$12.20
HD06-10100-000-0-00	$31.00
HD06-20100-000-0-00	$39.50
HD08-20220-000-0-00	$23.10
HD09-20220-000-0-00	$39.00
HD11-00X40-000-0-00	$60.00
HD11-10X40-000-0-00	$66.00
HD11-20X40-000-0-00	$69.00
HD12-00X40-000-0-00	$27.00
HD12-10X40-000-0-00	$36.00
HD12-20X40-000-0-00	$39.00
HD14-10X00-000-0-00	$33.00
HD14-20X00-000-0-00	$35.00
HD14-30X00-000-0-00	$36.00
HD14-40X00-000-0-00	$39.00
HD15-10X00-000-0-00	$34.00
HD15-20X00-000-0-00	$36.00
HD15-30X00-000-0-00	$37.00
HD15-40X00-000-0-00	$40.00
HD16-10X60-000-0-00	$90.00
HD16-20X60-000-0-00	$97.00
HD16-40X60-000-0-00	$97.00
HD17-00X60-000-0-00	$29.00
HD17-10X60-000-0-00	$40.00
HD17-20X60-000-0-00	$42.00
HD17-30X60-000-0-00	$43.00
HD17-40X60-000-0-00	$46.00

Terminal Blocks

Single



Brass terminal blocks mounted in molded porcelain to prevent shorts. Screws trap the lead wire between the corner of the block and the screw to make a good connection without the necessity of making a wire loop or sharp right angle bend. Weighs three ounces.

Duplex



Porcelain duplex terminal block provides connections for two sets of thermocouple wire and lead wire of 8 gauge or smaller. Brass terminal blocks minimize temperature gradient between connections. Polarity is indicated by raised characters on the block. Weighs 3 ounces.

Schedule: S6

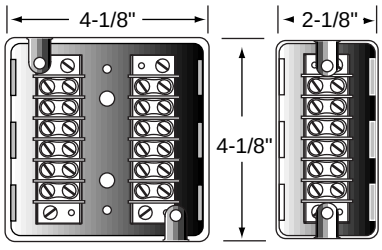
A-12271-000-0-00	Single element terminal block	$6.00
A-12272-000-0-00	Dual element terminal block	$11.00

Junction Boxes

Available with single terminal strip for three thermocouples, or two strips for six thermocouples. Boxes are 1-1/2” deep and have 1/2” conduit knockout plug. Illustrated with cover off.

Schedule: S6

A-01127-000-0-00	Single strip. 12 ounces. Includes cover	$32.80
A-02712-000-0-00	Two strip. 20 ounces. Includes cover	$28.50



Plugs and Jacks
General Purpose

Introduction

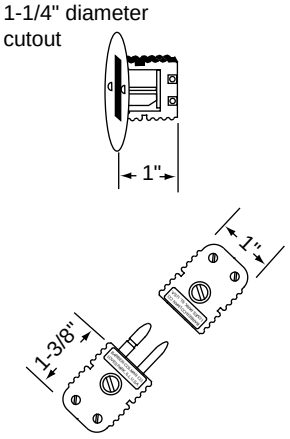
Quick Disconnect

Quick disconnect plugs and jacks are molded, glass filled plastic with the attaching parts made of material to match a particular thermocouple type. Made to exacting specifications, these devices provide rapid connection/disconnection between thermocouple and lead wire with negligible contact resistance for transmission of the lowest millivoltages. Frequent make or break will not impair the accuracy of the mating parts. They are ideally suited for laboratory or industrial uses where the ambient temperature does not exceed 450°F. Minimum size: 33 AWG; maximum size: 14 AWG.

