

Thermocouple Compensating Cables

500V Pair(s), Type KCB

XLPE Insulated, Overall Screen, Unarmoured or Armoured, PVC Sheathed Cable

Description: Type KCB-XLPE/OS/PVC-UV or Type KCB-XLPE/OS/PVC/SWA/PVC-UV

Model Code: Type KCB-XOP-UV or Type KCB-XOPSP-UV



Application :	This cable is used in temperature measurement to convey information from a thermocouple sensor, to the measuring instrument.
Voltage rating :	500V
Construction :	Solid conductor (Positive: Copper / Negative: Copper Nickel), XLPE insulated, twisted pair(s), overall screen (aluminium/polyester tape with tinned copper drain wire), unarmoured or galvanized steel wire armoured, UV resistant PVC* sheathed cable
Insulation colour :	(+) Green, (-) White (or with numbering)
Sheath colour :	Green
Specification :	BS EN 50288-7, IEC 60584-3, IEC 60332-1-2 IEC 60332-3 (upon request)
Operating temperature :	90°C

*LSZH sheath (upon request), comply with IEC 60332-3, IEC 60754, IEC 61034-2

No. of Pair(s)	Conductor		Insulation Thickness (mm)	Unarmoured Cable			Armoured Cable					
	Nominal Area (mm ²)	No./Diam. of Strand (no./mm)		Part No.	Approx. Overall Diam.	Approx. Weight	Part No.	Approx. Overall Diam.	Approx. Weight			
					(mm)	(kg/km)		(mm)	(kg/km)			
1P	0.5	1/0.80	0.6	041P6718	7.1	55	041P6222	9.3	265			
2P				042P6718	9.9	100	042P6222	12.2	380			
4P				044P6718	11.9	150	044P6222	13.8	455			
6P				046P6718	14.2	200	046P6222	16.1	575			
8P				048P6718	15.7	250	048P6222	17.6	655			
10P				040P6718	17.8	310	040P6222	20.4	890			
12P				048P6718	18.5	340	048P6222	21.0	960			
16P				04FP6718	20.3	415	04FP6222	22.8	1090			
20P				04KP6718	22.7	505	04KP6222	25.3	1270			
24P				04RP6718	25.3	610	04RP6222	28.4	1635			
36P				04P26718	28.9	830	04P26222	32.1	2015			
1P				1	1/1.13	0.6	061P6718	7.8	75	061P6222	10.1	295
2P							062P6718	11.3	135	062P6222	13.5	440
4P	064P6718	13.1	200				064P6222	15.2	540			
6P	066P6718	15.8	285				066P6222	17.7	685			
8P	068P6718	17.9	360				068P6222	20.4	940			
10P	060P6718	20.1	435				060P6222	22.6	1105			
12P	06BP6718	20.9	495				06BP6222	23.4	1195			
16P	06FP6718	23.1	615				06FP6222	25.6	1395			
20P	06KP6718	25.8	755				06KP6222	29.1	1715			
24P	06RP6718	28.6	910				06RP6222	31.9	2095			
36P	06P26718	32.9	1260				06P26222	36.1	2630			

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Description: Type KCB-XLPE/OS/PVC-UV or Type KCB-XLPE/OS/PVC/SWA/PVC-UV

Model Code: Type KCB-XOP-UV or Type KCB-XOPSP-UV

No. of Pair(s)	Conductor		Insulation Thickness (mm)	Unarmoured Cable			Armoured Cable		
	Nominal Area (mm ²)	No./Diam. of Strand (no./mm)		Part No.	Approx. Overall Diam. (mm)	Approx. Weight (kg/km)	Part No.	Approx. Overall Diam. (mm)	Approx. Weight (kg/km)
	1P	1.3		1/1.29	0.6	411P6718	8.1	85	411P6222
2P				412P6718	12.0	155	412P6222	14.0	470
4P				414P6718	14.2	240	414P6222	16.0	610
6P				416P6718	16.8	435	416P6222	19.4	890
8P				418P6718	18.8	420	418P6222	21.3	1050
10P				410P6718	21.4	520	410P6222	23.9	1230
12P				41BP6718	22.0	585	41BP6222	24.5	1315
16P				41FP6718	24.5	740	41FP6222	27.7	1750
20P				41KP6718	27.4	910	41KP6222	30.6	2045
24P				41RP6718	30.4	1095	41RP6222	33.6	2345
36P				41P26718	35.2	1540	41P26222	39.2	3300
1P	1.5	1/1.38	0.6	071P6718	8.3	85	071P6222	10.7	320
2P				072P6718	12.2	170	072P6222	14.3	485
4P				074P6718	14.6	260	074P6222	16.4	630
6P				076P6718	17.4	365	076P6222	19.9	930
8P				078P6718	19.4	455	078P6222	21.8	1100
10P				070P6718	21.9	565	070P6222	24.4	1300
12P				07BP6718	22.7	635	07BP6222	25.2	1390
16P				07FP6718	25.2	810	07FP6222	28.4	1845
20P				07KP6718	28.3	1000	07KP6222	31.4	2155
24P				07RP6718	31.4	1195	07RP6222	34.5	2500
36P				07P26718	36.2	1690	07P26222	40.2	3510

