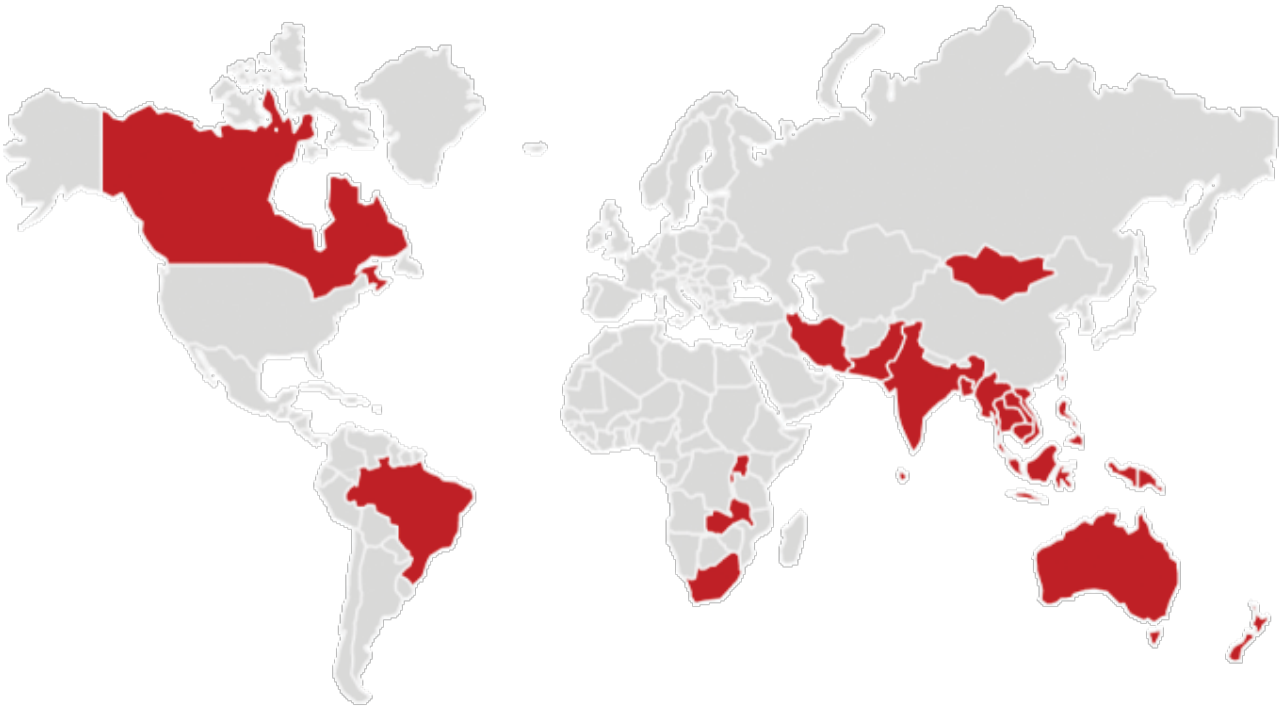
KEYSTONE CABLE

DELIVERING ENERGY

Oil & Gas Cables

Keystone Cable is a Leading Singapore-based Cable Manufacturer and Supplier.



● Keystone Cable Market Reach

Established since 1990, Keystone Cable has an unwavering commitment to producing cables of the highest quality. Keystone Cable has obtained all necessary certificates from TÜV SÜD PSB. In addition, we are ISO 9001, 14001 and OHSAS 18001 accredited for our Quality, Environment and Safety Management Systems.

With our emphasis on stringent quality control processes, we provide our customers with a guarantee of product excellence and reliability.

CERTIFICATIONS

ISO 9001:2015 ISO 14001:2015 OHSAS 18001:2007

TÜV SÜD PSB

Keystone Cable Business Solutions

OIL & GAS

This catalogue showcases our range of cables used in the Oil & Gas industry. These cables are designed, manufactured and tested in accordance to international standards.

For more information on our offerings in other industries, please visit our website: www.keystone-cable.com

Product Overview

KEYSTONE CABLE
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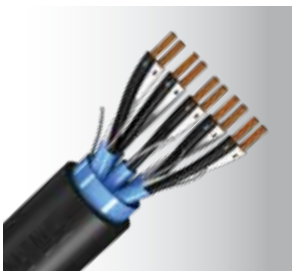
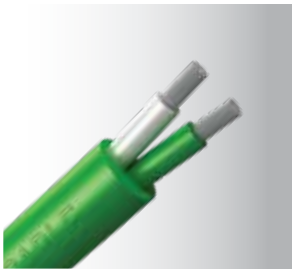


Instrumentation Cables

Instrumentation cables are used in data processing and process control for electrical instruments and control equipment in industrial processing plants. The shielding screen protects the screened pairs against electromagnetic radiation from electrical equipment and lightning strikes as well as against fields surrounding power lines and transformers. Drain wires connected to Mylar-tape shields provide a simple mean of connecting all the shields to a common ground.

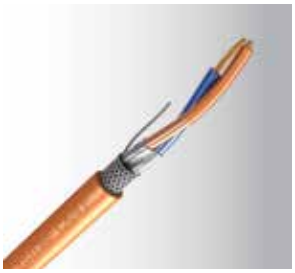


Thermocouple Extension & Compensating Cable

A thermocouple wire is a high temperature wire typically used to connect the thermocouple to control instrumentation. It is commonly referenced by "Type" and its type determine the kind of metal alloy used for the wire's conductor. Type E is made up of Chromel/Constantan, Type K is made up of Chromel/Alumel while Type T IS made up of Copper/Constantan. When an 'x'follows the type such as "Type EX", "Type KX" & "Type TX", it means that the cables are of extension grade.

Variable Speed Drive Cables

VSD cables are heavy duty cables and commonly known in its short form as "3C + 3E". It serves as an excellent protection for high frequency ground current, reflected voltages and electromagnetic interference (EMI). To reduce EMI, copper tape screen is usually applied over the cable. VSD cables contain three earth conductors which can be found in the cable's cross-section area so the phase-to-earth distance is similar for each phase, and the cable is "electronically balanced".



Bus Cables

Due to the high transmission rate and data flow, Bus Cables are selected over standard data cables. Bus cable's insulation (FPE, PE or XLPE) are highly suited since they have excellent electrical parameters over the full range of frequency and temperatures.

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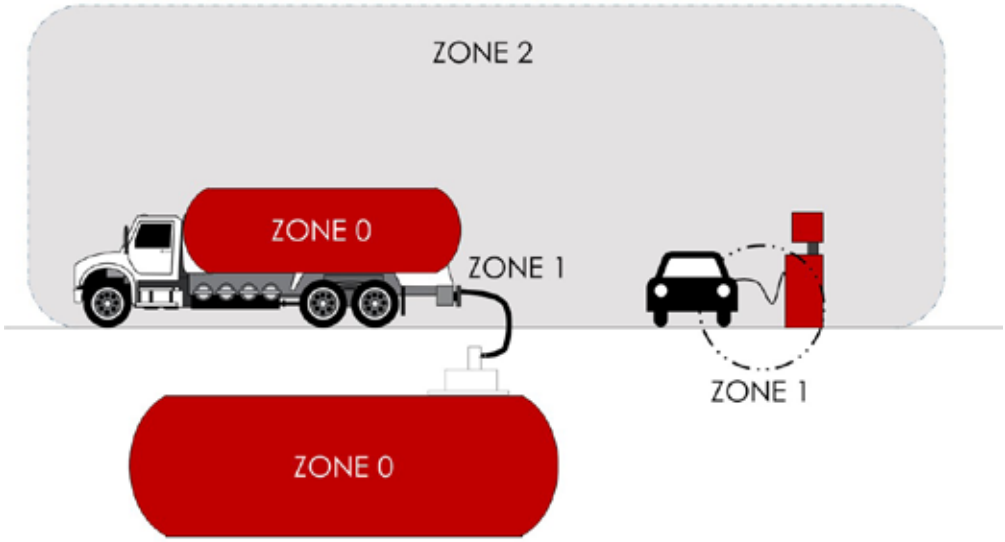
Oil & Gas industry has a potentially explosive atmosphere which requires products regulated by stringent specification. A potentially explosive atmosphere is understood to be a mixture of combustible materials (gases, fluids, vapours, dust) and oxygen.



ZONE IEC/CENELEC/ATEX	
ZONE 0	Areas in which a potentially explosive atmosphere is continuously present for long periods
ZONE 1	Areas in which a potentially explosive atmosphere occurs occassionally
ZONE 2	Areas in which a potentially explosive atmosphere is unlikely to occur, but, if it does, only for short periods of time

Intrinsic Safety for every zone

INTRINSIC SAFETY	
Ex-ia	Highest level of protection, safe for use in Zone 0, Zone 1 & Zone 2
Ex-ib	Adequately safe for use in less frequently hazardous areas (Zone 1 &2)
Ex-ic	Acceptable for use in infrequently hazardous areas (Zone 1)

Restricted Breathing Test

The "Restricted Breathing Test" tests a 0.5M cable when installed into a sealed enclosure and measures the time interval required for an internal overpressure of at least 30mm water gauge to drop by 15mm water gauge

Passing Criteria: Time interval required for an overpressure is more than 5 seconds

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Main Cable Specifications	
BS EN 60228	IEC 60228
BS EN 50288-1	BS EN 50288-7
IEC 60502-1	BS EN 60584-3
IEC 60584-3	BS EN 50170

Material Tests
BS EN 50290
BS EN 50363
IEC 60502-1

Flame Retardant & Fire Resistant Tests	
BS EN 60332-1	IEC 60332-1
BS EN 60332-3	IEC 60332-3
BS 6387	IEC 60331
SS 299	

Tests on Acid Gas Evolved
BS EN 60754
IEC 60754

Smoke Density Tests
BS EN 61034
IEC 61034

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Flame Propagation Tests (IEC 60332, BS EN 60332)

Tests on electric cables under fire conditions

Part 1 : Tests on a single vertical insulated wire or cable
Part 3 : Tests on bunched wires and cables under fire condition

Flame retardant cables prevent flame propagation during a fire emergency. Additives such as aluminium hydroxide or magnesium hydroxide are included in our cable's protective material. When the material comes into contact with fire, the by product from the endothermic reaction is gaseous water which will help envelop the flame and thereby exclude oxygen from the fire.

$$\mathbf{Mg(OH)_2 \rightarrow MgO + H_2O \quad or \quad 2Al(OH)_3 \rightarrow Al_2O_3 + 3H_2O}$$

In this reaction, the decomposition products are non-toxic and the mineral phases MgO and Al_2O_3 are alkaline, reducing the likelihood of acidic, corrosive gases exiting the plastic.

This test is also conducted on both a single cable as well as bunched vertical cables as it cannot be assumed bunched cables will behave the same way as do single cables. This is because flame propagation along a vertical bunch of cables depends on other factors such as volume of combustible material exposed, geometrical configuration of the cables etc.

The IEC 60332-3 specifies methods for assessing flame retardance of bunched cables comprising of varying densities of combustible material.

IEC 60332-3	Total volume of non-metallic material in the bunched cables on a vertical ladder (litres)	Duration exposed to flame (mins)
Category A	7	40
Category B	3.5	40
Category C	1.5	20

Passing criteria: After the burning has ceased, the charred portion should not exceed a height of 2.5 meters.

Acid Gas Emission Tests (IEC 60754, BS EN 60754)

Test on gases evolved during combustion of materials from cables

When fire comes into contact with polyvinyl chloride (PVC) or chlorine containing material, hydrogen chloride gas (HCl) is released. The HCl gas could cause irritation to the eyes, mouth, throat, nose and lungs. At Keystone Cable, all our fire resistant and flame retardant cables use Low Smoke Zero Halogen (LSZH) compounds to prevent the formation of HCl gases from the burning of cables.

The standards determine the degree of acidity of gases evolved during the combustion of cable materials by measuring pH and conductivity.

Passing Criteria: The weighted pH value not less than 4.3 when related to 1 litre of water, and the weighted value of conductivity not more that 10µS/mm when related to 1 litre of water.

Smoke Emission Tests (IEC 61034, BS EN 61034)

Measurement of smoke density of electric cables burning under defined conditions

The "3 meter cube test" measures the amount of smoke generated by cables in the event of fire. The cables are placed in a $3m^3$ enclosure. A beam of light is transmitted from one window of the chamber to the opposite window. The cables are subjected to fire in the chamber, and the light transmission is recorded.

Passing Criteria: A minimum light transmission value of 60%.

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Fire Resistant Tests (BS 6387, SS 299, IEC 60331-21)

Specification for performance requirements for cables required to maintain circuit integrity under fire conditions

During fire evacuations, it is important for critical electrical installations to perform their functions; these include fire alarms, smoke detectors, sprinklers, emergency lighting, and exit lights. At Keystone Cable, we conduct these stringent tests by simulating the environment for our fire resistant cables to ensure that they pass the safety requirements and will perform during such emergencies. The category letter assigned to the cable reflects the level of testing the cable has gone through and passed.

Resistance to fire (BS 6387, SS 299, IEC 60331)

Category A	Cables are subjected to fire at 650°C for 3 hours
Category B*	Cables are subjected to fire at 750°C for 3 hours
Category C	Cables are subjected to fire at 950°C for 3 hours

*IEC 60331 only applies to Category B

Resistance to fire with water (BS 6387, SS 299)

Category W	Cables are subjected to fire at 650°C for 15 minutes, then at 650°C with water spray for another 15 minutes.

Resistance to fire with mechanical shock (BS 6387, SS 299)

Category X	Cables are subjected to fire at 650°C for 15 minutes with mechanical shock applied every 30s.
Category Y	Cables are subjected to fire at 750°C for 15 minutes with mechanical shock applied every 30s.
Category Z	Cables are subjected to fire at 950°C for 15 minutes with mechanical shock applied every 30s.

Passing criteria: No short circuit during the respective testing period.