Ordering Information

Model No. H D □ □ - 0 0 0 0 □ - 0 0 0 - 0 - 0 0
Field No. 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

Schedule: S6



Fields 1, 2, 3, 4. BASE MODEL

HD20 - Quick disconnect plug (solid machined pin) $0
HD33 - Quick disconnect plug (hollow pin, Type J only) $0
HD21 - Quick disconnect jack $0
HD22 - Panel jack $0

Fields 5, 6, 7, 8. RESERVED

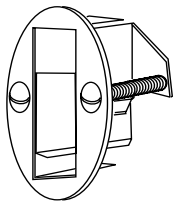
Field 9. THERMOCOUPLE TYPE

	Fields 1, 2, 3, 4:	HD33	HD20	HD21	HD22
C -	Type C (red)	n/a	$20.80	$20.80	$26.80
E -	Type E (purple)	m/a	$7.50	$5.50	$11.50
J -	Type J (black)	$5.50	$7.50	$5.50	$11.50
K -	Type K (yellow)	n/a	$10.00	$6.00	$12.00
N -	Type N	n/a	$10.00	$6.00	$12.00
R -	Type or Type S (green)	n/a	$8.00	$5.50	$11.50
T -	Type T (blue)	n/a	$7.50	$5.50	$11.50
U -	Uncompensated (white)	n/a	$10.00	$9.00	$15.00

Fields 10 through 15. RESERVED

Single Jack Panel Mounting Bracket. 1-1/4” hole cutout.
Schedule: S6

A-11903-000-0-00 ..... $6.00



Plugs and Jacks
High Temperature, and Three Pin

Introduction

Quick disconnect plugs and jacks are available in both two pin and three pin versions for thermocouples and RTDs.

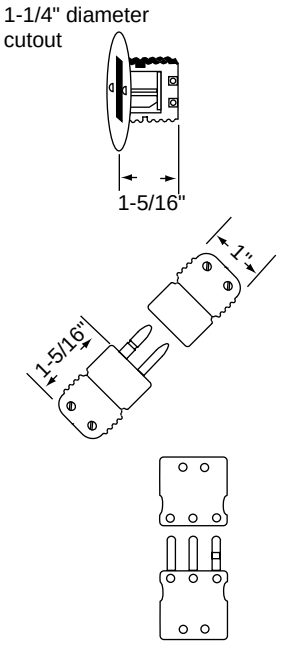
High Temperature Two Pin

These high temperature jacks are compatible with all standard size industrial plugs, jacks and multiple jack panels. Negative pin and insert are larger for polarization. Rated to 800°F continuously, with short term rating to 1000°F – except thermocouple type U (uncompensated) is 400° maximum. The plug and jack bodies are glass filled silicone resin. The plug weighs one ounce; jack one-half ounce; and panel jack, one ounce.

Three Pin

Three pin connector used for three wire thermocouple or RTD. The third pin is copper for shield connection, except all pens are copper on Type U plug. Weight: 2 ounces.

Ordering Information



Model No. H D □ □ - 0 0 0 0 □ - 0 0 0 - 0 - 0 0

Field No. 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

Schedule: S6

Fields 1, 2, 3, 4. BASE MODEL

Two Pin High Temperature

HD23 -	Quick disconnect plug	$14.00
HD24 -	Quick disconnect jack	$18.00
HD25 -	Panel jack	$24.00

Three Pin

HD29 -	Quick disconnect plug	$12.00
HD30-	Quick disconnect jack	$18.00

Fields 5, 6, 7, 8. RESERVED

Field 9. THERMOCOUPLE TYPE

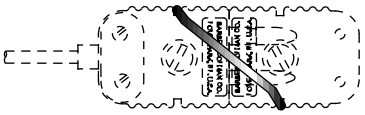
C -	Type C (Two pin high temperature only)	$0
E -	Type E	$0
J -	Type J	$0
K -	Type K	$0
R -	Type R or Type S	$0
T -	Type T	$0
U -	Uncompensated	$0

Fields 10 through 15. RESERVED

Plugs and Jacks
Accessories

Schedule: S6

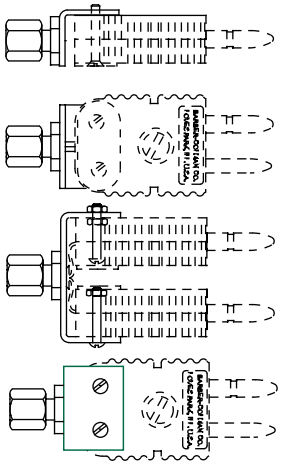
Connector Lock



To prevent accidental separation of plug and jack. Two can be used for additional protection. Material is nickel plated piano wire. Fits standard size plug or jack.

