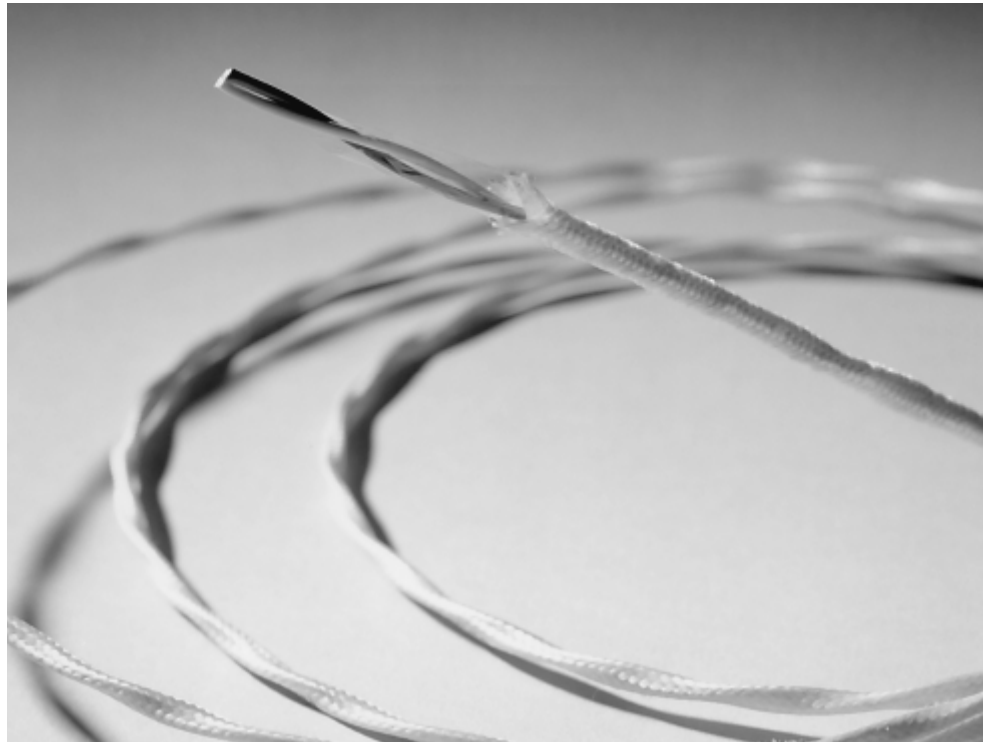


**Product Facts**

- 19-strand conductor for flexibility

**Thermocouple Extension Cable****Applications**

Tyco Electronics manufactures a broad range of Raychem Thermocouple extension cables in four thermoelement combinations. Each provides accurate transmission of electromotive force (EMF) from a Thermocouple element lead wire of the same conductor material to a thermometer, also known as a pyrometer.

All four types of Thermocouple extension cables use 19-strand conductors and are available in twisted pair, jacketed twisted pair, and shielded

and jacketed twisted pair configurations. A range of cables is available from 16 AWG to 24 AWG.

Wires and cables are insulated and jacketed with radiation-crosslinked ETFE, which has a continuous operating temperature of -65°C to +200°C [-85°F to +392°F]. This material, which is fully specified in Raychem SPEC 55, has excellent physical properties and is highly resistant to a wide range of chemicals.

**Operating Temperature Range**

-65°C to 200°C  
[-85°F to 392°F]

Properties

| Extension Cable Type | Thermoelement Combination | Initial Calibration Tolerances for Thermocouple Extension Wires |                 |                       |
|----------------------|---------------------------|---|-----------------|-----------------------|
|                      |                           | Temperature Range   | Limit of Range  | EMF (mv)* (min.-max.) |
| EX                   | Chromel-Constantan        | 0°C to 200°C [0°F to 392°F]                                     | ±1.7°C [35.1°F] | 6.18-6.45             |
| JX                   | Iron-Constantan           | 0°C to 200°C [0°F to 392°F]                                     | ±2.2°C [36.0°F] | 5.15-5.39             |
| KX                   | Chromel-Alumel            | 0°C to 200°C [0°F to 392°F]                                     | ±2.2°C [36.0°F] | 4.00-4.19             |
| TX                   | Copper-Constantan         | 0°C to 100°C [0°F to 212°F]                                     | ±1.0°C [32.0°F] | 4.24-4.32             |

Note: The above is in accordance with ANSI-MC-96.1-1982.

\*EMF is measured in millivolts (mv) at 100°C [212°F] with reference junction at 0°C [0°F].