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Instrumentation Cables

1	Conductor	Plain Annealed Copper Wire
2	Fire Barrier	Mica Tape
3	Insulation	PVC, PE, XLPE, XLEVA or Silicon Rubber
4	Drain Wire	Tinned Copper Wire
5	Filler	Non-hygroscopic Material (if required)
6	Screen (OS or ISOS)	AL-Foil
7	Bedding	PVC, LSZH
8	Armour	Galvanized Steel Wire
9	Braid	Galvanized Steel Wire or Tinned Copper Wire
10	Oversheath	PVC or LSZH

* LSZH: Low Smoke Zero Halogen

Instrumentation Cables

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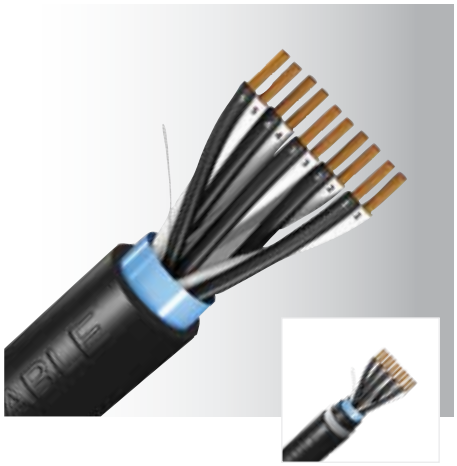
500V Collective Screen
PVC Insulated, OS, Unarmoured & Armoured, PVC Sheathed Cable
CU/PVC/OS/PVC or CU/PVC/OS/PVC/SWA/PVC
Model Code: POP or POPSP



Standard Reference	BS EN 50290, BS EN 50288-1 BS EN 50288-7
Flame Retardant Ref.	IEC 60332-1, IEC 60332-3

Application :	This cable is used in machines, measuring instruments and control systems for the transmission of analogue and digital signals
Construction :	Plain annealed copper wire, PVC insulated, twisted pair or triad, overall aluminium/ polyester tape with tinned copper drain wire screened, unarmoured or galvanized steel wire armoured, PVC bedding and sheathed cable
Insulation Colour :	Pair: Black, White with numbering Triple: Red, Black, White with numbering
Sheath Colour :	Black (Other colour upon request)
Operating Temperature :	70°C

Conductor			Insulation	Unarmoured		Armoured	
Nominal Area	No. of Pair/ Triple	Stranded Dia.	Thickness	Approx. Overall Dia.	Approx. Weight	Approx. Overall Dia.	Approx. Weight
(mm^2)	(no.)	(mm)	(mm)	(mm)	(kg/km)	(mm)	(kg/km)
0.5	1P	0.9	0.6	7.0	63	11.8	237
	2P			10.2	112	15.0	354
	4P			12.2	160	16.4	453
	6P			14.4	208	19.5	610
	8P			15.6	280	21.0	825
	10P			17.5	315	24.0	970
	12P			18.5	361	24.8	1045
	16P			20.4	460	26.8	1200
	20P			23.4	595	30.8	1570
	24P			25.4	680	32.8	1805
	36P			29.2	961	37.2	2255
	50P			34.5	1314	42.0	3203
	1T			7.4	69	12.0	251
	4T			13.2	223	18.0	555
	6T			16.0	305	20.0	664
	12T			20.5	538	26.2	1153
	16T			23.0	641	29.5	1554
	36T			33.2	1369	40.8	3011
0.75	1P	1.11	0.6	7.4	71	12.0	260
	2P			10.8	132	15.5	386
	4P			12.5	203	17.5	534
	6P			14.8	252	19.5	622
	8P			16.8	312	22.5	870
	10P			19.0	385	25.0	1024
	12P			19.8	434	25.5	1098
	16P			22.2	567	28.5	1479
	20P			25.0	703	31.5	1722
	24P			27.5	839	34.2	1982
	36P			31.6	1192	38.5	2526
	50P			37.5	1631	45.5	3549
	1T			7.8	80	12.5	276
	4T			13.8	261	18.8	622
	6T			16.6	339	22.2	895
	12T			22.2	610	28.0	1349
	16T			24.8	796	31.5	1816
	36T			36.0	1705	43.5	3533

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500V Collective Screen
PVC Insulated, OS, Unarmoured & Armoured, PVC Sheathed Cable
CU/PVC/OS/PVC or CU/PVC/OS/PVC/SWA/PVC
Model Code: POP or POPSP

Conductor			Insulation	Unarmoured		Armoured	
Nominal Area	No. of Pair/ Triple	Stranded Dia.	Thickness	Approx. Overall Dia.	Approx. Weight	Approx. Overall Dia.	Approx. Weight
(mm^2)	(no.)	(mm)	(mm)	(mm)	(kg/km)	(mm)	(kg/km)
1.0	1P	1.29	0.6	7.8	82	12.5	278
	2P			11.5	135	16.2	420
	4P			13.2	233	18.0	579
	6P			16.0	297	21.5	828
	8P			18.0	370	23.5	956
	10P			20.5	458	26.2	1135
	12P			21.0	520	27.0	1228
	16P			24.5	705	30.0	1652
	20P			26.5	843	33.0	1925
	24P			29.5	1055	36.0	2215
	36P			34.2	1453	41.5	3179
	50P			40.5	2040	48.0	4043
	1T			8.2	93	13.0	296
	4T			14.6	304	19.8	586
	6T			17.8	402	23.2	987
	12T			23.8	733	29.5	1539
	16T			26.6	959	33.2	2059
	36T			38.5	2067	46.2	4021
1.5	1P	1.59	0.6	8.5	108	13.5	311
	2P			12.5	180	17.8	492
	4P			14.5	313	19.5	665
	6P			17.5	413	23.0	953
	8P			19.8	529	25.5	1151
	10P			22.6	659	29.0	1541
	12P			23.4	753	30.0	1669
	16P			26.2	981	32.8	1987
	20P			29.2	1209	36.0	2346
	24P			32.5	1442	40.0	3006
	36P			37.8	2087	48.0	4330
	50P			44.8	2880	55.0	5560
	1T			9.0	115	13.5	340
	4T			16.4	393	25.8	1245
	6T			19.6	532	28.8	1505
	12T			26.4	982	34.0	2165
	16T			29.5	1286	36.2	2489
	36T			43.0	2803	51.5	5456
2.5	1P	2.01	0.7	10.0	144	14.5	390
	2P			14.5	231	19.5	600
	4P			17.2	409	23.0	993
	6P			20.5	554	26.5	1245
	8P			23.4	716	30.0	1519
	10P			27.0	906	34.0	2027
	12P			27.8	1043	35.0	2206
	16P			31.2	1361	38.4	2673
	20P			35.0	1681	44.5	3565
	24P			39.2	2025	47.4	4069
	36P			45.2	2939	55.0	5789
	50P			54.0	4054	64.5	7565
	1T			10.4	167	15.5	427
	4T			19.2	579	25.0	1242
	6T			23.2	782	30.0	1755
	12T			31.5	1488	38.5	2821
	16T			35.2	1947	43.0	3768
	36T			51.5	4257	61.0	7529

Note : For technical specification, please refer to Table 9 to 13 (Page 69)

Instrumentation Cables

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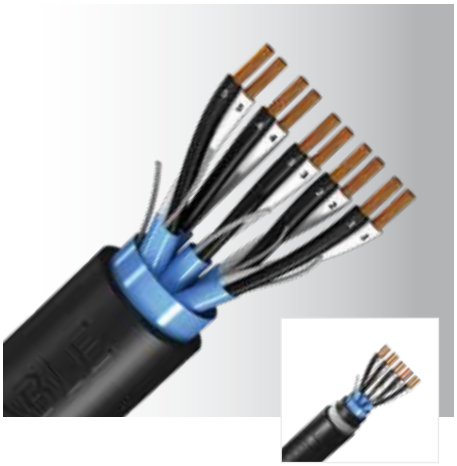
500V Individual & Collective Screen
PVC Insulated, IS OS, Unarmoured & Armoured, PVC Sheathed Cable
CU/PVC/IS OS/PVC or CU/PVC/IS OS/PVC/SWA/PVC
Model Code: PIOP or PIOPSP



Standard Reference	BS EN 50290, BS EN 50288-1 BS EN 50288-7
Flame Retardant Ref.	IEC 60332-1, IEC 60332-3

Application :	This cable is used in machines, measuring instruments and control systems for the transmission of analogue and digital signals
Construction :	Plain annealed copper wire, PVC insulated, twisted pair or triad, individual and overall aluminium/polyester tape with tinned copper drain wire screened, unarmoured or galvanized steel wire armoured, PVC bedding and sheathed cable
Insulation Colour :	Pair: Black, White with numbering Triple: Red, Black, White with numbering
Sheath Colour :	Black (Other colour upon request)
Operating Temperature :	70°C

Conductor			Insulation	Unarmoured		Armoured	
Nominal Area	No. of Pair/ Triple	Stranded Dia.	Thickness	Approx. Overall Dia.	Approx. Weight	Approx. Overall Dia.	Approx. Weight
(mm^2)	(no.)	(mm)	(mm)	(mm)	(kg/km)	(mm)	(kg/km)
0.5	2P	0.9	0.6	11.0	123	16.2	400
	4P			13.0	188	18.0	536
	6P			15.5	260	21.0	771
	8P			17.0	332	23.0	899
	10P			19.5	400	26.0	1049
	12P			20.0	461	27.5	1136
	16P			22.2	599	29.0	1540
	20P			25.0	743	32.0	1805
	24P			28.0	855	35.0	2088
	36P			32.5	1251	40.5	2920
	50P			38.5	1710	47.0	3690
	2T			12.2	158	17.5	471
	4T			14.2	268	19.2	626
	6T			16.8	327	22.5	882
	12T			22.0	601	29.5	1548
	16T			25.2	784	32.0	1850
	36T			36.6	1649	45.0	3544
0.75	2P	1.11	0.6	12.0	140	17.0	452
	4P			13.5	240	18.5	591
	6P			16.2	304	22.0	848
	8P			18.5	390	24.5	1001
	10P			21.0	482	27.6	1354
	12P			21.5	546	28.5	1454
	16P			24.0	711	31.0	1724
	20P			27.0	884	35.0	2022
	24P			30.2	1053	37.4	2355
	36P			34.8	1516	43.2	3331
	50P			41.5	2073	51.0	4679
	2T			13.2	183	18.2	517
	4T			15.5	319	21.4	833
	6T			18.2	400	24.5	1022
	12T			24.2	729	31.0	1740
	16T			27.2	952	34.5	2102
	36T			39.0	2037	48.5	4121

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CU/PVC/IS OS/PVC or CU/PVC/IS OS/PVC/SWA/PVC
Model Code: PIOP or PIOPSP

Conductor			Insulation	Unarmoured		Armoured	
Nominal Area	No. of Pair/ Triple	Stranded Dia.	Thickness	Approx. Overall Dia.	Approx. Weight	Approx. Overall Dia.	Approx. Weight
(mm^2)	(no.)	(mm)	(mm)	(mm)	(kg/km)	(mm)	(kg/km)
1.0	2P	1.29	0.6	12.5	256	17.8	484
	4P			14.5	269	19.5	635
	6P			17.2	347	23.0	927
	8P			19.5	448	25.5	1107
	10P			22.5	549	29.2	1476
	12P			23.0	637	30.0	1605
	16P			25.5	830	32.5	1919
	20P			28.8	1023	36.6	2272
	24P			32.5	1220	40.5	2914
	36P			37.5	1763	46.0	3715
	50P			44.5	2414	54.5	5215
	2T			14.0	206	19.0	556
	4T			16.2	362	22.2	903
	6T			19.2	463	25.2	1125
	12T			26.0	864	33.0	1956
	16T			29.0	1128	36.5	2381
	36T			42.2	2398	52.0	5068
1.5	2P	1.59	0.6	14.0	203	19.5	657
	4P			16.0	355	23.0	920
	6P			19.2	452	25.4	1094
	8P			21.5	583	28.0	1306
	10P			24.5	727	31.5	1755
	12P			25.5	829	32.5	1895
	16P			28.5	1083	36.0	2275
	20P			32.0	1336	42.2	3020
	24P			36.0	1611	44.2	3468
	36P			41.5	2327	51.2	4917
	50P			49.5	3185	59.5	6335
	2T			15.2	256	21.5	769
	4T			18.0	452	24.0	1045
	6T			21.5	593	27.5	1312
	12T			29.0	1114	36.5	2330
	16T			32.5	1455	40.5	3131
	36T			47.2	3131	57.0	6130
2.5	2P	2.01	0.7	16.0	267	22.2	806
	4P			18.8	470	25.0	1102
	6P			22.5	625	29.5	1572
	8P			25.5	821	32.5	1910
	10P			29.2	1014	36.5	2270
	12P			30.5	1163	38.5	2728
	16P			34.0	1534	42.0	3310
	20P			38.5	1891	47.0	3889
	24P			42.8	2275	52.4	4999
	36P			49.8	3289	60.0	6476
	50P			59.2	4555	70.0	8382
	2T			18.0	354	24.0	945
	4T			21.2	628	27.5	1336
	6T			25.5	856	32.5	1921
	12T			34.2	1626	42.5	3397
	16T			38.5	2122	47.5	4112
	36T			56.5	4602	67.0	8215

Note : For technical specification, please refer to Table 9 to 13 (Page 69)

Instrumentation Cables

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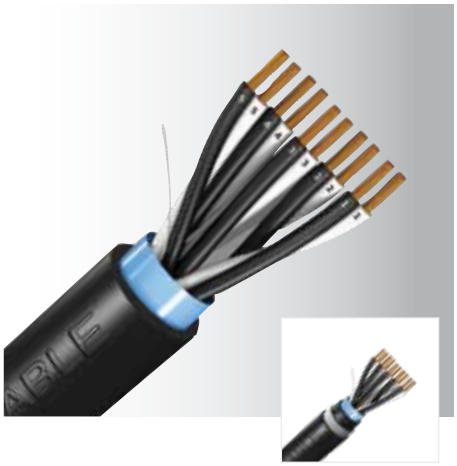
www.keystone-cable.com

500V Collective Screen
PE Insulated, OS, Unarmoured & Armoured, PVC Sheathed Cable
CU/PE/OS/PVC or CU/PE/OS/PVC/SWA/PVC
Model Code: EOP or EOPSP



Standard Reference	BS EN 50290, BS EN 50288-1 BS EN 50288-7
Flame Retardant Ref.	IEC 60332-1, IEC 60332-3

