



THERMOCOUPLE CABLE

Customization

Customized colour option and printing of the outer sheath on request

Compensating & Extension

1601



Application:

Compensating or Extension Cables are used in temperature measurement to convey information from a thermocouple sensor, to the measuring instrument. The conductors are made of different metal to provide positive and negative cores to match the emf generated, from the sensor.

Extension wires, are having same materials as of thermocouple.

Approvals:



Colour Codes:

	DIN 43710	IEC 60584
Fe/CuNi	-ve/Sheath Blue +ve Red	+ve/Sheath Black -ve White
Nicr/Ni	-ve/Sheath Green +ve Red	+ve/Sheath Green -ve White
PtRh/Pt	-ve/Sheath White +ve Red	+ve/Sheath Orange -ve White

Note: Outer colour codes, as per ANSIMC96.1 and IS 8784 can also be provided.

Millivolts Generated for popular Thermocouple cables

Type	Description	(+ve)	(-ve)	100°C	200°C
Kx	Cromel/Alumel	Nicr	NiAl	4.10	8.13
Jx	Iron/Constantan	Iron	Constantan	5.26	-
Tx	Copper/Constantan	Copper	Constantan	4.24	9.77
Vx	Compesating for type Kx	Copper	Constantan	4.10	-
Rx/Sx	Copper/Cupronic compensating for type R/S	Copper	Cupronic	0.645	-

Make Up:

- Solid or stranded conductor
- Conductor of required thermocouple type

Fe/CuNi	Iron constantan Jx
Nicr/Ni	Cromel Alumel Kx
PtRh/Pt	Pt/RH equivalent material
Cu/Constantan	Compensating for Cromel/Alumel Vx
Cu/Constantan	Copper/Constantan Tx
- **Insulation**
Insulation, as per use
PVC: for temp. upto 70°C/ 85°C/105°C
SIL: Silicon Rubber 180°C
FG: Fiber Glass +200°C
PTFE: Temperature -65°C+260°C
FEP: Temperature -65°C+200°C
- **Sheathing**
According to use of environment & temperature

Technical Data:

- **Based on**
According to DIN or IEC in accordance with class2
- **Conductor stranding**
As per design
- **Minimum bending radius**
Fixed installation 10xD min
Flexing installation 15xD min
Shielded/Amoured 20xD min
- **Test voltage**
1500V
- **Millivolts generated according to ANSI MC96.1 and IS 8784**



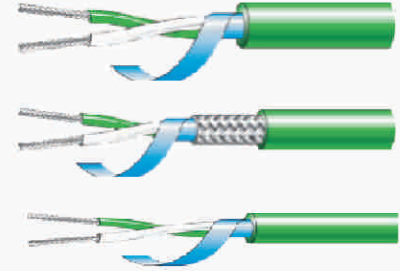
Single Pair Silicone Rubber

Single Pair Silicone Rubber (-40 °C to +200 °C)

A very flexible and robust high temperature insulation cable.

- Temperature rated -40 °C to +200 °C
- Available in Thermocouple Extension Grades KX, JX, TX
- Available in Thermocouple Compensating Grades VX, RCA
- Colour coded to ANSI MC96.1 other colours available on request
- Very flexible and robust

Example Order Code: **RJ 1601 XXXXX**



Twisted Pair

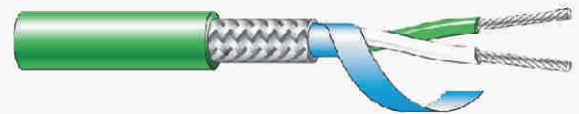
One pair of stranded conductors. Each conductor is Silicone Rubber insulated. The pair is twisted together, polyester taped then Silicone Rubber sheathed.



Cable Type	Conductor Size	Dimensions (approximate)	Profile	Order Code	Conductor Type / Colour Code				
					KX	VX	JX	TX	RCA
Silicone Rubber Twisted Pair	7/0.2mm diameter (0.22mm ²)	6mm	Round	00301	✓	✓	✓	✓	✓
	7/0.3mm diameter (0.5mm ²)	7mm	Round	00302	✓	✓	✓	✓	✓
	19/0.3mm diameter (1.5mm ²)	9mm	Round	00303	✓	✓	✓	✓	✓

Twisted Pair, Wire Braided

One pair of stranded conductors. Each conductor is Silicone Rubber insulated. The pair is twisted together, polyester taped, tinned copper wire braided then Silicone Rubber sheathed.