25-00170-100-0-00 ..... $2.85

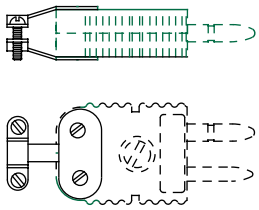
Tube Adapters



Attaches to either plug or jack with screws provided. Tube adapter makes rigid connection with tube – prevents twisting wires. Material is nickel plated steel. Each weighs one-half ounce.

A-10911-000-0-00	1/25” Tube	Single Plug or Jack	$5.00
A-07389-000-0-00	1/16” Tube	Single Plug or Jack	$5.00
A-07120-000-0-00	1/8” Tube	Single Plug or Jack	$3.30
A-07121-000-0-00	3/16” Tube	Single Plug or Jack	$3.30
A-07390-000-0-00	1/4”Tube	Single Plug or Jack	$5.00
A-10872-000-0-00	1/16” Tube	Dual Plug or Jack	$8.00
A-10485-000-0-00	1/8” Tube	Dual Plug or Jack	$8.00
A-10486-000-0-00	3/16” Tube	Dual Plug or Jack	$8.00
A-10873-000-0-00	1/4” Tube	Dual Plug or Jack	$8.00

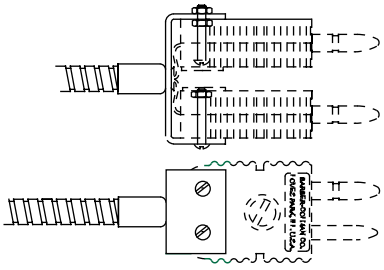
Single Plug Cable Clamp



Attaches to either plug or jack with screws provided. Nickel plated steel. Weighs one-half ounce.

A-07124-000-0-00 ..... $0.90

Dual Extension Bracket



Weight one-half ounce.

A-10380-000-0-00 ..... $3.90

Plugs and Jacks
Miniature

Introduction

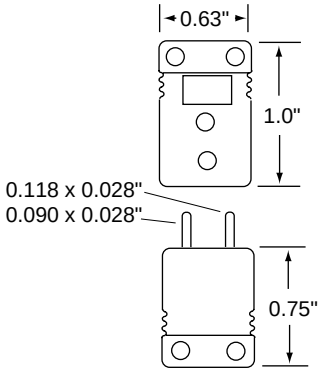
These plugs and jacks can be used where space is at a premium. Temperature not to exceed 300°F. Each item weighs one-half ounce.

Ordering Information

Model No. H D □ □ - 0 0 0 0 □ - 0 0 0 - 0 - 0 0

Field No. 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

Schedule: S6



Fields 3, 4. BASE MODEL

HD26 -	Quick disconnect plug	$6.00
HD27 -	Quick disconnect jack	$7.75
HD28 -	Panel jack	$15.30

Fields 5, 6, 7, 8. RESERVED

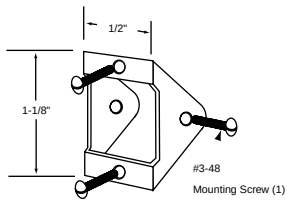
Field 9. THERMOCOUPLE TYPE

C -	Type C	$0
E -	Type E	$0
J -	Type J	$0
K -	Type K	$0
R -	Type R or Type S	$0
T -	Type T	$0
U -	Uncompensated	$0