Application :	This cable is used for the transmission of analogue and digital signals in machineries with measuring instruments and control systems.
Construction :	Plain annealed copper wire, PE insulated, twisted pair or triad, overall aluminium/ polyester tape with tinned copper drain wire screened, unarmoured or galvanized steel wire armoured, PVC bedding and sheathed cable
Insulation Colour :	Pair: Black, White with numbering Triple: Red, Black, White with numbering
Sheath Colour :	Black (Other colour upon request)
Operating Temperature :	70°C

Conductor			Insulation	Unarmoured		Armoured	
Nominal Area	No. of Pair/ Triple	Stranded Dia.	Thickness	Approx. Overall Dia.	Approx. Weight	Approx. Overall Dia.	Approx. Weight
(mm^2)	(no.)	(mm)	(mm)	(mm)	(kg/km)	(mm)	(kg/km)
0.5	1P	0.9	0.6	7.0	57	11.8	232
	2P			10.2	94	15.0	345
	4P			12.2	152	16.4	438
	6P			14.0	178	18.5	527
	8P			15.6	226	20.2	614
	10P			17.5	270	23.0	849
	12P			18.0	307	23.8	902
	16P			20.4	389	26.8	1210
	20P			22.8	482	29.5	1408
	24P			25.4	574	32.0	1605
	36P			29.2	802	36.5	1981
	50P			34.5	1093	42.0	2837
	1T			7.4	66	12.0	244
	4T			13.2	196	18.0	524
	6T			15.5	239	20.0	626
	12T			20.5	411	26.2	1084
	16T			23.0	535	29.5	1462
	36T			33.2	1131	40.8	2807
0.75	1P	1.11	0.6	7.4	67	12.0	255
	2P			10.8	110	15.5	375
	4P			12.5	187	17.5	507
	6P			14.8	222	19.5	594
	8P			16.8	280	22.5	833
	10P			19.0	345	25.0	978
	12P			19.8	386	25.5	1044
	16P			22.2	502	28.5	1407
	20P			25.0	622	31.5	1632
	24P			27.5	741	34.2	1874
	36P			31.6	1043	38.5	2365
	50P			37.5	1424	45.5	3326
	1T			7.8	79	12.5	269
	4T			13.8	236	18.8	586
	6T			16.6	302	22.2	854
	12T			22.2	536	28.0	1268
	16T			24.8	697	31.5	1709
	36T			36.0	1482	43.5	3293

Instrumentation Cables

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500V Collective Screen
PE Insulated, OS, Unarmoured & Armoured, PVC Sheathed Cable
CU/PE/OS/PVC or CU/PE/OS/PVC/SWA/PVC
Model Code: EOP or EOPSP

Conductor			Insulation	Unarmoured		Armoured	
Nominal Area	No. of Pair/ Triple	Stranded Dia.	Thickness	Approx. Overall Dia.	Approx. Weight	Approx. Overall Dia.	Approx. Weight
(mm^2)	(no.)	(mm)	(mm)	(mm)	(kg/km)	(mm)	(kg/km)
1.0	1P	1.29	0.6	7.8	77	12.5	272
	2P			11.5	125	16.2	408
	4P			13.2	214	18.0	550
	6P			16.0	269	21.5	796
	8P			18.0	332	23.5	914
	10P			20.5	411	26.2	1083
	12P			21.0	463	27.0	1161
	16P			23.6	603	30.0	1570
	20P			26.5	749	33.0	1823
	24P			29.5	893	36.0	2092
	36P			34.2	1283	41.5	2996
	50P			40.5	1754	48.0	3790
	1T			8.2	85	13.0	288
	4T			14.6	276	19.8	647
	6T			17.8	360	23.2	940
	12T			23.8	649	29.5	1447
	16T			26.6	846	33.2	1937
	36T			38.5	1813	46.2	3749
1.5	1P	1.59	0.6	8.5	95	13.5	304
	2P			12.5	152	17.8	478
	4P			14.5	267	19.5	631
	6P			17.5	346	23.0	915
	8P			19.8	442	25.5	1100
	10P			22.6	547	29.0	1473
	12P			23.4	613	30.0	1588
	16P			26.2	812	32.8	1882
	20P			29.2	1008	36.0	2222
	24P			32.5	1202	40.0	2857
	36P			37.8	1736	45.5	3640
	50P			44.8	2377	54.0	5175
	1T			9.0	106	13.5	330
	4T			16.4	358	22.0	898
	6T			19.6	480	25.5	1127
	12T			26.4	879	33.0	1953
	16T			29.5	1149	36.2	2348
	36T			43.0	2494	51.5	5140
2.5	1P	2.01	0.7	10.0	135	14.5	380
	2P			14.5	215	19.5	580
	4P			17.2	375	23.0	942
	6P			20.5	504	26.5	1190
	8P			23.4	648	30.0	1446
	10P			27.0	822	34.0	1935
	12P			27.8	942	35.0	2097
	16P			31.2	1219	38.4	2520
	20P			35.0	1513	43.0	3318
	24P			39.2	1823	47.4	3851
	36P			45.2	2636	55.0	5463
	50P			54.0	3622	63.5	7031
	1T			10.4	167	15.5	413
	4T			19.2	528	25.0	1173
	6T			23.2	707	30.0	1673
	12T			31.5	1336	38.5	2658
	16T			35.2	1736	43.0	3542
	36T			51.5	3802	61.0	7043

Note : For technical specification, please refer to Table 9 to 13 (Page 69)

Instrumentation Cables

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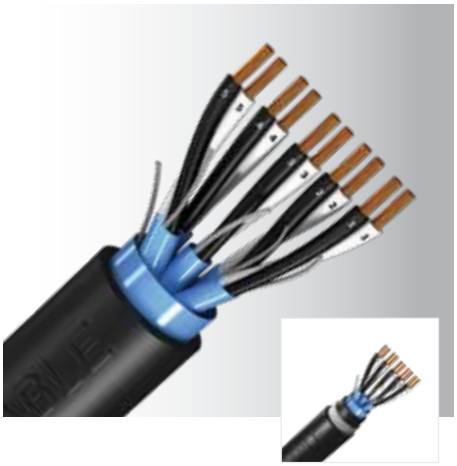
500V Individual & Collective Screen
PE Insulated, IS OS, Unarmoured & Armoured, PVC Sheathed Cable
CU/PE/IS OS/PVC or CU/PE/IS OS/PVC/SWA/PVC
Model Code: EIOP or EIOPSP



Standard Reference	BS EN 50290, BS EN 50288-1 BS EN 50288-7
Flame Retardant Ref.	IEC 60332-1, IEC 60332-3

Application :	This cable is used for the transmission of analogue and digital signals in machineries with measuring instruments and control systems.
Construction :	Plain annealed copper wire, PE insulated, twisted pair or triad, individual and overall aluminium/polyester tape with tinned copper drain wire screened, unarmoured or galvanized steel wire armoured, PVC bedding and sheathed cable
Insulation Colour :	Pair: Black, White with numbering Triple: Red, Black, White with numbering
Sheath Colour :	Black (Other colour upon request)
Operating Temperature :	70°C

Conductor			Insulation	Unarmoured		Armoured	
Nominal Area	No. of Pair/ Triple	Stranded Dia.	Thickness	Approx. Overall Dia.	Approx. Weight	Approx. Overall Dia.	Approx. Weight
(mm^2)	(no.)	(mm)	(mm)	(mm)	(kg/km)	(mm)	(kg/km)
0.5	2P	0.9	0.6	11.0	118	16.2	393
	4P			13.0	181	18.0	524
	6P			15.5	239	21.0	754
	8P			17.0	305	23.0	875
	10P			19.5	366	26.0	1020
	12P			20.0	420	27.5	1101
	16P			22.2	545	29.0	1493
	20P			25.0	676	32.0	1746
	24P			28.0	804	35.0	2017
	36P			32.5	1133	40.5	2813
	50P			38.5	1545	47.0	3542
	2T			12.2	149	17.5	462
	4T			14.2	249	19.2	609
	6T			16.8	298	22.5	867
	12T			22.0	545	29.5	1495
	16T			25.2	709	32.0	1780
	36T			36.6	1481	45.0	3384
0.75	2P	1.11	0.6	12.0	133	17.0	444
	4P			13.5	225	18.5	577
	6P			16.2	312	22.0	826
	8P			18.5	362	24.5	984
	10P			21.0	446	27.6	1332
	12P			21.5	504	28.5	1412
	16P			24.0	654	31.0	1668
	20P			27.0	813	35.0	1952
	24P			30.2	968	37.4	2272
	36P			34.8	1388	43.2	3225
	50P			41.5	1895	51.0	4550
	2T			13.2	174	18.2	507
	4T			15.5	300	21.4	811
	6T			18.2	371	24.5	1003
	12T			24.2	670	31.0	1676
	16T			27.2	873	34.5	2017
	36T			39.0	1858	48.5	3929

Instrumentation Cables

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500V Individual & Collective Screen
PE Insulated, IS OS, Unarmoured & Armoured, PVC Sheathed Cable
CU/PE/IS OS/PVC or CU/PE/IS OS/PVC/SWA/PVC
Model Code: EIOP or EIOPSP

Conductor			Insulation	Unarmoured		Armoured	
Nominal Area	No. of Pair/ Triple	Stranded Dia.	Thickness	Approx. Overall Dia.	Approx. Weight	Approx. Overall Dia.	Approx. Weight
(mm^2)	(no.)	(mm)	(mm)	(mm)	(kg/km)	(mm)	(kg/km)
1.0	2P	1.29	0.6	12.5	148	17.8	477
	4P			14.5	253	19.5	621
	6P			17.2	324	23.0	905
	8P			19.5	415	25.5	1078
	10P			22.5	510	29.2	1439
	12P			23.0	590	30.0	1560
	16P			25.5	767	32.5	1860
	20P			28.8	944	36.6	2198
	24P			32.5	1126	40.5	2824
	36P			37.5	1622	46.0	3581
	50P			44.5	2217	54.5	5028
	2T			14.0	196	19.0	544
	4T			16.2	341	22.2	879
	6T			19.2	431	25.2	1089
	12T			26.0	799	33.0	1885
	16T			29.0	1039	36.5	2287
	36T			42.2	2196	52.0	4856
1.5	2P	1.59	0.6	14.0	203	19.5	657
	4P			16.0	355	23.0	882
	6P			19.2	452	25.4	1094
	8P			21.5	583	28.0	1306
	10P			24.5	727	31.5	1755
	12P			25.5	829	32.5	1895
	16P			28.5	1083	36.0	2275
	20P			32.0	1336	42.2	3020
	24P			36.0	1611	44.2	3468
	36P			41.5	2327	51.2	4917
	50P			49.5	3185	59.5	6335
	2T			15.2	256	21.5	769
	4T			18.0	452	24.0	1045
	6T			21.5	593	27.5	1312
	12T			29.0	1114	36.5	2330
	16T			32.5	1455	40.5	3131
	36T			47.2	3131	57.0	6130
2.5	2P	2.01	0.7	16.0	254	22.2	793
	4P			18.8	443	25.0	1076
	6P			22.5	586	29.5	1533
	8P			25.5	768	32.5	1857
	10P			29.2	948	36.5	2204
	12P			30.5	1085	38.5	2649
	16P			34.0	1429	42.0	3205
	20P			38.5	1760	47.0	3758
	24P			42.8	2117	52.4	4841
	36P			49.8	3052	60.0	6239
	50P			59.2	4226	70.0	8053
	2T			18.0	332	24.0	926
	4T			21.2	585	27.5	1296
	6T			25.5	793	32.5	1862
	12T			34.2	1500	42.5	3278
	16T			38.5	1955	47.5	3955
	36T			56.5	4230	67.0	7860

Note : For technical specification, please refer to Table 9 to 13 (Page 69)

Instrumentation Cables

KEYSTONE CABLE
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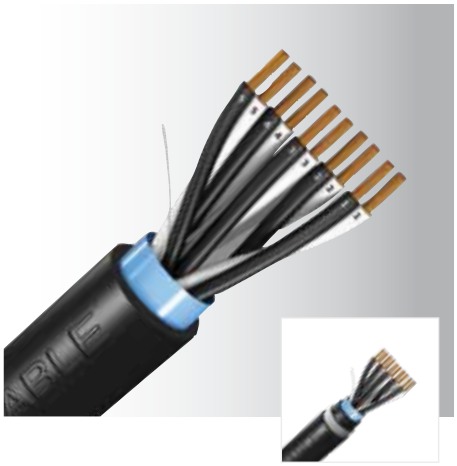
500V Collective Screen
XLPE Insulated, OS, Unarmoured & Armoured, PVC Sheathed Cable
CU/XLPE/OS/PVC or CU/XLPE/OS/PVC/SWA/PVC
Model Code: XOP or XOPSP



Standard Reference	BS EN 50290, BS EN 50288-1 BS EN 50288-7
Flame Retardant Ref.	IEC 60332-1, IEC 60332-3

Application :	This cable is used for the transmission of analogue and digital signals in machineries with measuring instruments and control systems.
Construction :	Plain annealed copper wire, XLPE insulated, twisted pair or triad, overall aluminium/ polyester tape with tinned copper drain wire screened, unarmoured or galvanized steel wire armoured, PVC bedding and sheathed cable
Insulation Colour :	Pair: Black, White with numbering Triple: Red, Black, White with numbering
Sheath Colour :	Black (Other colour upon request)
Operating Temperature :	90°C