Cable Type	Conductor Size	Dimensions (approximate)	Profile	Order Code	Conductor Type / Colour Code				
					KX	VX	JX	TX	RCA
Silicone Rubber Twisted Pair, Wire Braided	7/0.2mm diameter (0.22mm ²)	7mm	Round	00304	✓	✓	✓	✓	✓
	7/0.3mm diameter (0.5mm ²)	8mm	Round	00305	✓	✓	✓	✓	✓
	19/0.3mm diameter (1.5mm ²)	10mm	Round	00306	✓	✓	✓	✓	✓

Twisted Pair, PTFE Cores

One pair of stranded conductors. Each conductor is PTFE insulated. The pair is twisted together then Silicone Rubber sheathed. Offers a smaller OD than an all-Silicone-Rubber cable.



Cable Type	Conductor Size	Dimensions (approximate)	Profile	Order Code	Conductor Type / Colour Code				
					KX	VX	JX	TX	RCA
Silicone Rubber Twisted Pair, PTFE Cores	7/0.2mm diameter (0.22mm ²)	3mm	Round	00307	✓	✓	✓	✓	✓
	7/0.3mm diameter (0.5mm ²)	3mm	Round	00308	✓	✓	✓	✓	✓

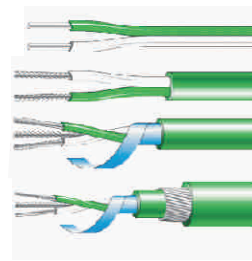


Single Pair Silicone Rubber

Single Pair Heat Resistant (HR) PVC (-30 °C to +105 °C)

The most common and cost effective insulation material. Commonly used for general wiring.

- Temperature rated -30 °C to +105 °C
- Available in Thermocouple Extension Grades KX, JX, TX
- Available in Thermocouple Compensating Grades VX, RCA
- Colour coded to IEC60584.3 (BS EN 60584.3). ANSI MC96.1 colours available on request



Example Order Code: **RJ 1601XXXX**

Ripcord 'Figure of 8' Cable

One pair of solid conductors. Each conductor is Heat Resistant PVC insulated. The pair is laid flat and the core insulation is welded together in a ripcord 'figure of 8' construction.



Cable Type	Conductor Size	Dimensions (approximate)	Profile	Order Code	Conductor Type / Colour Code				
					KX	VX	JX	TX	RCA
Ripcord 'Figure of Eight'	1/0.5mm diameter (0.2mm ²)	1.7mm x 3.3mm	Figure of Eight	00309	✓	✓	✓	✓	✓

Flat Twin

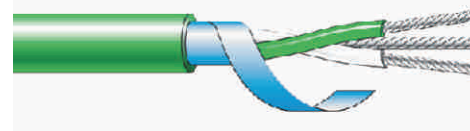
One pair of solid or stranded conductors. Each conductor is Heat Resistant PVC insulated. The pair is laid flat and sheathed with Heat Resistant PVC.



Cable Type	Conductor Size	Dimensions (approximate)	Profile	Order Code	Conductor Type / Colour Code				
					KX	VX	JX	TX	RCA
Heat Resistant (HR) PVC Flat Twin	7/0.2mm diameter (0.22mm ²)	3mm x 4mm	Oval	00310	✓	✓	✓	✓	✓
	13/0.2mm diameter (0.44mm ²)	3mm x 4mm	Oval	00311	✓	✓	✓	✓	✓
	23/0.2mm diameter (0.75mm ²)	4mm x 6mm	Oval	00312	✓	✓	✓	✓	✓
	1/1.29mm diameter (1.3mm ²)	4mm x 6mm	Oval	00313	✓	✓	✓	✓	✓

Twisted, Screened

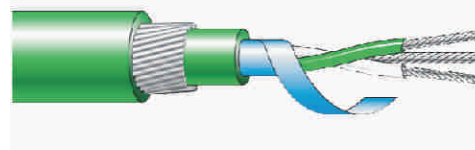
One pair of solid or stranded conductors. Each conductor is Heat Resistant PVC insulated. The pair is twisted together then screened with an aluminium bonded polyester tape, in contact throughout with a bare copper drain wire. Sheathed with Heat Resistant PVC.