Fields 10 through 15. RESERVED

Miniature Jack Panel Adapter Clip
Schedule: S6

11-03661-000-0-00 ..... $4.50



Multiple Jacks Panel

Introduction

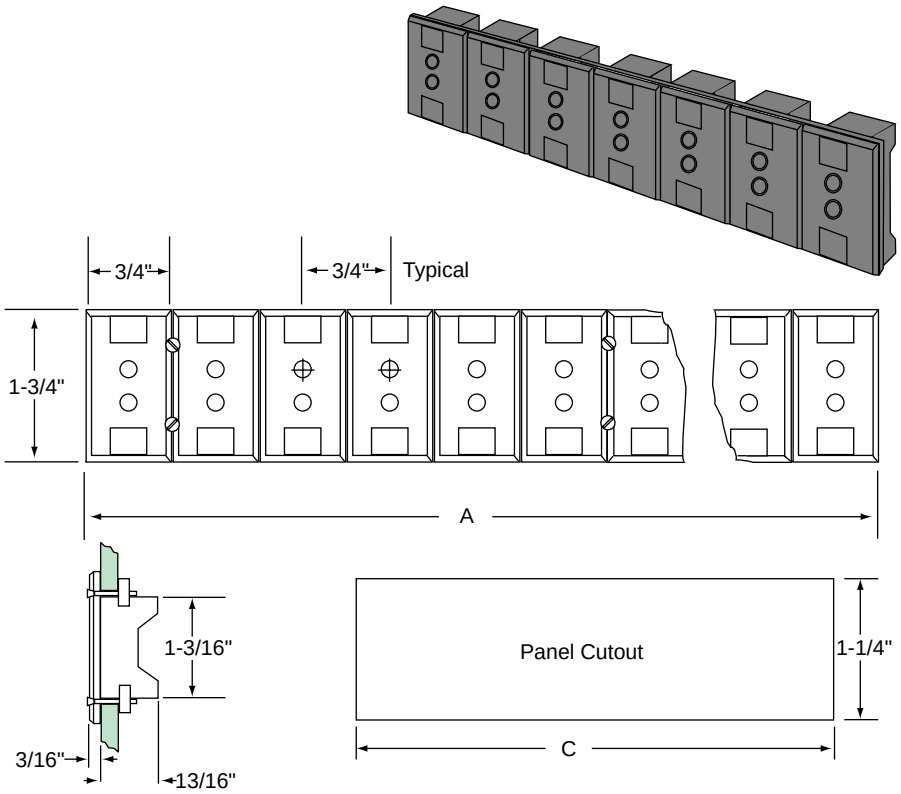
The multiple jacks panel can be wired and installed from the front of the panel. Jack panels are available with up to 12 circuit connections. A self-contained fastening device is permanently attached for simplified mounting. Strong metal T nuts are drawn up against the back wall of the mounting surface and held in position by screws tightened from the front.

The jack panel matches ANSI thermocouple grade calibrations to maintain sensing accuracy. Alloy and circuit numbers are marked on the face of the panel. The corresponding circuit numbers and polarity identification are marked on the back.

The low mass of flange type spring-loaded inserts eliminates temperature gradients and spurious EMF. Correct polarity is achieved by having the negative inserts larger than the positive ones.

The jacks are molded of a high performance reinforced compound that will withstand ambient temperatures up to 300°F. They accept quick disconnect plugs. Each jack circuit weighs one ounce.

Mounting



Dim	Number of Circuits										
	2	3	4	5	6	7	8	9	10	11	12
A	1-1/2	2-1/4	3	3-3/4	4-1/2	5-1/4	6	6-3/4	7-1/2	8-/14	9
C	1-5/16	2-1/16	2-13/16	3-9/16	4-5/16	5-1/16	5-13/16	6-9/16	7-5/16	8-1/16	8-13/16

Note: Dimensions in inches.