Table 4 : Code, Colour Code and Properties














Sensors	Types	Conductor Composition		Colours (IEC 60584-3-2007)	Nominal e.m.f. (microvolts 0°C/100°C)	Limits of Error		Temperature of Connected Point with Thermocouple	Measuring Junction Temperature	
		Positive (PX)	Negative (NX)			Class 1	Class 2			
										(°C)
Extension Cables :										
K	KX	Nickel Chromium	Nickel Aluminium		Green (+) White (-) Green (Sheath)	4,10	±1.5	±2.5	-25 ~ +200	900
J	JX	Iron	Copper Nickel (Constantan)		Black (+) White (-) Black (Sheath)	5,27	±1.5	±2.5	-25 ~ +200	500
T	TX	Copper	Copper Nickel (Constantan)		Brown (+) White (-) Brown (Sheath)	4,28	±0.5	±1.0	-25 ~ +100	300
E	EX	Nickel Chromium	Copper Nickel (Constantan)		Violet (+) White (-) Violet (Sheath)	6,32	±1.5	±2.5	-25 ~ +200	500
N	NX	Nickel Chromium Silicon	Nickel Silicon		Pink (+) White (-) Pink (Sheath)	2,77	±1.5	±2.5	-25 ~ +200	900
Compensating Cables :										
K	KCA	Iron	Copper Nickel Alloy		Green (+) White (-) Green (Sheath)	4,10	-	±2.5	0 ~ +150	900
	KCB	Copper	Copper Nickel (Constantan)		Green (+) White (-) Green (Sheath)	4,10	-	±2.5	0 ~ +100	900
R	RCA	Copper	Copper Low Nickel Alloy		Orange (+) White (-) Orange (Sheath)	0,65	-	±2.5	0 ~ +100	1000
	RCB	Copper	Copper Nickel Mo Alloy		Orange (+) White (-) Orange (Sheath)	0,65	-	±5.0	0 ~ +200	1000
S	SCA	Copper	Copper Low Nickel Alloy		Orange (+) White (-) Orange (Sheath)	0,65	-	±2.5	0 ~ +100	1000
	SCB	Copper	Copper Nickel Mo Alloy		Orange (+) White (-) Orange (Sheath)	0,65	-	±5.0	0 ~ +200	1000
B	BC	Copper	Copper		Grey (+) White (-) Grey (Sheath)	0,03	-	±3.5	0 ~ +100	1400
N	NC	Copper Nickel Mg	Copper Nickel Mg		Pink (+) White (-) Pink (Sheath)	2,77	-	±2.5	0 ~ +150	900

Table 5 : Code and Notes

Sensors	Types	Conductor Composition		Notes
		Positive (PX)	Negative (NX)	
K	KX	Nickel Chromium	Nickel Aluminium	Type KX thermocouple extension cable conductors are made from the same constituent elements as the Type K thermocouple combination and therefore minimises potential errors when connecting to a sensor.
	KCA	Iron	Copper Nickel Alloy	This compensating cable conductor combination is little known and generally not available. It should not be confused with the more popular Type KCB as shown below.
	KCB	Copper	Copper Nickel (Constantan)	This popular compensating cable conductor combination (previously known as Type V) is made with Copper vs Copper-Nickel conductors, and should only be used when the ambient temperature of the interconnection point between the cable and its Type K sensor is below 100°C. If suitable to your requirements it can save money where long runs are necessary.
J	JX	Iron	Copper Nickel (Constantan)	Type JX extension cable conductors are made from the same constituent elements as Type J thermocouples. There is no compensating cable available for Type J, however the extension cable is relatively inexpensive.
T	TX	Copper	Copper Nickel (Constantan)	Type TX extension cable conductors are made from the same constituent elements as Type T thermocouples. There is no compensating cable available for Type T, however the extension cable is relatively inexpensive.
E	EX	Nickel Chromium	Copper Nickel (Constantan)	Type EX extension cable conductors are made from the same constituent elements as Type E thermocouples. There is no compensating cable available for Type E.
R	RCA	Copper	Copper Low Nickel Alloy	Type RCA compensating cable is suitable for connecting to Type R thermocouples where the ambient temperature of the interconnection point between the cable and its Type R sensor is below 100°C.
	RCB		Copper Nickel Mo Alloy	Type RCB compensating cable is suitable for connecting to Type R thermocouples where the ambient temperature of the interconnection point between the cable and its Type R sensor is below 200°C, however this increased range is achieved with a lesser degree of accuracy than Type RCA as shown above.
S	SCA	Copper	Copper Low Nickel Alloy	Type SCA compensating cable is suitable for connecting to Type S thermocouples where the ambient temperature of the interconnection point between the cable and its Type S sensor is below 100°C. SCA is in fact the same material as Type RCA.
	SCB		Copper Nickel Mo Alloy	Type SCB compensating cable is suitable for connecting to Type S thermocouples where the ambient temperature of the interconnection point between the cable and its Type S sensor is below 200°C, however this increased range is achieved with a lesser degree of accuracy than Type SCA as shown above. SCB is in fact the same material as Type RCB.
B	BC	Copper	Copper	This compensating cable is made from Copper vs Copper conductors. The expected maximum additional deviation when the ambient interconnection point is between 0 and 100°C would be approximately 3.5°C when the measuring junction is at 1400°C.
N	NX	Nickel Chromium Silicon	Nickel Silicon	Type NX extension cable conductors are made from the same constituent elements as Type N thermocouples. Although there is a designated compensating cable for Type N, it is not readily available at the present.
	NC	Copper Nickel Mg	Copper Nickel Mg	Type NC compensating cable is not readily available at the present. It can be assumed that as Type N thermocouples become more popular the compensating cable will start to be produced.