

Thermocouple Compensating Cables

500V Pairs, Type KCA

XLPE Insulated, Individual & Overall Screen, Unarmoured or Armoured,

PVC Sheathed Cable

Description: Type KCA-XLPE/ISOS/PVC-UV or Type KCA-XLPE/ISOS/PVC/SWA/PVC-UV

Model Code: Type KCA-XIOP-UV or Type KCA-XIOPSP-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: Iron / Negative: Copper Nickel), XLPE insulated, twisted pairs, individual and overall screen (aluminium/polyester tape with finned copper drain wire), unarmoured or galvanized steel wire armoured, UV resistant PVC* sheathed cable
Insulation colour :	(+) Green, (-) White (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 Pairs	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)
2P	0.5	1/0.80	0.6	042P6046	11.3	140	042P6895	13.5	435
4P				044P6046	13.0	195	044P6895	15.2	540
6P				046P6046	15.8	270	046P6895	17.9	680
8P				048P6046	17.9	345	048P6895	20.6	945
10P				040P6046	20.4	425	040P6895	23.0	1105
12P				048P6046	21.1	475	048P6895	23.6	1180
16P				04FP6046	23.5	595	04FP6895	26.7	1555
20P				04KP6046	26.0	715	04KP6895	29.2	1800
24P				04RP6046	28.9	870	04RP6895	32.2	2050
36P				04P26046	33.3	1210	04P26895	37.4	2905
2P	1	1/1.13	0.6	062P6046	12.5	175	062P6895	14.7	495
4P				064P6046	14.8	260	064P6895	17.0	650
6P				066P6046	17.9	360	066P6895	20.5	965
8P				068P6046	20.2	460	068P6895	22.8	1135
10P				060P6046	22.8	560	060P6895	25.4	1330
12P				06BP6046	23.8	645	06BP6895	27.0	1625
16P				06FP6046	26.5	815	06FP6895	29.7	1920
20P				06KP6046	29.6	1005	06KP6895	32.8	2250
24P				06RP6046	32.8	1210	06RP6895	36.9	2870
36P				06P26046	37.7	1675	06P26895	41.7	3585

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XLPE Insulated, Individual & Overall Screen, Unarmoured or Armoured,

PVC Sheathed Cable

Description: Type KCA-XLPE/ISOS/PVC-UV or Type KCA-XLPE/ISOS/PVC/SWA/PVC-UV

Model Code: Type KCA-XIOP-UV or Type KCA-XIOPSP-UV

No. of Pairs	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)
2P	1.3	1/1.29	0.6	412P6046	13.5	200	412P6895	15.5	550
4P				414P6046	16.0	300	414P6895	18.5	830
6P				416P6046	19.0	420	416P6895	21.6	1055
8P				418P6046	21.4	525	418P6895	23.8	1245
10P				410P6046	24.2	655	410P6895	27.4	1650
12P				41BP6046	25.2	750	41BP6895	28.4	1785
16P				41FP6046	28.0	950	41FP6895	31.3	2130
20P				41KP6046	31.4	1170	41KP6895	35.4	2765
24P				41RP6046	35.8	1405	41RP6895	38.9	3185
36P				41P26046	40.2	1975	41P26895	45.1	4455
2P				1.5	1/1.38	0.6	072P6046	13.7	210
4P	074P6046	16.2	320				074P6895	18.8	860
6P	076P6046	19.5	445				076P6895	21.1	1095
8P	078P6046	21.8	560				078P6895	24.4	1300
10P	070P6046	24.8	695				070P6895	28.0	1735
12P	07BP6046	25.8	800				07BP6895	29.0	1880
16P	07FP6046	28.8	1020				07FP6895	32.1	2220
20P	07KP6046	32.2	1255				07KP6895	36.2	2890
24P	07RP6046	35.8	1510				07RP6895	39.8	3330
36P	07P26046	41.3	2135				07P26895	46.3	4705

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 (°C)	Measuring Junction Temperature (°C)	
		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.