Cable Type	Conductor Size	Dimensions (approximate)	Profile	Order Code	Conductor Type / Colour Code				
					KX	VX	JX	TX	RCA
Heat Resistant (HR) PVC	7/0.2mm diameter (0.22mm ²)	4mm	Round	00314	✓	✓	✓	✓	✓
	13/0.2mm diameter (0.44mm ²)	5mm	Round	00315	✓	✓	✓	✓	✓
	23/0.2mm diameter (0.75mm ²)	6mm	Round	00316	✓	✓	✓	✓	✓
	1/1.29mm diameter (1.3mm ²)	6mm	Round	00317	✓	✓	✓	✓	✓

Screened and Armoured

One pair of solid or stranded conductors. Each conductor is Heat Resistant PVC insulated. The pair is twisted together then screened with an aluminium bonded polyester tape, in contact throughout with a bare copper drain wire. Heat Resistant PVC bedded, steel wire armoured and sheathed with Heat Resistant PVC.



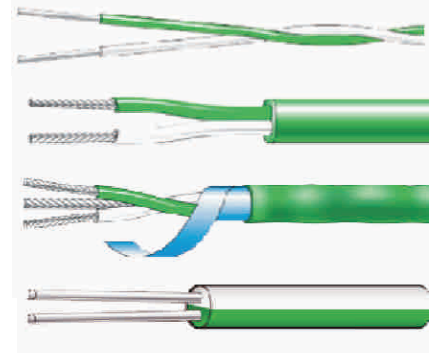
Cable Type	Conductor Size	Dimensions (approximate)	Profile	Order Code	Conductor Type / Colour Code				
					KX	VX	JX	TX	RCA
Heat Resistant (HR) PVC	16/0.2mm diameter (0.5mm ²)	10mm	Round	00318	✓	✓	✓	✓	✓
	1/1.29mm diameter (1.3mm ²)	11.5mm	Round	00319	✓	✓	✓	✓	✓



Single Pair PTFE (-75 °C to +250 °C)

A flexible, comparatively small diameter, high temperature insulation cable. Commonly used in laboratory, hygienic autoclave and steriliser applications, or where space is restricted.

- Temperature rated -75 °C to +250 °C
- Available in Thermocouple Extension Grades KX, JX, TX
- Available in Thermocouple Compensating Grade VX, RCA
- Colour coded to IEC60584.3 (BS EN 60584.3). ANSI MC96.1 colours available on request
- Very flexible and resistant to most known chemicals, fluids and oils



Example Order Code: **RJ 1601 XXXXX**

Twisted Pair

One pair of stranded conductors. Each conductor is PTFE insulated. The pair is twisted together.



Cable Type	Conductor Size	Dimensions (approximate)	Profile	Order Code	Conductor Type / Colour Code				
					KX	VX	JX	TX	RCA
PTFE Twisted Pair	1/0.2mm diameter (0.03mm ²)	2mm	Twisted	00321	✓	✓	✓	✓	✓
	1/0.315mm diameter (0.08mm ²)	2mm	Twisted	00322	✓	✓	✓	✓	✓
	7/0.2mm diameter (0.22mm ²)	2mm	Twisted	00323	✓	✓	✓	✓	✓

Flat Pair

One pair of solid or stranded conductors. Each conductor is extruded FEP insulated. The pair is laid flat and extruded FEP sheathed.



Cable Type	Conductor Size	Dimensions (approximate)	Profile	Order Code	Conductor Type / Colour Code				
					KX	VX	JX	TX	RCA
FEP Flat Pair	1/0.315mm diameter (0.08mm ²)	1mm x 2mm	Oval	00324	✓	✓	✓	✓	✓
	1/0.5mm diameter (0.20mm ²)	2mm x 2.5mm	Oval	00325	✓	✓	✓	✓	✓
	7/0.2mm diameter (0.22mm ²)	2mm x 3mm	Oval	00326	✓	✓	✓	✓	✓
	13/0.2mm diameter (0.44mm ²)	2mm x 3mm	Oval	00327	✓	✓	✓	✓	✓

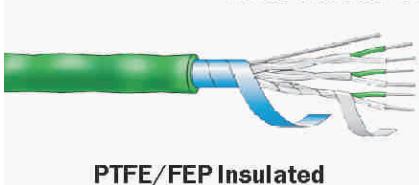
Twisted, Screened

One pair of stranded conductors. Each conductor is extruded FEP insulated. The pair is twisted together and screened with an aluminium bonded polyester tape, in contact throughout with a bare copper drain wire. Extruded FEP sheathed.