Ordering Information

Model No. H D 4 0 - 0 0 0 0 □ - 0 0 0 - □ - □ □
Field No. 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

Schedule: S6

Fields 1 through 4. BASE MODEL
HD40- Multiple Jacks Panel $0

Fields 5 through 8. RESERVED

Field 9. THERMOCOUPLE TYPE
C - Type C $0
E - Type E $0
J - Type J $0
K - Type K $0
R - Type R or Type S $0
T - Type T $0
U - Uncompensated $0

Fields 10, 11, 12. RESERVED

Field 13. MOUNTING
H - Horizontal $0
V - Vertical $0

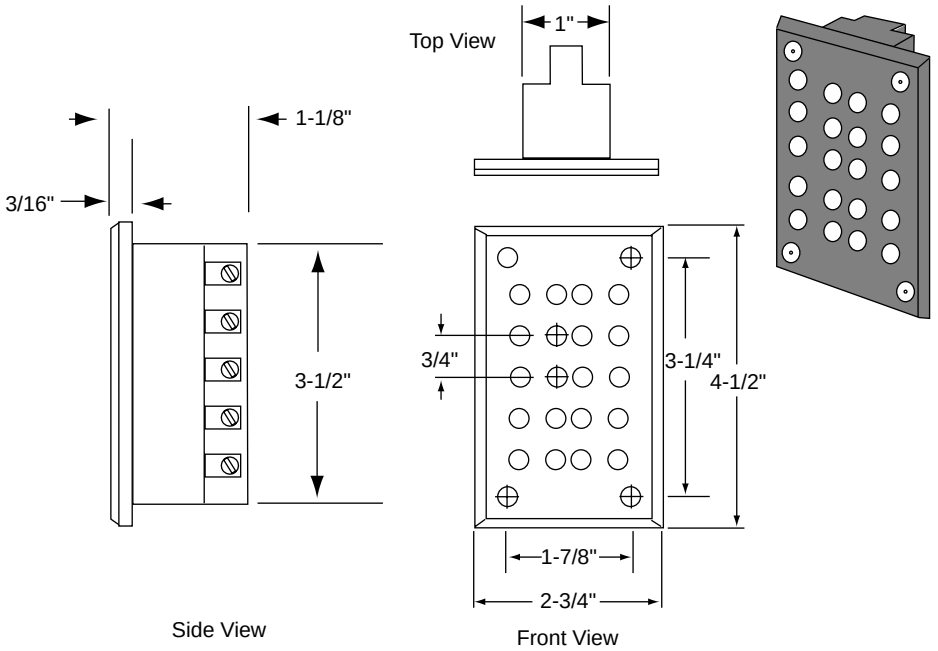
Fields 14, 15. NUMBER OF CIRCUITS
02 - Two $24.00
03 - Three $35.00
04 - Four $46.00
05 - Five $57.00
06 - Six $69.00
07 - Seven $80.00
08 - Eight $99.00
09 - Nine $104.00
10 - Ten $115.00
11 - Eleven $127.00
12 - Twelve $138.00

Five Jacks Panel

Introduction

This is a single unit, phenolic plastic, five jacks panel that can be mounted in a standard electrical conduit box (FS or FD). Panels can be connected to make a large panel with electrical conduit gang boxes. Contacts are of thermocouple calibration material and of standard size to accept the quick disconnect plug. On special order, the panel can be assembled in any combination of outlet calibrations. Etched aluminum discs on the front panel identify the thermocouple calibration. Weight: four ounces.

Mounting



Ordering Information

Model No. H D 4 1 - 0 0 0 0 □ - 0 0 0 - 0 - 0 5

Field No. 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

Schedule: S6

Fields 1 through 4. BASE MODEL

HD41- Five Jacks Panel $0

Fields 5 through 8. RESERVED

Field 9. THERMOCOUPLE TYPE

J -	Type J	$50.00
K -	Type K	$50.00
R -	Type R	$50.00
S -	Type S	$50.00
T -	Type T	$50.00

Fields 10 through 15. RESERVED