Conductor			Insulation	Unarmoured		Armoured	
Nominal Area	No. of Pair/ Triple	Stranded Dia.	Thickness	Approx. Overall Dia.	Approx. Weight	Approx. Overall Dia.	Approx. Weight
(mm^2)	(no.)	(mm)	(mm)	(mm)	(kg/km)	(mm)	(kg/km)
0.5	1P	0.9	0.6	7.0	57	11.8	232
	2P			10.2	94	15.0	345
	4P			12.2	152	16.4	438
	6P			14.0	178	18.5	527
	8P			15.6	226	20.2	614
	10P			17.5	270	23.0	849
	12P			18.0	307	23.8	902
	16P			20.4	389	26.8	1210
	20P			22.8	482	29.5	1408
	24P			25.4	574	32.0	1605
	36P			29.2	802	36.5	1981
	50P			34.5	1093	42.0	2837
	1T			7.4	66	12.0	244
	4T			13.2	196	18.0	524
	6T			15.5	239	20.0	626
	12T			20.5	411	26.2	1084
	16T			23.0	535	29.5	1462
	36T			33.2	1131	40.8	2807
0.75	1P	1.11	0.6	7.4	67	12.0	255
	2P			10.8	110	15.5	375
	4P			12.5	187	17.5	507
	6P			14.8	222	19.5	594
	8P			16.8	280	22.5	833
	10P			19.0	345	25.0	978
	12P			19.8	386	25.5	1044
	16P			22.2	502	28.5	1407
	20P			25.0	622	31.5	1632
	24P			27.5	741	34.2	1874
	36P			31.6	1043	38.5	2365
	50P			37.5	1424	45.5	3326
	1T			7.8	79	12.5	269
	4T			13.8	236	18.8	586
	6T			16.6	302	22.2	854
	12T			22.2	536	28.0	1268
	16T			24.8	697	31.5	1709
	36T			36.0	1482	43.5	3293

Instrumentation Cables

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500V Collective Screen
XLPE Insulated, OS, Unarmoured & Armoured, PVC Sheathed Cable
CU/XLPE/OS/PVC or CU/XLPE/OS/PVC/SWA/PVC
Model Code: XOP or XOPSP

Conductor			Insulation	Unarmoured		Armoured	
Nominal Area	No. of Pair/ Triple	Stranded Dia.	Thickness	Approx. Overall Dia.	Approx. Weight	Approx. Overall Dia.	Approx. Weight
(mm^2)	(no.)	(mm)	(mm)	(mm)	(kg/km)	(mm)	(kg/km)
1.0	1P	1.29	0.6	7.8	77	12.5	272
	2P			11.5	125	16.2	408
	4P			13.2	214	18.0	550
	6P			16.0	269	21.5	796
	8P			18.0	332	23.5	914
	10P			20.5	411	26.2	1083
	12P			21.0	463	27.0	1161
	16P			23.6	603	30.0	1570
	20P			26.5	749	33.0	1823
	24P			29.5	893	36.0	2092
	36P			34.2	1283	41.5	2996
	50P			40.5	1754	48.0	3790
	1T			8.2	85	13.0	288
	4T			14.6	276	19.8	647
	6T			17.8	360	23.2	940
	12T			23.8	649	29.5	1447
	16T			26.6	846	33.2	1937
	36T			38.5	1813	46.2	3749
1.5	1P	1.59	0.6	8.5	95	13.5	304
	2P			12.5	152	17.8	478
	4P			14.5	267	19.5	631
	6P			17.5	346	23.0	915
	8P			19.8	442	25.5	1100
	10P			22.6	547	29.0	1473
	12P			23.4	613	30.0	1588
	16P			26.2	812	32.8	1882
	20P			29.2	1008	36.0	2222
	24P			32.5	1202	40.0	2857
	36P			37.8	1736	45.5	3640
	50P			44.8	2377	54.0	5175
	1T			9.0	106	13.5	330
	4T			16.4	358	22.0	898
	6T			19.6	480	25.5	1127
	12T			26.4	879	33.0	1953
	16T			29.5	1149	36.2	2348
	36T			43.0	2494	51.5	5140
2.5	1P	2.01	0.7	10.0	135	14.5	380
	2P			14.5	215	19.5	580
	4P			17.2	375	23.0	942
	6P			20.5	504	26.5	1190
	8P			23.4	648	30.0	1446
	10P			27.0	822	34.0	1935
	12P			27.8	942	35.0	2097
	16P			31.2	1219	38.4	2520
	20P			35.0	1513	43.0	3318
	24P			39.2	1823	47.4	3851
	36P			45.2	2636	55.0	5463
	50P			54.0	3622	63.5	7031
	1T			10.4	167	15.5	413
	4T			19.2	528	25.0	1173
	6T			23.2	707	30.0	1673
	12T			31.5	1336	38.5	2658
	16T			35.2	1736	43.0	3542
	36T			51.5	3802	61.0	7043

Note : For technical specification, please refer to Table 9 to 13 (Page 69)

Instrumentation Cables

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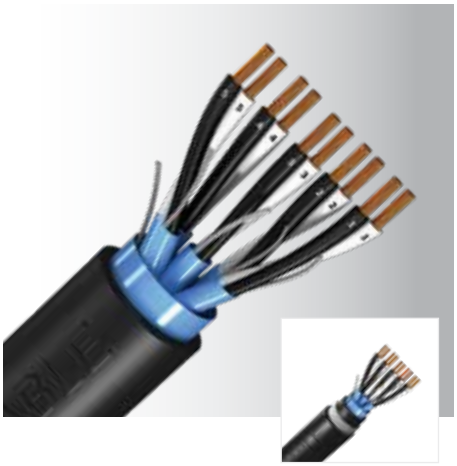
500V Individual & Collective Screen
XLPE Insulated, IS OS, Unarmoured & Armoured, PVC Sheathed Cable
CU/XLPE/IS OS/PVC or CU/XLPE/IS OS/PVC/SWA/PVC
Model Code: XIOP or XIOPSP



Standard Reference	BS EN 50290, BS EN 50288-1 BS EN 50288-7
Flame Retardant Ref.	IEC 60332-1, IEC 60332-3

Application :	This cable is used for the transmission of analogue and digital signals in machineries with measuring instruments and control systems.
Construction :	Plain annealed copper wire, XLPE insulated, twisted pair or triad, individual and overall aluminium/polyester tape with tinned copper drain wire screened, unarmoured or galvanized steel wire armoured, PVC bedding and sheathed cable
Insulation Colour :	Pair: Black, White with numbering Triple: Red, Black, White with numbering
Sheath Colour :	Black (Other colour upon request)
Operating Temperature :	90°C

Conductor			Insulation	Unarmoured		Armoured	
Nominal Area	No. of Pair/ Triple	Stranded Dia.	Thickness	Approx. Overall Dia.	Approx. Weight	Approx. Overall Dia.	Approx. Weight
(mm^2)	(no.)	(mm)	(mm)	(mm)	(kg/km)	(mm)	(kg/km)
0.5	2P	0.9	0.6	11.0	118	16.2	393
	4P			13.0	181	18.0	524
	6P			15.5	239	21.0	754
	8P			17.0	305	23.0	875
	10P			19.5	366	26.0	1020
	12P			20.0	420	27.5	1101
	16P			22.2	545	29.0	1493
	20P			25.0	676	32.0	1746
	24P			28.0	804	35.0	2017
	36P			32.5	1133	40.5	2813
	50P			38.5	1545	47.0	3542
	2T			12.2	149	17.5	462
	4T			14.2	249	19.2	609
	6T			16.8	298	22.5	867
	12T			22.6	545	29.5	1495
	16T			25.2	709	32.0	1780
	36T			36.6	1481	45.0	3384
0.75	2P	1.11	0.6	12.0	133	17.0	444
	4P			13.5	225	18.5	577
	6P			16.2	312	22.0	826
	8P			18.5	362	24.5	984
	10P			21.0	446	27.6	1332
	12P			21.5	504	28.5	1412
	16P			24.0	654	31.0	1668
	20P			27.0	813	35.0	1952
	24P			30.2	968	37.4	2272
	36P			34.8	1388	43.2	3225
	50P			41.5	1895	51.0	4550
	2T			13.2	174	18.2	507
	4T			15.5	300	21.4	811
	6T			18.2	371	24.5	1003
	12T			24.2	670	31.0	1676
	16T			27.2	873	34.5	2017
	36T			39.0	1858	48.5	3929

Instrumentation Cables

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500V Individual & Collective Screen
XLPE Insulated, IS OS, Unarmoured & Armoured, PVC Sheathed Cable
CU/XLPE/IS OS/PVC or CU/XLPE/IS OS/PVC/SWA/PVC
Model Code: XIOP or XIOPSP

Conductor			Insulation	Unarmoured		Armoured	
Nominal Area	No. of Pair/ Triple	Stranded Dia.	Thickness	Approx. Overall Dia.	Approx. Weight	Approx. Overall Dia.	Approx. Weight
(mm^2)	(no.)	(mm)	(mm)	(mm)	(kg/km)	(mm)	(kg/km)
1.0	2P	1.29	0.6	12.5	148	17.8	477
	4P			14.5	253	19.5	621
	6P			17.2	324	23.0	905
	8P			19.5	415	25.5	1078
	10P			22.5	510	29.2	1439
	12P			23.0	590	30.0	1560
	16P			25.5	767	32.5	1860
	20P			28.8	944	36.6	2198
	24P			32.5	1126	40.5	2824
	36P			37.5	1622	46.0	3581
	50P			44.5	2217	54.5	5028
	2T			14.0	196	19.0	544
	4T			16.2	341	22.2	879
	6T			19.2	431	25.2	1089
	12T			26.0	799	33.0	1885
	16T			29.0	1039	36.5	2287
	36T			42.2	2196	52.0	4856
1.5	2P	1.59	0.6	14.0	203	19.5	657
	4P			16.0	355	23.0	882
	6P			19.2	452	25.4	1094
	8P			21.5	583	28.0	1306
	10P			24.5	727	31.5	1755
	12P			25.5	829	32.5	1895
	16P			28.5	1083	36.0	2275
	20P			32.0	1336	42.2	3020
	24P			36.0	1611	44.2	3468
	36P			41.5	2327	51.2	4917
	50P			49.5	3185	59.5	6335
	2T			15.2	256	21.5	769
	4T			18.0	452	24.0	1045
	6T			21.5	593	27.5	1312
	12T			29.0	1114	36.5	2330
	16T			32.5	1455	40.5	3131
	36T			47.2	3131	57.0	6130
2.5	2P	2.01	0.7	16.0	254	22.2	793
	4P			18.8	443	25.0	1076
	6P			22.5	586	29.5	1533
	8P			25.5	768	32.5	1857
	10P			29.2	948	36.5	2204
	12P			30.5	1085	38.5	2649
	16P			34.0	1429	42.0	3205
	20P			38.5	1760	47.0	3758
	24P			42.8	2117	52.4	4841
	36P			49.8	3052	60.0	6239
	50P			59.2	4226	70.0	8053
	2T			18.0	332	24.0	926
	4T			21.2	585	27.5	1296
	6T			25.5	793	32.5	1862
	12T			34.2	1500	42.5	3278
	16T			38.5	1955	47.5	3955
	36T			56.5	4230	67.0	7860

Note : For technical specification, please refer to Table 9 to 13 (Page 69)

Flame Retardant Instrumentation Cables

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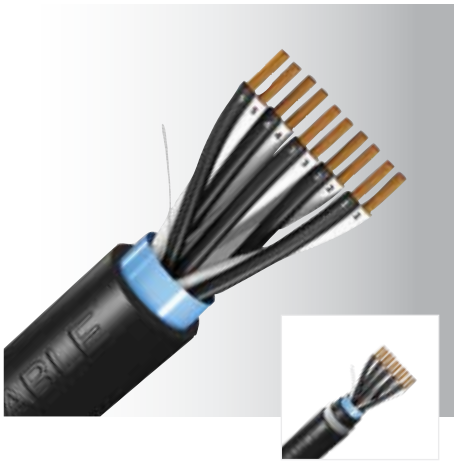
500V Collective Screen
PE Insulated, OS, Unarmoured & Armoured, LSZH Sheathed Cable
CU/PE/OS/LSZH or CU/PE/OS/LSZH/SWA/LSZH
Model Code: EOL or EOLSL



Standard Reference	BS EN 50290, BS EN 50288-1 BS EN 50288-7
Flame Retardant Ref.	IEC 60332-3, IEC 60754 IEC 61034

Application :	This cable is intended for use in machineries, especially suitable for areas where fire would create dense smoke and toxic fumes, imposing major threat to lives and equipment
Construction :	Plain annealed copper wire, PE insulated, twisted pair or triad, overall aluminium/ polyester tape with tinned copper drain wire screened, unarmoured or galvanized steel wire armoured, LSZH bedding & sheathed cable
Insulation Colour :	Pair: Black, White with numbering Triple: Red, Black, White with numbering
Sheath Colour :	Black (Other colour upon request)
Operating Temperature :	70°C

Conductor			Insulation	Unarmoured		Armoured	
Nominal Area	No. of Pair/ Triple	Stranded Dia.	Thickness	Approx. Overall Dia.	Approx. Weight	Approx. Overall Dia.	Approx. Weight
(mm^2)	(no.)	(mm)	(mm)	(mm)	(kg/km)	(mm)	(kg/km)
0.5	1P	0.9	0.6	7.0	57	11.8	232
	2P			10.2	94	15.0	345
	4P			12.2	152	16.4	438
	6P			14.0	178	18.5	527
	8P			15.6	226	20.2	614
	10P			17.5	270	23.0	849
	12P			18.0	307	23.8	902
	16P			20.4	389	26.8	1210
	20P			22.8	482	29.5	1408
	24P			25.4	574	32.0	1605
	36P			29.2	802	36.5	1981
	50P			34.5	1093	42.0	2837
	1T			7.4	66	12.0	244
	4T			13.2	196	18.0	524
	6T			15.5	239	20.0	626
	12T			20.5	411	26.2	1084
	16T			23.0	535	29.5	1462
	36T			33.2	1131	40.8	2807
0.75	1P	1.11	0.6	7.4	67	12.0	255
	2P			10.8	110	15.5	375
	4P			12.5	187	17.5	507
	6P			14.8	222	19.5	594
	8P			16.8	280	22.5	833
	10P			19.0	345	25.0	978
	12P			19.8	386	25.5	1044
	16P			22.2	502	28.5	1407
	20P			25.0	622	31.5	1632
	24P			27.5	741	34.2	1874
	36P			31.6	1043	38.5	2365
	50P			37.5	1424	45.5	3326
	1T			7.8	79	12.5	269
	4T			13.8	236	18.8	586
	6T			16.6	302	22.2	854
	12T			22.2	536	28.0	1268
	16T			24.8	697	31.5	1709
	36T			36.0	1482	43.5	3293