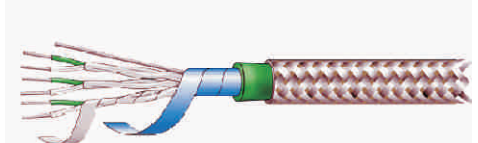
Cable Type	Conductor Size	Dimensions (approximate)	Profile	Order Code	Conductor Type / Colour Code				
					KX	VX	JX	TX	RCA
FEP Twisted, Screened	7/0.2mm diameter (0.22mm ²)	3mm	Round *	00328	✓	✓	✓	✓	✓
	13/0.2mm diameter (0.44mm ²)	2mm x 3mm	Round *	00329	✓	✓	✓	✓	✓

CTM Multi Pair PTFE/FEP (-75 °C to +250 °C) options also available



PTFE/FEP Insulated
7/0.2mm diameter (0.22mm²)

Contact sales for further information



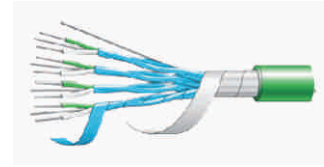
PTFE/FEP Insulated with Stainless Steel Braid
7/0.2mm diameter (0.22mm²)



Multi Pair Flame Retardant (FR) PVC, Unarmoured (-30 °C to +70 °C)

A very useful thermocouple cable construction allowing multiple channels to be carried, for example, from junction box to instrumentation.

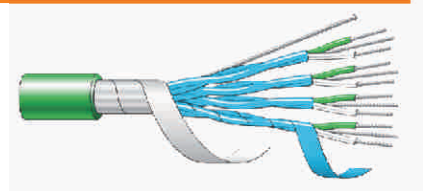
- Temperature rated -30 °C to +70 °C
- Available in Thermocouple Extension Grades KX, JX, TX
- Available in Thermocouple Compensating Grades VX, RCA
- Standard conductor sizes: 16/0.2mm (0.5mm²) and 24/0.2mm (0.75mm²)
- Colour coded to IEC60584.3 (BS EN 60584.3). ANSI MC96.1 colours available on request
- Conforms to IEC60332.1



Example Order Code: **RJ1602 XXXXX**

Individually and Collectively Screened

Multi pairs of stranded 16/0.2mm (0.5mm²) or 24/0.2mm (0.75mm²) conductors. Each conductor is FR PVC insulated. The pairs are numbered and twisted together, individually and collectively screened with an aluminium bonded polyester tape, in contact throughout with a bare copper drain wire. Sheathed overall with FR PVC. Round construction.



Cable Type	Conductor Size	Number of Pairs	Dimensions (approximate)	Profile	Order Code	Conductor Type / Colour Code					
						KX	VX	JX	TX	RCA	
Multi Pair Flame Retardant (FR) PVC, Unarmoured	16/0.2mm diameter (0.5mm ²)	2	10mm	Round	00400	✓	✓	✓	✓	✓	
		4	11mm	Round	00401	✓	✓	✓	✓	✓	
		6	13mm	Round	00402	✓	✓	✓	✓	✓	
		8	14mm	Round	00403	✓	✓	✓	✓	✓	
		12	18mm	Round	00404	✓	✓	✓	✓	✓	
		16	20mm	Round	00405	✓	✓	✓	✓	✓	
		20	22mm	Round	00406	✓	✓	✓	✓	✓	
		24	25mm	Round	00407	✓	✓	✓	✓	✓	
	36	27mm	Round	00408	✓	✓	✓	✓	✓		
	Individually and Collectively Screened	24/0.2mm diameter (0.75mm ²)	2	12mm	Round	00409	✓	✓	✓	✓	✓
			4	13mm	Round	00410	✓	✓	✓	✓	✓
			6	15mm	Round	00414	✓	✓	✓	✓	✓
			8	17mm	Round	00412	✓	✓	✓	✓	✓
			12	21mm	Round	00413	✓	✓	✓	✓	✓
			16	23mm	Round	00414	✓	✓	✓	✓	✓
			20	26mm	Round	00415	✓	✓	✓	✓	✓
			24	28mm	Round	00416	✓	✓	✓	✓	✓
36			32mm	Round	00417	✓	✓	✓	✓	✓	

Multi Pair XLPE/LSOH, Unarmoured (-30 °C to +90 °C)

As above, except cores are XLPE insulated, sheath insulation is Low Smoke Zero Halogen compound.