Product Dimensions\*\* (Nominal)

| AWG Size | Twisted Pair     |                              | Twisted, Jacketed Pair |                              | Twisted, Shielded, 38 AWG Braid Strand, Jacketed Pair |                              |
|----------|------------------|------------------------------|------------------------|------------------------------|---|------------------------------|
|          | Outside Diameter | Weight in kg/km (lb/1000 ft) | Outside Diameter       | Weight in kg/km (lb/1000 ft) | Outside Diameter                                      | Weight in kg/km (lb/1000 ft) |
| 24       | 2.29 [.090]      | 7.3 [4.9]                    | 2.67 [.106]            | 9.9 [6.7]                    | 3.12 [.123]   | 16.5 [11.1]                  |
| 22       | 2.60 [.102]      | 9.9 [6.7]                    | 2.99 [.118]            | 13.0 [8.8]                   | 3.43 [.135]   | 21.4 [14.4]                  |
| 20       | 2.99 [.118]      | 14.4 [9.7]                   | 3.40 [.134]            | 18.0 [12.1]                  | 3.83 [.151]   | 27.8 [18.7]                  |
| 18       | 3.56 [.140]      | 20.9 [14.1]                  | 3.96 [.156]            | 25.1 [16.9]                  | 4.34 [.173]   | 37.5 [25.2]                  |
| 16       | 3.96 [.156]      | 26.3 [17.7]                  | 4.37 [.172]            | 30.9 [20.8]                  | 4.80 [.189]   | 44.9 [30.2]                  |

\*\*Dimensions for 19-strand-conductor thermocouple. Extension Types EX, JX, KX, and TX.

Extension Cable

Color-Coding

Thermocouple extension cables are available with the wires color-coded in accordance with four standards: MIL-STD-687, ANSI-MC-96.1, British Standard Code BS 1843, and Japanese JIS-C-1602.

Special Cables

Thermocouple extension cables are also available in solid-conductor and seven-strand-conductor configurations. They come in a variety of thermoelement combinations, gauges,

insulations, and multiple-pair designs, and they are available for outer space applications. Contact Tyco Electronics for details.

Extension Cable

| Type EX              | Chromel + | Constantan - | Jacket (if present) | Color code Wire | Jacket |
|----------------------|-----------|--------------|---------------------|-----------------|--------|
| ANSI-MC-96.1         | Violet    | Red          | Violet              | 7/2             | 7      |
| British Std.-BS 1843 | Brown     | Blue         | Brown               | 1/6             | 1      |
| JIS-C-1602           | Violet    | Red          | Violet              | 7/2             | 7      |
| Type JX              | Iron +    | Constantan - | Jacket              | Wire            | Jacket |
| MIL-STD-687          | Black     | Yellow       | White               | 0/4             | 9      |
| ANSI-MC-96.1         | White     | Red          | Black               | 9/2             | 0      |
| British Std.-BS 1843 | Yellow    | Blue         | Black               | 4/6             | 0      |
| JIS-C-1602           | Red       | White        | Yellow              | 2/9             | 4      |
| Type KX              | Chromel + | Alumel -     | Jacket              | Wire            | Jacket |
| MIL-STD-687          | White     | Green        | White               | 9/5             | 9      |
| ANSI-MC-96.1         | Yellow    | Red          | Yellow              | 4/2             | 4      |
| British Std.-BS 1843 | Brown     | Blue         | Red                 | 1/6             | 2      |
| JIS-C-1602           | Red       | White        | Blue                | 2/9             | 6      |
| Type TX              | Copper +  | Constantan - | Jacket              | Wire            | Jacket |
| MIL-STD-687          | Red       | Yellow       | White               | 2/4             | 9      |
| ANSI-MC-96.1         | Blue      | Red          | Blue                | 6/2             | 6      |
| British Std.-BS 1843 | White     | Blue         | Blue                | 9/6             | 6      |
| JIS-C-1602           | Red       | White        | Brown               | 2/9             | 1      |

**Part Number Selection Table**

**Thermocouple Extension Cable (Continued)**

The Thermocouple cable options outlined in the table on the previous page can be ordered from the table below.

Tyco Electronics will assign a new part number on request for cables falling outside the range shown in the table.

| Type | Twisted Pair | Twisted, Jacketed Pair | Shield Plating* | Twisted, Shielded, Jacketed Pair |
|------|--------------|------------------------|-----------------|----------------------------------|
| EX   | CTC-0077     | CTC-0079               | T               | CTC-0074                         |
|      |              |                        | N               | 55A6169                          |
| JX   | 55A8131      | CTC-0080               | T               | CTC-0044                         |
|      |              |                        | T               | CTC-0018                         |
| KX   | 55A8002      | CTC-0012               | N               | CTC-0015                         |
|      |              |                        | S               | CTC-0057                         |
|      |              |                        | S               | CTC-0057                         |
| TX   | CTC-0078     | CTC-0081               | T               | CTC-0073                         |

\*T = Tin-coated copper.  
 N = Nickel-coated copper.  
 S = Silver-coated copper.