Flame Retardant Instrumentation Cables

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500V Collective Screen
PE Insulated, OS, Unarmoured & Armoured, LSZH Sheathed Cable
CU/PE/OS/LSZH or CU/PE/OS/LSZH/SWA/LSZH
Model Code: EOL or EOLSL

Conductor			Insulation	Unarmoured		Armoured	
Nominal Area	No. of Pair/ Triple	Stranded Dia.	Thickness	Approx. Overall Dia.	Approx. Weight	Approx. Overall Dia.	Approx. Weight
(mm^2)	(no.)	(mm)	(mm)	(mm)	(kg/km)	(mm)	(kg/km)
1.0	1P	1.29	0.6	7.8	77	12.5	272
	2P			11.5	125	16.2	408
	4P			13.2	214	18.0	550
	6P			16.0	269	21.5	796
	8P			18.0	332	23.5	914
	10P			20.5	411	26.2	1083
	12P			21.0	463	27.0	1161
	16P			23.6	603	30.0	1570
	20P			26.5	749	33.0	1823
	24P			29.5	893	36.0	2092
	36P			34.2	1283	41.5	2996
	50P			40.5	1754	48.0	3790
	1T			8.2	85	13.0	288
	4T			14.6	276	19.8	647
	6T			17.8	360	23.2	940
	12T			23.8	649	29.5	1447
	16T			26.6	846	33.2	1937
	36T			38.5	1813	46.2	3749
1.5	1P	1.59	0.6	8.5	95	13.5	304
	2P			12.5	152	17.8	478
	4P			14.5	267	19.5	631
	6P			17.5	346	23.0	915
	8P			19.8	442	25.5	1100
	10P			22.6	547	29.0	1473
	12P			23.4	613	30.0	1588
	16P			26.2	812	32.8	1882
	20P			29.2	1008	36.0	2222
	24P			32.5	1202	40.0	2857
	36P			37.8	1736	45.5	3640
	50P			44.8	2377	54.0	5175
	1T			9.0	106	13.5	330
	4T			16.4	358	22.0	898
	6T			19.6	480	25.5	1127
	12T			26.4	879	33.0	1953
	16T			29.5	1149	36.2	2348
	36T			43.0	2494	51.5	5140
2.5	1P	2.01	0.7	10.0	135	14.5	380
	2P			14.5	215	19.5	580
	4P			17.2	375	23.0	942
	6P			20.5	504	26.5	1190
	8P			23.4	648	30.0	1446
	10P			27.0	822	34.0	1935
	12P			27.8	942	35.0	2097
	16P			31.2	1219	38.4	2520
	20P			35.0	1513	43.0	3318
	24P			39.2	1823	47.4	3851
	36P			45.2	2636	55.0	5463
	50P			54.0	3622	63.5	7031
	1T			10.4	167	15.5	413
	4T			19.2	528	25.0	1173
	6T			23.2	707	30.0	1673
	12T			31.5	1336	38.5	2658
	16T			35.2	1736	43.0	3542
	36T			51.5	3802	61.0	7043

Note : For technical specification, please refer to Table 9 to 13 (Page 69)

Flame Retardant Instrumentation Cables

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500V Individual & Collective Screen
PE Insulated, IS OS, Unarmoured & Armoured, LSZH Sheathed Cable
CU/PE/IS OS/LSZH or CU/PE/IS OS/LSZH/SWA/LSZH
Model Code: EIOL or EIOLSL

Standard Reference	BS EN 50290, BS EN 50288-1 BS EN 50288-7
Flame Retardant Ref.	IEC 60332-3, IEC 60754 IEC 61034

Application :	This cable is intended for use in machineries, especially suitable for areas where fire would create dense smoke and toxic fumes, imposing major threat to lives and equipment
Construction :	Plain annealed copper wire, PE insulated, twisted pair or traid, individual and overall aluminium/polyester tape with tinned copper drain wire screened, unarmoured or galvanized steel wire armoured, LSZH bedding & sheathed cable
Insulation Colour :	Pair: Black, White with numbering Triple: Red, Black, White with numbering
Sheath Colour :	Black (Other colour upon request)
Operating Temperature :	70°C

Conductor			Insulation	Unarmoured		Armoured	
Nominal Area	No. of Pair/ Triple	Stranded Dia.	Thickness	Approx. Overall Dia.	Approx. Weight	Approx. Overall Dia.	Approx. Weight
(mm^2)	(no.)	(mm)	(mm)	(mm)	(kg/km)	(mm)	(kg/km)
0.5	2P	0.9	0.6	11.0	118	16.2	393
	4P			13.0	181	18.0	524
	6P			15.5	239	21.0	754
	8P			17.0	305	23.0	875
	10P			19.5	366	26.0	1020
	12P			20.0	420	27.5	1101
	16P			22.2	545	29.0	1493
	20P			25.0	676	32.0	1746
	24P			28.0	804	35.0	2017
	36P			32.5	1133	40.5	2813
	50P			38.5	1545	47.0	3542
	2T			12.2	149	17.5	462
	4T			14.2	249	19.2	609
	6T			16.8	298	22.5	867
	12T			22.0	545	29.5	1495
	16T			25.2	709	32.0	1780
	36T			36.6	1481	45.0	3384
0.75	2P	1.11	0.6	12.0	133	17.0	444
	4P			13.5	225	18.5	577
	6P			16.2	312	22.0	826
	8P			18.5	362	24.5	984
	10P			21.0	446	27.6	1332
	12P			21.5	504	28.5	1412
	16P			24.0	654	31.0	1668
	20P			27.0	813	35.0	1952
	24P			30.2	968	37.4	2272
	36P			34.8	1388	43.2	3225
	50P			41.5	1895	51.0	4550
	2T			13.2	174	18.2	507
	4T			15.5	300	21.4	811
	6T			18.2	371	24.5	1003
	12T			24.2	670	31.0	1676
	16T			27.2	873	34.5	2017
	36T			39.0	1858	48.5	3929

Flame Retardant Instrumentation Cables

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500V Individual & Collective Screen
PE Insulated, IS OS, Unarmoured & Armoured, LSZH Sheathed Cable
CU/PE/IS OS/LSZH or CU/PE/IS OS/LSZH/SWA/LSZH
Model Code: EIOL or EIOLSL

Conductor			Insulation	Unarmoured		Armoured	
Nominal Area	No. of Pair/ Triple	Stranded Dia.	Thickness	Approx. Overall Dia.	Approx. Weight	Approx. Overall Dia.	Approx. Weight
(mm^2)	(no.)	(mm)	(mm)	(mm)	(kg/km)	(mm)	(kg/km)
1.0	2P	1.29	0.6	12.5	148	17.8	477
	4P			14.5	253	19.5	621
	6P			17.2	324	23.0	905
	8P			19.5	415	25.5	1078
	10P			22.5	510	29.2	1439
	12P			23.0	590	30.0	1560
	16P			25.5	767	32.5	1860
	20P			28.8	944	36.6	2198
	24P			32.5	1126	40.5	2824
	36P			37.5	1622	46.0	3581
	50P			44.5	2217	54.5	5028
	2T			14.0	196	19.0	544
	4T			16.2	341	22.2	879
	6T			19.2	431	25.2	1089
	12T			26.0	799	33.0	1885
	16T			29.0	1039	36.5	2287
	36T			42.2	2196	52.0	4856
1.5	2P	1.59	0.6	14.0	203	19.5	657
	4P			16.0	355	23.0	882
	6P			19.2	452	25.4	1094
	8P			21.5	583	28.0	1306
	10P			24.5	727	31.5	1755
	12P			25.5	829	32.5	1895
	16P			28.5	1083	36.0	2275
	20P			32.0	1336	42.2	3020
	24P			36.0	1611	44.2	3468
	36P			41.5	2327	51.2	4917
	50P			49.5	3185	59.5	6335
	2T			15.2	256	21.5	769
	4T			18.0	452	24.0	1045
	6T			21.5	593	27.5	1312
	12T			29.0	1114	36.5	2330
	16T			32.5	1455	40.5	3131
	36T			47.2	3131	57.0	6130
2.5	2P	2.01	0.7	16.0	254	22.2	793
	4P			18.8	443	25.0	1076
	6P			22.5	586	29.5	1533
	8P			25.5	768	32.5	1857
	10P			29.2	948	36.5	2204
	12P			30.5	1085	38.5	2649
	16P			34.0	1429	42.0	3205
	20P			38.5	1760	47.0	3758
	24P			42.8	2117	52.4	4841
	36P			49.8	3052	60.0	6239
	50P			59.2	4226	70.0	8053
	2T			18.0	332	24.0	926
	4T			21.2	585	27.5	1296
	6T			25.5	793	32.5	1862
	12T			34.2	1500	42.5	3278
	16T			38.5	1955	47.5	3955
	36T			56.5	4230	67.0	7860

Note : For technical specification, please refer to Table 9 to 13 (Page 69)

Flame Retardant Instrumentation Cables

KEYSTONE CABLE
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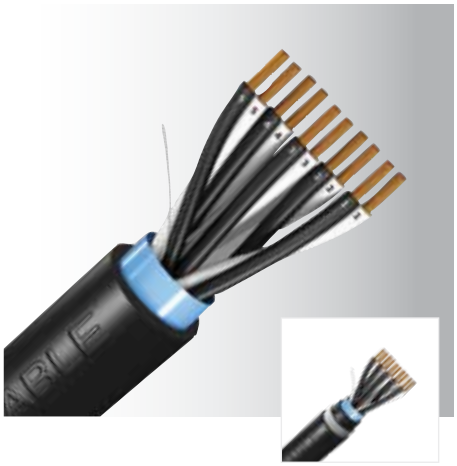
500V Collective Screen
XLPE Insulated, OS, Unarmoured & Armoured, LSZH Sheathed Cable
CU/XLPE/OS/LSZH or CU/XLPE/OS/LSZH/SWA/LSZH
Model Code: XOL or XOLSL



Standard Reference	BS EN 50290, BS EN 50288-1 BS EN 50288-7
Flame Retardant Ref.	IEC 60332-3, IEC 60754 IEC 61034

Application :	This cable is intended for use in machineries, especially suitable for areas where fire would create dense smoke and toxic fumes, imposing major threat to lives and equipment
Construction :	Plain annealed copper wire, XLPE insulated, twisted pair or triad.overall aluminium/ polyester tape with tinned copper drain wire screened, unarmoured or galvanized steel wire armoured, LSZH bedding & sheathed cable
Insulation Colour :	Pair: Black, White with numbering Triple: Red, Black, White with numbering
Sheath Colour :	Black (Other colour upon request)
Operating Temperature :	90°C

Conductor			Insulation	Unarmoured		Armoured	
Nominal Area	No. of Pair/ Triple	Stranded Dia.	Thickness	Approx. Overall Dia.	Approx. Weight	Approx. Overall Dia.	Approx. Weight
(mm^2)	(no.)	(mm)	(mm)	(mm)	(kg/km)	(mm)	(kg/km)
0.5	1P	0.9	0.6	7.0	57	11.8	232
	2P			10.2	94	15.0	345
	4P			12.2	152	16.4	438
	6P			14.0	178	18.5	527
	8P			15.6	226	20.2	614
	10P			17.5	270	23.0	849
	12P			18.0	307	23.8	902
	16P			20.4	389	26.8	1210
	20P			22.8	482	29.5	1408
	24P			25.4	574	32.0	1605
	36P			29.2	802	36.5	1981
	50P			34.5	1093	42.0	2837
	1T			7.4	66	12.0	244
	4T			13.2	196	18.0	524
	6T			15.5	239	20.0	626
	12T			20.5	411	26.2	1084
	16T			23.0	535	29.5	1462
	36T			33.2	1131	40.8	2807
0.75	1P	1.11	0.6	7.4	67	12.0	255
	2P			10.8	110	15.5	375
	4P			12.5	187	17.5	507
	6P			14.8	222	19.5	594
	8P			16.8	280	22.5	833
	10P			19.0	345	25.0	978
	12P			19.8	386	25.5	1044
	16P			22.2	502	28.5	1407
	20P			25.0	622	31.5	1632
	24P			27.5	741	34.2	1874
	36P			31.6	1043	38.5	2365
	50P			37.5	1424	45.5	3326
	1T			7.8	79	12.5	269
	4T			13.8	236	18.8	586
	6T			16.6	302	22.2	854
	12T			22.2	536	28.0	1268
	16T			24.8	697	31.5	1709
	36T			36.0	1482	43.5	3293

Flame Retardant Instrumentation Cables

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500V Collective Screen
XLPE Insulated, OS, Unarmoured & Armoured, LSZH Sheathed Cable
CU/XLPE/OS/LSZH or CU/XLPE/OS/LSZH/SWA/LSZH
Model Code: XOL or XOLSL

Conductor			Insulation	Unarmoured		Armoured	
Nominal Area	No. of Pair/ Triple	Stranded Dia.	Thickness	Approx. Overall Dia.	Approx. Weight	Approx. Overall Dia.	Approx. Weight
(mm^2)	(no.)	(mm)	(mm)	(mm)	(kg/km)	(mm)	(kg/km)
1.0	1P	1.29	0.6	7.8	77	12.5	272
	2P			11.5	125	16.2	408
	4P			13.2	214	18.0	550
	6P			16.0	269	21.5	796
	8P			18.0	332	23.5	914
	10P			20.5	411	26.2	1083
	12P			21.0	463	27.0	1161
	16P			23.6	603	30.0	1570
	20P			26.5	749	33.0	1823
	24P			29.5	893	36.0	2092
	36P			34.2	1283	41.5	2996
	50P			40.5	1754	48.0	3790
	1T			8.2	85	13.0	288
	4T			14.6	276	19.8	647
	6T			17.8	360	23.2	940
	12T			23.8	649	29.5	1447
	16T			26.6	846	33.2	1937
	36T			38.5	1813	46.2	3749
1.5	1P	1.59	0.6	8.5	95	13.5	304
	2P			12.5	152	17.8	478
	4P			14.5	267	19.5	631
	6P			17.5	346	23.0	915
	8P			19.8	442	25.5	1100
	10P			22.6	547	29.0	1473
	12P			23.4	613	30.0	1588
	16P			26.2	812	32.8	1882
	20P			29.2	1008	36.0	2222
	24P			32.5	1202	40.0	2857
	36P			37.8	1736	45.5	3640
	50P			44.8	2377	54.0	5175
	1T			9.0	106	13.5	330
	4T			16.4	358	22.0	898
	6T			19.6	480	25.5	1127
	12T			26.4	879	33.0	1953
	16T			29.5	1149	36.2	2348
	36T			43.0	2494	51.5	5140
2.5	1P	2.01	0.7	10.0	135	14.5	380
	2P			14.5	215	19.5	580
	4P			17.2	375	23.0	942
	6P			20.5	504	26.5	1190
	8P			23.4	648	30.0	1446
	10P			27.0	822	34.0	1935
	12P			27.8	942	35.0	2097
	16P			31.2	1219	38.4	2520
	20P			35.0	1513	43.0	3318
	24P			39.2	1823	47.4	3851
	36P			45.2	2636	55.0	5463
	50P			54.0	3622	63.5	7031
	1T			10.4	167	15.5	413
	4T			19.2	528	25.0	1173
	6T			23.2	707	30.0	1673
	12T			31.5	1336	38.5	2658
	16T			35.2	1736	43.0	3542
	36T			51.5	3802	61.0	7043