- Conforms to IEC60332.3.24 Category C



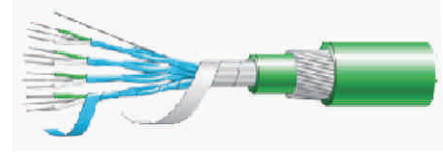
Cable Type	Conductor Size	Number of Pairs	Dimensions (approximate)	Profile	Order Code	Conductor Type / Colour Code				
						KX	VX	JX	TX	RCA
Multi Pair LSOH	16/0.2mm diameter (0.5mm ²)	2	10mm	Round	00418	✓	✓	✓	✓	✓
		6	13mm	Round	00419	✓	✓	✓	✓	✓
		12	18mm	Round	00420	✓	✓	✓	✓	✓



Multi Pair Flame Retardant (FR) PVC, Armoured (-30 °C to +70 °C)

A very useful thermocouple cable construction allowing multiple channels to be carried, for example, from junction box to instrumentation. The steel wire armour offers increased mechanical protection.

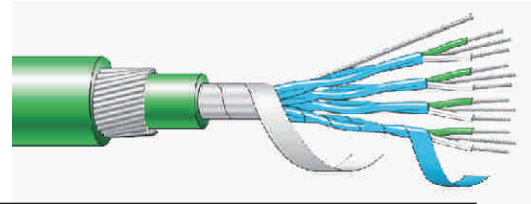
- Temperature rated -30 °C to +70 °C
- Available in Thermocouple Extension Grades KX, JX, TX
- Available in Thermocouple Compensating Grades VX, RCA
- Standard conductor sizes: 16/0.2mm (0.5mm²) and 24/0.2mm (0.75mm²)
- Colour coded to IEC60584.3 (BS EN 60584.3). ANSI MC96.1 colours available on request
- Conforms to IEC60332.1



Example Order Code: **RJ 1601 XXXXX**

Individually and Collectively Screened and Steel Wire Armoured

Multi pairs of stranded 16/0.2mm (0.5mm²) or 24/0.2mm (0.75mm²) conductors. Each conductor is FR PVC insulated. The pairs are numbered and twisted together, individually and collectively screened with an aluminium bonded polyester tape, in contact throughout with a bare copper drain wire. FR PVC bedded, galvanised steel wire armoured and sheathed with FR PVC. Round construction.



Cable Type	Conductor Size	Number of Pairs	Dimensions (approximate)	Profile	Order Code	Conductor Type / Colour Code				
						KX	VX	JX	TX	RCA
Multi Pair Flame Retardant (FR) PVC, Armoured	16/0.2mm diameter (0.5mm ²)	2	14mm	Round	00421	✓	✓	✓	✓	✓
		4	16mm	Round	00422	✓	✓	✓	✓	✓
		6	18mm	Round	00423	✓	✓	✓	✓	✓
		8	20mm	Round	00424	✓	✓	✓	✓	✓
		12	23mm	Round	00425	✓	✓	✓	✓	✓
		16	25mm	Round	00426	✓	✓	✓	✓	✓
		20	27mm	Round	00427	✓	✓	✓	✓	✓
		24	29mm	Round	00428	✓	✓	✓	✓	✓
Individually and Collectively Screened and Steel Wire Armoured	24/0.2mm diameter (0.75mm ²)	2	17mm	Round	00430	✓	✓	✓	✓	✓
		4	18mm	Round	00431	✓	✓	✓	✓	✓
		6	21mm	Round	00432	✓	✓	✓	✓	✓
		8	22mm	Round	00433	✓	✓	✓	✓	✓
		12	26mm	Round	00434	✓	✓	✓	✓	✓
		16	28mm	Round	00435	✓	✓	✓	✓	✓
		20	31mm	Round	00436	✓	✓	✓	✓	✓
		24	33mm	Round	00437	✓	✓	✓	✓	✓
		36	38mm	Round	00438	✓	✓	✓	✓	✓

Multi Pair XLPE/LS0H, Armoured (-30 °C to +90 °C)

As above, except cores are XLPE insulated, sheath insulation is Low Smoke Zero Halogen compound.

- Conforms to IEC60332.3.24 Category C



Cable Type	Conductor Size	Number of Pairs	Dimensions (approximate)	Profile	Order Code	Conductor Type / Colour Code				
						KX	VX	JX	TX	RCA
Multi Pair LS0H	16/0.2mm diameter (0.5mm ²)	2	14mm	Round	00439	✓	✓	✓	✓	✓
		6	18mm	Round	00440	✓	✓	✓	✓	✓
		12	23mm	Round	00441	✓	✓	✓	✓	✓