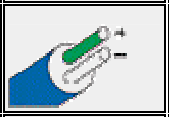
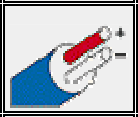
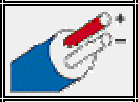
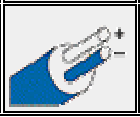
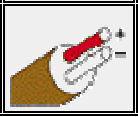
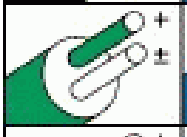
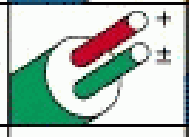
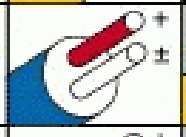
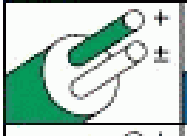
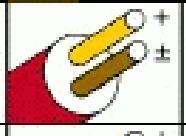
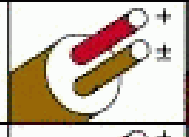
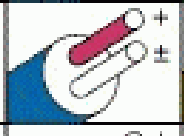
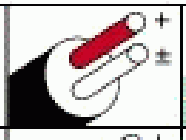
International Thermocouple Color Codes — Thermocouple and Extension Grade Wires

ANSI Code	Alloy Combination		Thermocouple Color Coding		Maximum Temperature Useful Range	EMF (mV) Over Max. Temperature Range	Limits of Error** (Whichever is Greater)	
	+Lead	-Lead	Thermocouple Grade	Extension Grade			Standard	Special
J	‡IRON Fe (magnetic)	CONSTANTAN COPPER-NICKEL Cu-Ni			**0 to 750°C** (32 to 1382°F) Therm. Grade **0 to 200°C** (32 to 392°F) Ext. Grade	-8.095 to 69.553	**0 to 750°C** (32 to 1382°F) 2.2°C or 0.75%	1.1°C or 0.4%
K	CHROMEGA NICKEL-CHROMIUM Ni-Cr	ALOMEGA NICKEL-ALUMINIUM Ni-Al (magnetic)			**-200 to 1250°C** (-328 to 2282°F) Therm. Grade **0 to 200°C** (32 to 392°F) Ext. Grade	-6.458 to 54.886	**-200 to 1250°C** (-328 to 2282°F) 2.2°C or 0.75% Above 0°C 2.2°C or 2.0% Below 0°C	1.1°C or 0.4%
V*	COPPER Cu	CONSTANTAN COPPER-NICKEL Cu-Ni	NONE ESTABLISHED	NONE ESTABLISHED	**0 to 80°C** (32 to 176°F) Ext. Grade			
T	COPPER Cu	CONSTANTAN COPPER-NICKEL Cu-Ni			**-200 to 350°C** (-328 to 662°F) Therm. Grade **-60 to 100°C** (-76 to 212°F) Ext. Grade	-6.528 to 20.872	**-200 to 350°C** (-328 to 662°F) 1.0°C or 0.75% Above 0°C 1.0°C or 1.5% Below 0°C	0.5°C or 0.4%

ANSI CODE	International IEC 584-3	International IEC 584-3 *Intrinsically Safe*	CZECH BRITISH to BS 1843	NETHERLANDS GERMAN to DIN 43710	JAPANESE to JIS C 1610-1981	FRENCH to NFC 42-324	Comments Environment - Bare Wire
J							Reducing, Vacuum, Inert. Limited Use in Oxidising at High Temperatures Not Recommended for Low Temperatures
K							Clean Oxidising and Inert. Limited Use in Vacuum or Reducing. Wide Temperature Range. Most Popular Calibration
V*							Alternative to KX Type Extension Wire for Low Temperatures; Not Recommended for General Use
T							Mild Oxidising, Reducing Vacuum or Inert. Good Where Moisture is Present, Low Temperature and Cryogenic Applications

International Thermocouple Color Codes — Thermocouple and Extension Grade Wires

Thermocouple and Extension Grade Wires International Thermocouple Color Codes

International IEC 584-3	International IEC 584-3 *Intrinsically Safe*	CZECH BRITISH to BS 1843	NETHERLANDS GERMAN to DIN 43710	JAPANESE to JIS C 1610-1981	FRENCH to NFE-18001	Comments Environment — Bare Wire	ANSI CODE
						Reducing, Vacuum, Inert. Limited Use in Oxidizing at High Temperatures. Not Recommended for Low Temperatures.	J
						Clean Oxidizing and Inert. Limited Use in Vacuum or Reducing. Wide Temperature Range, Most Popular Calibration	K
						Alternative to KX type extension wire for low temperatures. Not Recommended for General Use.	V*
						Mild Oxidizing, Reducing Vacuum or Inert. Good Where Moisture is Present. Low Temperature and Cryogenic Applications	T
						Oxidizing or Inert. Limited Use in Vacuum or Reducing. Highest EMF Change per Degree	E
			NO STANDARD USE AMERICAN COLOUR CODES			Alternative to Type K. More Stable at High Temps	N
						Oxidizing or Inert. Do Not Insert in Metal Tubes. Beware of Contamination. High Temperature	R
						Oxidizing or Inert. Do Not Insert in Metal Tubes. Beware of Contamination. High Temperature	S
						Extension grade connecting wire for R and S thermocouples, also known as RX and SX extension wire.	U*
		NO STANDARD USE COPPER WIRE			NO STANDARD USE COPPER WIRE	Oxidizing or Inert. Do Not Insert in Metal Tubes. Beware of Contamination. High Temperature. Common Use in Glass Industry	B
		NO STANDARD USE AMERICAN COLOR CODES				Vacuum, Inert, Hydrogen. Beware of Embrittlement. Not Practical Below 399°C (750°F). Not for Oxidizing Atmosphere	G* (W)
		NO STANDARD USE AMERICAN COLOR CODES				Vacuum, Inert, Hydrogen. Beware of Embrittlement. Not Practical Below 399°C (750°F) Not for Oxidizing Atmosphere	C* (W5)
		NO STANDARD USE AMERICAN COLO R CODES				Vacuum, Inert, Hydrogen. Beware of Embrittlement. Not Practical Below 399°C (750°F) Not for Oxidizing Atmosphere	D* (W3)