Note : For technical specification, please refer to Table 9 to 13 (Page 69)

Flame Retardant Instrumentation Cables

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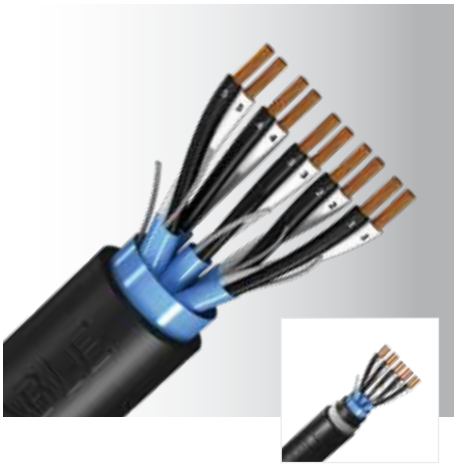
500V Individual & Collective Screen
XLPE Insulated, IS OS, Unarmoured & Armoured, LSZH Sheathed Cable
CU/XLPE/IS OS/LSZH or CU/XLPE/IS OS/LSZH/SWA/LSZH
Model Code: XIOL or XIOLSL



Standard Reference	BS EN 50290, BS EN 50288-1 BS EN 50288-7
Flame Retardant Ref.	IEC 60332-3, IEC 60754 IEC 61034

Application :	This cable is intended for use in machineries, especially suitable for areas where fire would create dense smoke and toxic fumes, imposing major threat to lives and equipment
Construction :	Plain annealed copper wire, XLPE insulated, twisted pair or triad, individual and overall aluminium/polyester tape with tinned copper drain wire screened, unarmoured or galvanized steel wire armoured, LSZH bedding & sheathed cable
Insulation Colour :	Pair: Black, White with numbering Triple: Red, Black, White with numbering
Sheath Colour :	Black (Other colour upon request)
Operating Temperature :	90°C

Conductor			Insulation	Unarmoured		Armoured	
Nominal Area	No. of Pair/ Triple	Stranded Dia.	Thickness	Approx. Overall Dia.	Approx. Weight	Approx. Overall Dia.	Approx. Weight
(mm^2)	(no.)	(mm)	(mm)	(mm)	(kg/km)	(mm)	(kg/km)
0.5	2P	0.9	0.6	11.0	118	16.2	393
	4P			13.0	181	18.0	524
	6P			15.5	239	21.0	754
	8P			17.0	305	23.0	875
	10P			19.5	366	26.0	1020
	12P			20.0	420	27.5	1101
	16P			22.2	545	29.0	1493
	20P			25.0	676	32.0	1746
	24P			28.0	804	35.0	2017
	36P			32.5	1133	40.5	2813
	50P			38.5	1545	47.0	3542
	2T			12.2	149	17.5	462
	4T			14.2	249	19.2	609
	6T			16.8	298	22.5	867
	12T			22.6	545	29.5	1495
	16T			25.2	709	32.0	1780
	36T			36.6	1481	45.0	3384
0.75	2P	1.11	0.6	12.0	133	17.0	444
	4P			13.5	225	18.5	577
	6P			16.2	312	22.0	826
	8P			18.5	362	24.5	984
	10P			21.0	446	27.6	1332
	12P			21.5	504	28.5	1412
	16P			24.0	654	31.0	1668
	20P			27.0	813	35.0	1952
	24P			30.2	968	37.4	2272
	36P			34.8	1388	43.2	3225
	50P			41.5	1895	51.0	4550
	2T			13.2	174	18.2	507
	4T			15.5	300	21.4	811
	6T			18.2	371	24.5	1003
	12T			24.2	670	31.0	1676
	16T			27.2	873	34.5	2017
	36T			39.0	1858	48.5	3929

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500V Individual & Collective Screen
XLPE Insulated, IS OS, Unarmoured & Armoured, LSZH Sheathed Cable
CU/XLPE/IS OS/LSZH or CU/XLPE/IS OS/LSZH/SWA/LSZH
Model Code: XIOL or XIOLSL

Conductor			Insulation	Unarmoured		Armoured	
Nominal Area	No. of Pair/ Triple	Stranded Dia.	Thickness	Approx. Overall Dia.	Approx. Weight	Approx. Overall Dia.	Approx. Weight
(mm^2)	(no.)	(mm)	(mm)	(mm)	(kg/km)	(mm)	(kg/km)
1.0	2P	1.29	0.6	12.5	148	17.8	477
	4P			14.5	253	19.5	621
	6P			17.2	324	23.0	905
	8P			19.5	415	25.5	1078
	10P			22.5	510	29.2	1439
	12P			23.0	590	30.0	1560
	16P			25.5	767	32.5	1860
	20P			28.8	944	36.6	2198
	24P			32.5	1126	40.5	2824
	36P			37.5	1622	46.0	3581
	50P			44.5	2217	54.5	5028
	2T			14.0	196	19.0	544
	4T			16.2	341	22.2	879
	6T			19.2	431	25.2	1089
	12T			26.0	799	33.0	1885
	16T			29.0	1039	36.5	2287
	36T			42.2	2196	52.0	4856
1.5	2P	1.59	0.6	14.0	203	19.5	657
	4P			16.0	355	23.0	882
	6P			19.2	452	25.4	1094
	8P			21.5	583	28.0	1306
	10P			24.5	727	31.5	1755
	12P			25.5	829	32.5	1895
	16P			28.5	1083	36.0	2275
	20P			32.0	1336	42.2	3020
	24P			36.0	1611	44.2	3468
	36P			41.5	2327	51.2	4917
	50P			49.5	3185	59.5	6335
	2T			15.2	256	21.5	769
	4T			18.0	452	24.0	1045
	6T			21.5	593	27.5	1312
	12T			29.0	1114	36.5	2330
	16T			32.5	1455	40.5	3131
	36T			47.2	3131	57.0	6130
2.5	2P	2.01	0.7	16.0	254	22.2	793
	4P			18.8	443	25.0	1076
	6P			22.5	586	29.5	1533
	8P			25.5	768	32.5	1857
	10P			29.2	948	36.5	2204
	12P			30.5	1085	38.5	2649
	16P			34.0	1429	42.0	3205
	20P			38.5	1760	47.0	3758
	24P			42.8	2117	52.4	4841
	36P			49.8	3052	60.0	6239
	50P			59.2	4226	70.0	8053
	2T			18.0	332	24.0	926
	4T			21.2	585	27.5	1296
	6T			25.5	793	32.5	1862
	12T			34.2	1500	42.5	3278
	16T			38.5	1955	47.5	3955
	36T			56.5	4230	67.0	7860

Note : For technical specification, please refer to Table 9 to 13 (Page 69)

Flame Retardant Instrumentation Cables

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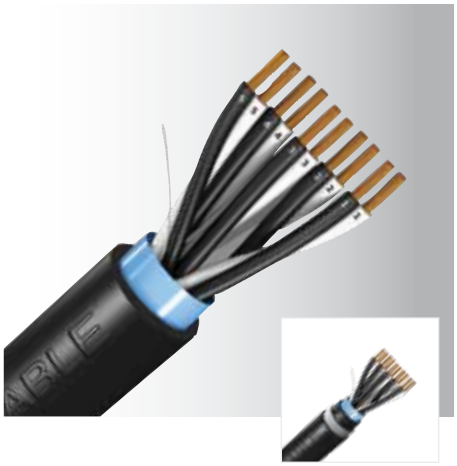
500V Collective Screen
XLEVA Insulated, OS, Unarmoured & Armoured, LSZH Sheathed Cable
CU/XLEVA/OS/LSZH or CU/XLEVA/OS/LSZH/SWA/LSZH
Model Code: VOL or VOLSL



Standard Reference	BS EN 50290, BS EN 50288-1 BS EN 50288-7
Flame Retardant Ref.	IEC 60332-3, IEC 60754 IEC 61034

Application :	This cable is intended for use in machineries, especially suitable for areas where fire would create dense smoke and toxic fumes, imposing major threat to lives and equipment
Construction :	Plain annealed copper wire, XLEVA insulated, twisted pair or triad, overall aluminium/ polyester tape with tinned copper drain wire screened, unarmoured or galvanized steel wire armoured, LSZH bedding & sheathed cable
Insulation Colour :	Pair: Black, White with numbering Triple: Red, Black, White with numbering
Sheath Colour :	Black (Other colour upon request)
Operating Temperature :	110°C

Conductor			Insulation	Unarmoured		Armoured	
Nominal Area	No. of Pair/ Triple	Stranded Dia.	Thickness	Approx. Overall Dia.	Approx. Weight	Approx. Overall Dia.	Approx. Weight
(mm^2)	(no.)	(mm)	(mm)	(mm)	(kg/km)	(mm)	(kg/km)
0.5	1P	0.9	0.6	7.0	63	11.8	237
	2P			10.2	104	15.0	354
	4P			12.2	160	16.4	453
	6P			14.0	208	18.5	553
	8P			15.6	262	20.2	644
	10P			17.5	315	23.0	886
	12P			18.0	361	23.8	946
	16P			20.4	460	26.8	1268
	20P			22.8	565	29.5	1476
	24P			25.4	680	32.0	1693
	36P			29.2	961	36.5	2111
	50P			34.5	1314	42.0	3018
	1T			7.4	69	12.0	251
	4T			13.2	223	18.0	555
	6T			15.5	283	20.0	664
	12T			20.5	491	26.2	1153
	16T			23.0	641	29.5	1554
	36T			33.2	1369	40.8	3011
0.75	1P	1.11	0.6	7.4	71	12.0	260
	2P			10.8	132	15.5	386
	4P			12.5	203	17.5	534
	6P			14.8	252	19.5	622
	8P			16.8	312	22.5	870
	10P			19.0	385	25.0	1024
	12P			19.8	434	25.5	1098
	16P			22.2	567	28.5	1479
	20P			25.0	703	31.5	1722
	24P			27.5	839	34.2	1982
	36P			31.6	1192	38.5	2526
	50P			37.5	1631	45.5	3549
	1T			7.8	80	12.5	276
	4T			13.8	261	18.8	622
	6T			16.6	339	22.2	895
	12T			22.2	610	28.0	1349
	16T			24.8	796	31.5	1816
	36T			36.0	1705	43.5	3533

Flame Retardant Instrumentation Cables

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500V Collective Screen
XLEVA Insulated, OS, Unarmoured & Armoured, LSZH Sheathed Cable
CU/XLEVA/OS/LSZH or CU/XLEVA/OS/LSZH/SWA/LSZH
Model Code: VOL or VOLSL

Conductor			Insulation	Unarmoured		Armoured	
Nominal Area	No. of Pair/ Triple	Stranded Dia.	Thickness	Approx. Overall Dia.	Approx. Weight	Approx. Overall Dia.	Approx. Weight
(mm^2)	(no.)	(mm)	(mm)	(mm)	(kg/km)	(mm)	(kg/km)
1.0	1P	1.29	0.6	7.8	82	12.5	278
	2P			11.5	135	16.2	420
	4P			13.2	233	18.0	579
	6P			16.0	297	21.5	828
	8P			18.0	370	23.5	956
	10P			20.5	458	26.2	1135
	12P			21.0	520	27.0	1228
	16P			23.6	679	30.0	1652
	20P			26.5	843	33.0	1925
	24P			29.5	1006	36.0	2215
	36P			34.2	1453	41.5	3179
	50P			40.5	1989	48.0	4043
	1T			8.2	93	13.0	296
	4T			14.6	304	19.8	586
	6T			17.8	402	23.2	987
	12T			23.8	733	29.5	1539
	16T			26.6	959	33.2	2059
	36T			38.5	2067	46.2	4021
1.5	1P	1.59	0.6	8.5	108	13.5	311
	2P			12.5	180	17.8	492
	4P			14.5	313	19.5	665
	6P			17.5	413	23.0	953
	8P			19.8	529	25.5	1151
	10P			22.6	659	29.0	1541
	12P			23.4	753	30.0	1669
	16P			26.2	981	32.8	1987
	20P			29.2	1209	36.0	2346
	24P			32.5	1442	40.0	3006
	36P			37.8	2087	45.5	3861
	50P			44.8	2880	54.0	5483
	1T			9.0	115	13.5	340
	4T			16.4	393	22.0	948
	6T			19.6	532	25.5	1181
	12T			26.4	982	33.0	2074
	16T			29.5	1286	36.2	2489
	36T			43.0	2803	51.5	5456
2.5	1P	2.01	0.7	10.0	144	14.5	390
	2P			14.5	231	19.5	600
	4P			17.2	409	23.0	993
	6P			20.5	554	26.5	1245
	8P			23.4	716	30.0	1519
	10P			27.0	906	34.0	2027
	12P			27.8	1043	35.0	2206
	16P			31.2	1361	38.4	2673
	20P			35.0	1681	43.0	3500
	24P			39.2	2025	47.4	4069
	36P			45.2	2939	55.0	5789
	50P			54.0	4054	63.5	7482
	1T			10.4	167	15.5	427
	4T			19.2	579	25.0	1242
	6T			23.2	782	30.0	1755
	12T			31.5	1488	38.5	2821
	16T			35.2	1947	43.0	3768
	36T			51.5	4257	61.0	7529

Note : For technical specification, please refer to Table 9 to 13 (Page 69)

Flame Retardant Instrumentation Cables

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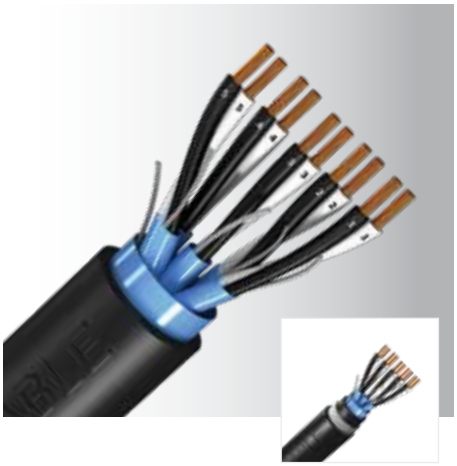
CU/XLEVA/IS OS/LSZH or CU/XLEVA/IS OS/LSZH/SWA/LSZH
Model Code: VIOL or VIOLSL



Standard Reference	BS EN 50290, BS EN 50288-1 BS EN 50288-7
Flame Retardant Ref.	IEC 60332-3, IEC 60754 IEC 61034

Application :	This cable is intended for use in machineries, especially suitable for areas where fire would create dense smoke and toxic fumes, imposing major threat to lives and equipment
Construction :	Plain annealed copper wire, XLEVA insulated, twisted pair or triad, individual and overall aluminium/polyester tape with tinned copper drain wire screened, unarmoured or galvanized steel wire armoured, LSZH bedding & sheathed cable
Insulation Colour :	Pair: Black, White with numbering Triple: Red, Black, White with numbering
Sheath Colour :	Black (Other colour upon request)
Operating Temperature :	110°C

Conductor			Insulation	Unarmoured		Armoured	
Nominal Area	No. of Pair/ Triple	Stranded Dia.	Thickness	Approx. Overall Dia.	Approx. Weight	Approx. Overall Dia.	Approx. Weight
(mm^2)	(no.)	(mm)	(mm)	(mm)	(kg/km)	(mm)	(kg/km)
0.5	2P	0.9	0.6	11.0	123	16.2	400
	4P			13.0	210	18.0	536
	6P			15.5	260	21.0	771
	8P			17.0	332	23.0	899
	10P			19.5	400	26.0	1049
	12P			20.0	461	27.5	1136
	16P			22.2	599	29.0	1540
	20P			25.0	743	32.0	1805
	24P			28.0	855	35.0	2088
	36P			32.5	1251	40.5	2920
	50P			38.5	1710	47.0	3690
	2T			12.2	158	17.5	471
	4T			14.2	268	19.2	626
	6T			16.8	327	22.5	882
	12T			22.6	601	29.5	1548
	16T			25.2	784	32.0	1850
	36T			36.6	1649	45.0	3544
0.75	2P	1.11	0.6	12.0	140	17.0	452
	4P			13.5	240	18.5	591
	6P			16.2	304	22.0	848
	8P			18.5	390	24.5	1001
	10P			21.0	482	27.6	1354
	12P			21.5	546	28.5	1454
	16P			24.0	711	31.0	1724
	20P			27.0	884	35.0	2022
	24P			30.2	1053	37.4	2355
	36P			34.8	1516	43.2	4679
	50P			41.5	2073	51.0	5215
	2T			13.2	183	18.2	517
	4T			15.5	319	21.4	833
	6T			18.2	400	24.5	1022
	12T			24.2	729	31.0	1740
	16T			27.2	952	34.5	2102
	36T			39.0	2037	48.5	4121

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Model Code: VIOL or VIOLSL

Conductor			Insulation	Unarmoured		Armoured	
Nominal Area	No. of Pair/ Triple	Stranded Dia.	Thickness	Approx. Overall Dia.	Approx. Weight	Approx. Overall Dia.	Approx. Weight
(mm^2)	(no.)	(mm)	(mm)	(mm)	(kg/km)	(mm)	(kg/km)
1.0	2P	1.29	0.6	12.5	256	17.8	484
	4P			14.5	269	19.5	635
	6P			17.2	347	23.0	927
	8P			19.5	448	25.5	1107
	10P			22.5	549	29.2	1476
	12P			23.0	637	30.0	1605
	16P			25.5	830	32.5	1919
	20P			28.8	1023	36.6	2272
	24P			32.5	1220	40.5	2914
	36P			37.5	1763	46.0	3715
	50P			44.5	2414	54.5	5215
	2T			14.0	206	19.0	556
	4T			16.2	362	22.2	903
	6T			19.2	463	25.2	1125
	12T			26.0	864	33.0	1956
	16T			29.0	1128	36.5	2381
	36T			42.2	2398	52.0	5068
1.5	2P	1.59	0.6	14.0	203	19.5	657
	4P			16.0	355	23.0	920
	6P			19.2	452	25.4	1094
	8P			21.5	583	28.0	1306
	10P			24.5	727	31.5	1755
	12P			25.5	829	32.5	1895
	16P			28.5	1083	36.0	2275
	20P			32.0	1336	42.2	3020
	24P			36.0	1611	44.2	3468
	36P			41.5	2327	51.2	4917
	50P			49.5	3185	59.5	6335
	2T			15.2	256	21.5	769
	4T			18.0	452	24.0	1045
	6T			21.5	593	27.5	1312
	12T			29.0	1114	36.5	2330
	16T			32.5	1455	40.5	3131
	36T			47.2	3131	57.0	6130
2.5	2P	2.01	0.7	16.0	267	22.2	806
	4P			18.8	470	25.0	1102
	6P			22.5	625	29.5	1572
	8P			25.5	821	32.5	1910
	10P			29.2	1014	36.5	2270
	12P			30.5	1163	38.5	2728
	16P			34.0	1534	42.0	3310
	20P			38.5	1891	47.0	3889
	24P			42.8	2275	52.4	4999
	36P			49.8	3289	60.0	6476
	50P			59.2	4555	70.0	8382
	2T			18.0	354	24.0	945
	4T			21.2	628	27.5	1336
	6T			25.5	856	32.5	1921
	12T			34.2	1626	42.5	3397
	16T			38.5	2122	47.5	4112
	36T			56.5	4602	67.0	8215

Note : For technical specification, please refer to Table 9 to 13 (Page 69)

Fire Resistant Instrumentation Cables

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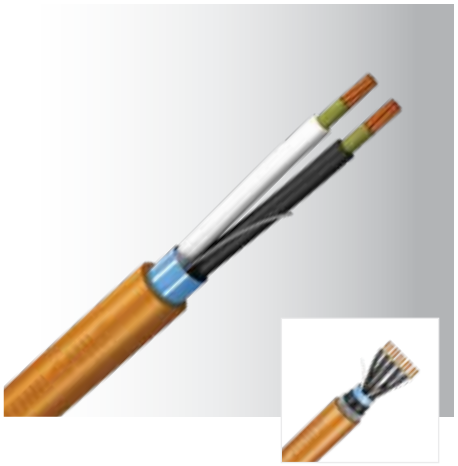
CU/MICA/XLPE/OS/LSZH or CU/MICA/XLPE/OS/LSZH/SWA/LSZH
Model Code: MXOL or MXOLSL



Standard Reference	BS EN 50290, BS EN 50288-1 BS EN 50288-7
Flame Retardant Ref.	IEC 60332-3, IEC 60754 IEC 61034
Fire Resistant Ref.	BS 6387, IEC 60331, SS 299

Application :	This cable is intended for use in manufacturing and processing application for emergency services such as fire detection, fire alarm, PA system, where signal has to be assured in the event of fire
Construction :	Plain annealed copper wire, mica tape fire barrier, XLPE insulated, twisted pair or triad, overall aluminium/polyester tape with tinned copper drain wire screened, unarmoured or galvanized steel wire armoured, LSZH bedding & sheathed cable
Insulation Colour :	Pair: Black, White with numbering Triple: Red, Black, White with numbering
Sheath Colour :	Orange (Other colour upon request)
Operating Temperature :	90°C

Conductor			Insulation	Unarmoured		Armoured	
Nominal Area	No. of Pair/ Triple	Stranded Dia.	Thickness	Approx. Overall Dia.	Approx. Weight	Approx. Overall Dia.	Approx. Weight
(mm^2)	(no.)	(mm)	(mm)	(mm)	(kg/km)	(mm)	(kg/km)
0.5	1P	0.90	0.6	8.6	82	13.5	299
	2P			12.8	124	17.5	453
	4P			15.2	190	20.0	573
	6P			18.2	270	24.5	872
	8P			20.2	336	26.5	1021
	10P			23.0	402	30.5	1357
	12P			24.0	460	31.2	1456
	16P			26.8	592	34.2	1710
	20P			30.0	724	37.5	1987
	24P			33.5	862	42.0	2587
	36P			38.2	1203	47.5	3211
	50P			45.5	1638	55.8	4538
	1T			9.2	97	14.0	327
	4T			16.8	266	22.5	811
	6T			19.8	346	26.2	1018
	12T			26.8	629	34.5	1749
	16T			30.0	812	37.5	2076
	36T			43.5	1695	54.0	4422
0.75	1P	1.11	0.6	9.2	95	14.0	320
	2P			14.0	152	19.0	508
	4P			15.8	243	22.0	774
	6P			19.0	312	25.2	958
	8P			21.5	398	28.0	1142
	10P			24.5	492	31.8	1525
	12P			25.5	551	32.5	1626
	16P			28.5	712	35.8	1913
	20P			32.0	874	40.5	2515
	24P			35.5	1042	44.5	2895
	36P			41.2	1487	51.5	4108
	50P			49.0	2049	59.8	5182
	1T			9.5	112	14.7	356
	4T			17.5	321	24.0	915
	6T			21.2	424	27.5	1156
	12T			28.5	763	36.0	1964
	16T			32.0	988	40.5	2629
	36T			46.5	2105	57.5	5058

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CU/MICA/XLPE/OS/LSZH or CU/MICA/XLPE/OS/LSZH/SWA/LSZH
Model Code: MXOL or MXOLSL

Conductor			Insulation	Unarmoured		Armoured	
Nominal Area	No. of Pair/ Triple	Stranded Dia.	Thickness	Approx. Overall Dia.	Approx. Weight	Approx. Overall Dia.	Approx. Weight
(mm²)	(no.)	(mm)	(mm)	(mm)	(kg/km)	(mm)	(kg/km)
1.0	1P	1.29	0.6	9.5	106	14.5	349
	2P			14.5	169	19.8	534
	4P			16.2	274	22.0	819
	6P			19.8	357	25.5	1030
	8P			22.5	458	29.0	1411
	10P			25.8	565	32.5	1659
	12P			26.8	651	33.5	1788
	16P			29.8	827	36.8	2090
	20P			33.8	1033	41.5	2903
	24P			37.8	1231	45.8	3204
	36P			43.2	1761	52.8	4530
	50P			51.5	2401	61.5	5687
	1T			10.0	121	15.0	373
	4T			18.2	365	24.8	986
	6T			22.2	490	29.5	1424
	12T			30.0	890	38.0	2437
	16T			33.5	1173	41.8	2929
	36T			48.8	2479	58.8	5610
1.5	1P	1.59	0.6	10.2	126	15.0	384
	2P			15.5	200	21.5	705
	4P			17.8	339	24.0	946
	6P			21.5	452	28.0	1196
	8P			24.5	581	32.0	1614
	10P			28.0	718	35.5	1898
	12P			28.8	818	36.5	2039
	16P			32.2	1061	40.5	2750
	20P			36.5	1324	44.8	3233
	24P			40.8	1577	50.5	4193
	36P			47.0	2267	57.2	5268
	50P			56.0	3123	68.0	7552
	1T			11.0	152	16.0	425
	4T			20.0	458	26.0	1131
	6T			24.0	629	31.5	1645
	12T			32.5	1149	41.0	2840
	16T			36.5	1515	45.0	3426
	36T			53.2	3246	63.5	6664
2.5	1P	2.01	0.7	11.5	172	16.5	464
	2P			17.8	274	24.0	866
	4P			20.5	475	27.0	1179
	6P			24.8	631	32.2	1683
	8P			28.2	814	35.8	2028
	10P			32.5	1021	41.2	2712
	12P			33.5	1167	42.2	2921
	16P			37.5	1518	46.5	3491
	20P			42.2	1890	52.5	4564
	24P			47.2	2252	57.8	5280
	36P			54.5	3274	66.0	6793
	50P			65.0	4502	78.5	9709
	1T			12.2	413	17.2	509
	4T			22.8	645	30.2	1600
	6T			27.8	880	35.5	2059
	12T			37.5	1649	45.2	3624
	16T			42.2	2172	52.8	4889
	36T			61.8	4699	75.0	9664

Note : For technical specification, please refer to Table 9 to 13 (Page 69)

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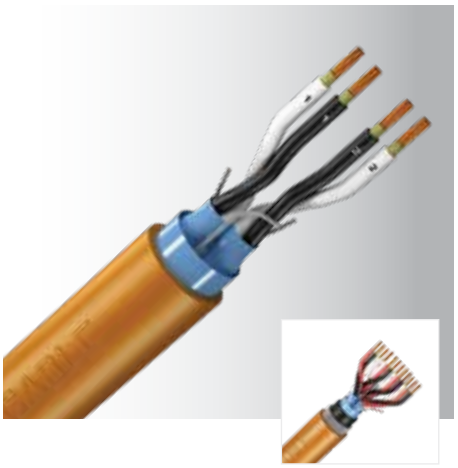
CU/MICA/XLPE/IS OS/LSZH or CU/MICA/XLPE/IS OS/LSZH/SWA/LSZH
Model Code: MXIOL or MXIOLSL



Standard Reference	BS EN 50290, BS EN 50288-1 BS EN 50288-7
Flame Retardant Ref.	IEC 60332-3, IEC 60754 IEC 61034
Fire Resistant Ref.	BS 6387, IEC 60331, SS 299

Application :	This cable is intended for use in manufacturing and processing application for emergency services such as fire detection, fire alarm, PA system, where signal has to be assured in the event of fire
Construction :	Plain annealed copper wire, mica tape fire barrier, XLPE insulated, twisted pair or triad, individual and overall aluminium/polyester tape with tinned copper drain wire screened, unarmoured or galvanized steel wire armoured, LSZH bedding & sheathed cable
Insulation Colour :	Pair: Black, White with numbering Triple: Red, Black, White with numbering
Sheath Colour :	Orange (Other colour upon request)
Operating Temperature :	90°C

Conductor			Insulation	Unarmoured		Armoured	
Nominal Area	No. of Pair/ Triple	Stranded Dia.	Thickness	Approx. Overall Dia.	Approx. Weight	Approx. Overall Dia.	Approx. Weight
(mm^2)	(no.)	(mm)	(mm)	(mm)	(kg/km)	(mm)	(kg/km)
0.5	2P	0.9	0.6	14.5	159	19.2	523
	4P			16.2	264	21.8	819
	6P			19.8	343	25.5	1022
	8P			22.5	433	28.2	1205
	10P			25.5	537	32.5	1612
	12P			26.5	599	33.2	1716
	16P			29.5	773	36.5	2051
	20P			33.2	951	41.2	2675
	24P			36.8	1128	45.5	3069
	36P			42.8	1611	52.2	4356
	50P			51.0	2213	61.0	5513
	2T			16.0	190	21.0	709
	4T			18.2	322	24.0	941
	6T			22.0	426	28.5	1358
	12T			29.8	779	37.5	2297
	16T			33.2	1005	41.2	2730
	36T			48.5	2127	58.2	5252
0.75	2P	1.11	0.6	15.0	178	20.0	558
	4P			17.2	298	23.0	890
	6P			21.0	394	27.0	1112
	8P			23.8	499	29.8	1312
	10P			27.0	619	34.0	1758
	12P			28.0	695	35.0	1892
	16P			31.5	914	39.6	2570
	20P			35.5	1124	43.5	2996
	24P			39.5	1335	48.0	3429
	36P			45.5	1909	55.2	4811
	50P			54.5	2623	64.5	6167
	2T			17.0	225	22.5	781
	4T			19.2	393	25.2	1041
	6T			23.5	510	30.0	1486
	12T			31.2	915	39.2	2541
	16T			35.2	1204	43.5	3048
	36T			51.2	2552	61.2	5863

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CU/MICA/XLPE/IS OS/LSZH or CU/MICA/XLPE/IS OS/LSZH/SWA/LSZH
Model Code: MXIOL or MXIOLSL

Conductor			Insulation	Unarmoured		Armoured	
Nominal Area	No. of Pair/ Triple	Stranded Dia.	Thickness	Approx. Overall Dia.	Approx. Weight	Approx. Overall Dia.	Approx. Weight
(mm^2)	(no.)	(mm)	(mm)	(mm)	(kg/km)	(mm)	(kg/km)
1.0	2P	1.29	0.6	16.0	195	20.8	591
	4P			18.2	330	24.0	938
	6P			21.8	441	27.8	1198
	8P			25.0	562	31.8	1614
	10P			28.5	698	35.5	1896
	12P			29.5	801	36.5	2062
	16P			33.0	1035	41.0	2759
	20P			37.0	1275	45.5	3218
	24P			41.5	1535	51.0	4202
	36P			48.0	2199	57.8	5279
	50P			57.0	3020	67.2	6725
	2T			17.5	255	23.2	836
	4T			20.2	440	26.0	1114
	6T			24.5	578	31.5	1611
	12T			33.2	1063	41.0	2786
	16T			37.0	1380	45.2	3321
	36T			53.8	2941	63.8	6407
1.5	2P	1.59	0.6	17.5	272	23.0	870
	4P			20.2	399	26.5	1059
	6P			23.5	541	30.5	1550
	8P			26.8	692	33.8	1829
	10P			31.0	858	37.8	2162
	12P			31.8	990	40.2	2570
	16P			35.8	1282	44.0	3157
	20P			40.0	1580	48.5	3708
	24P			44.8	1900	54.5	4794
	36P			52.0	2730	61.8	6092
	50P			61.8	3750	73.5	8716
	2T			18.8	302	24.5	922
	4T			21.8	526	27.5	1271
	6T			26.4	720	33.2	1837
	12T			35.8	1333	44.0	3208
	16T			40.0	1732	48.5	3833
	36T			58.5	3734	68.8	7527
2.5	2P	2.01	0.7	19.2	306	25.5	1028
	4P			22.5	542	28.5	1313
	6P			27.2	727	34.0	1866
	8P			31.0	937	38.0	2261
	10P			35.5	1175	43.8	3048
	12P			36.8	1344	45.0	3283
	16P			41.5	1765	50.8	4388
	20P			46.8	2194	56.5	5174
	24P			52.0	2612	62.0	5973
	36P			60.2	3788	72.0	8599
	50P			71.8	5235	84.0	11008
	2T			21.5	401	27.5	1120
	4T			25.2	717	32.0	1771
	6T			30.5	983	37.5	2268
	12T			41.2	1857	51.0	4504
	16T			46.5	2437	56.5	5416
	36T			68.0	5279	80.5	10664

Note : For technical specification, please refer to Table 9 to 13 (Page 69)

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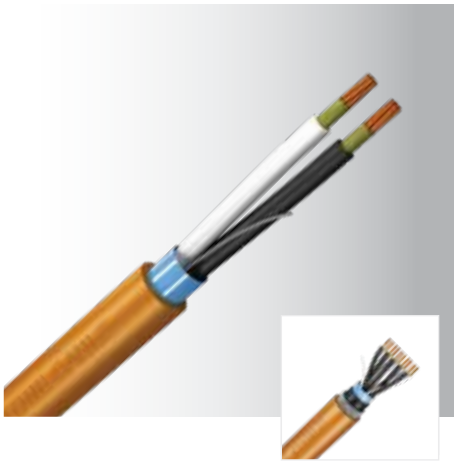
CU/MICA/XLEVA/OS/LSZH or CU/MICA/XLEVA/OS/LSZH/SWA/LSZH
Model Code: MVOL or MVOLSL



Standard Reference	BS EN 50290, BS EN 50288-1 BS EN 50288-7
Flame Retardant Ref.	IEC 60332-3, IEC 60754 IEC 61034
Fire Resistant Ref.	BS 6387, IEC 60331, SS 299

Application :	This cable is intended for use in manufacturing and processing application for emergency services such as fire detection, fire alarm, PA system, where signal has to be assured in the event of fire
Construction :	Plain annealed copper wire, mica tape fire barrier, XLEVA insulated, twisted pair or triad, overall aluminium/polyester tape with tinned copper drain wire screened, unarmoured or galvanized steel wire armoured, LSZH bedding & sheathed cable
Insulation Colour :	Pair: Black, White with numbering Triple: Red, Black, White with numbering
Sheath Colour :	Orange (Other colour upon request)
Operating Temperature :	110°C

Conductor			Insulation	Unarmoured		Armoured	
Nominal Area	No. of Pair/ Triple	Stranded Dia.	Thickness	Approx. Overall Dia.	Approx. Weight	Approx. Overall Dia.	Approx. Weight
(mm^2)	(no.)	(mm)	(mm)	(mm)	(kg/km)	(mm)	(kg/km)
0.5	1P	0.9	0.6	8.6	88	13.5	306
	2P			12.8	138	17.5	458
	4P			15.2	231	20.0	517
	6P			18.2	294	24.5	901
	8P			20.2	375	26.5	1060
	10P			23.0	451	30.5	1406
	12P			24.0	518	31.2	1514
	16P			26.8	669	34.2	1788
	20P			30.0	822	37.5	2085
	24P			33.5	978	42.0	2704
	36P			38.2	1378	47.5	3386
	50P			45.5	1881	55.8	4781
	1T			9.2	104	14.0	338
	4T			16.5	291	22.5	840
	6T			19.8	390	26.2	1062
	12T			26.8	717	34.5	1836
	16T			30.0	924	37.5	2193
	36T			43.5	1958	54.0	4685
0.75	1P	1.11	0.6	9.2	100	14.0	325
	2P			14.0	162	19.0	519
	4P			15.8	265	22.0	795
	6P			19.0	344	25.2	990
	8P			21.5	441	28.0	1185
	10P			24.5	544	31.8	1578
	12P			25.5	615	32.5	1689
	16P			28.5	797	35.8	1998
	20P			32.0	980	40.5	2621
	24P			35.5	1169	44.5	3023
	36P			41.2	1677	51.5	4298
	50P			49.0	2314	59.8	5447
	1T			9.5	120	14.7	364
	4T			17.5	352	24.0	947
	6T			21.2	472	27.5	1204
	12T			28.5	858	36.0	2060
	16T			32.0	1115	40.5	2756
	36T			46.5	2391	57.5	5345

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Model Code: MVOL or MVOLSL

Conductor			Insulation	Unarmoured		Armoured	
Nominal Area	No. of Pair/ Triple	Stranded Dia.	Thickness	Approx. Overall Dia.	Approx. Weight	Approx. Overall Dia.	Approx. Weight
(mm^2)	(no.)	(mm)	(mm)	(mm)	(kg/km)	(mm)	(kg/km)
1.0	1P	1.29	0.6	9.5	112	14.5	355
	2P			14.5	180	19.8	546
	4P			16.2	297	22.0	842
	6P			19.8	391	25.5	1064
	8P			22.5	503	29.0	1456
	10P			25.8	622	32.5	1716
	12P			26.8	719	33.5	1856
	16P			29.8	918	36.8	2181
	20P			33.8	1147	41.5	2903
	24P			37.8	1367	45.8	3341
	36P			43.2	1965	52.8	4735
	50P			51.5	2684	61.5	5971
	1T			10.0	130	15.0	381
	4T			18.2	399	24.8	1020
	6T			22.2	541	29.5	1475
	12T			30.0	993	38.0	2539
	16T			33.5	1307	41.8	3065
	36T			48.8	2786	58.8	5917
1.5	1P	1.59	0.6	10.2	132	15.0	390
	2P			15.5	212	21.5	718
	4P			17.8	365	24.0	971
	6P			21.5	490	28.0	1234
	8P			24.5	632	32.0	1664
	10P			28.0	781	35.5	1961
	12P			28.8	893	36.5	2114
	16P			32.2	1162	40.5	2851
	20P			36.5	1450	44.8	3359
	24P			40.8	1728	50.5	4345
	36P			47.0	2494	57.2	5494
	50P			56.0	3438	68.0	7866
	1T			11.0	161	16.0	434
	4T			20.0	496	26.0	1169
	6T			24.0	685	31.5	1701
	12T			32.5	1262	41.0	2953
	16T			36.5	1666	45.0	3577
	36T			53.2	3586	63.5	7004
2.5	1P	2.01	0.7	11.5	181	16.5	472
	2P			17.8	291	24.0	884
	4P			20.5	509	27.0	1213
	6P			24.8	682	32.2	1735
	8P			28.2	883	35.8	2097
	10P			32.5	1107	41.2	2798
	12P			33.5	1270	42.2	3024
	16P			37.5	1655	46.5	3628
	20P			42.2	2062	52.5	4737
	24P			47.2	2458	57.8	5487
	36P			54.5	3584	66.0	7103
	50P			65.0	4932	78.5	10140
	1T			12.2	425	17.2	522
	4T			22.8	696	30.2	1652
	6T			27.8	958	35.5	2137
	12T			37.5	1804	45.2	3779
	16T			42.2	2378	52.8	5095
	36T			61.8	5163	75.0	10129

Note : For technical specification, please refer to Table 9 to 13 (Page 69)

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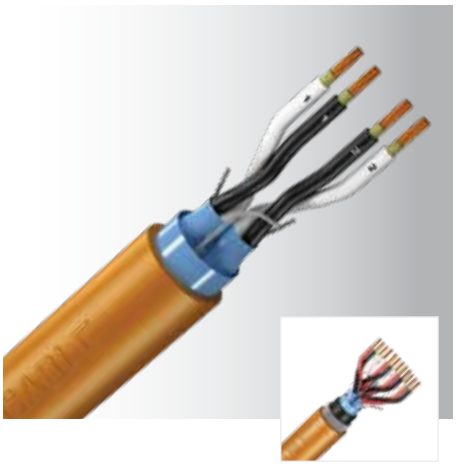
500V Individual & Collective Screen
Mica, XLEVA Insulated, IS OS, Unarmoured & Armoured, LSZH Sheathed Cable
CU/MICA/XLEVA/IS OS/LSZH or CU/MICA/XLEVA/IS OS/LSZH/SWA/LSZH
Model Code: MVIOL or MVIOLSL



Standard Reference	BS EN 50290, BS EN 50288-1 BS EN 50288-7
Flame Retardant Ref.	IEC 60332-3, IEC 60754 IEC 61034
Fire Resistant Ref.	BS 6387, IEC 60331

Application :	This cable is intended for use in manufacturing and processing application for emergency services such as fire detection, fire alarm, PA system, where signal has to be assured in the event of fire
Construction :	Plain annealed copper wire, mica tape fire barrier, XLEVA insulated, twisted pair or triad, individual and overall aluminium/polyester tape with tinned copper drain wire screened, unarmoured or galvanized steel wire armoured, LSZH bedding & sheathed cable
Insulation Colour :	Pair: Black, White with numbering Triple: Red, Black, White with numbering
Sheath Colour :	Orange (Other colour upon request)
Operating Temperature :	110°C

Conductor			Insulation	Unarmoured		Armoured	
Nominal Area	No. of Pair/ Triple	Stranded Dia.	Thickness	Approx. Overall Dia.	Approx. Weight	Approx. Overall Dia.	Approx. Weight
(mm^2)	(no.)	(mm)	(mm)	(mm)	(kg/km)	(mm)	(kg/km)
0.5	2P	0.90	0.6	14.5	169	19.2	533
	4P			16.2	284	22.0	838
	6P			19.8	373	25.5	1049
	8P			22.5	473	28.2	1243
	10P			25.5	586	32.5	1661
	12P			26.5	658	33.2	1774
	16P			29.5	851	36.5	2129
	20P			33.2	1048	41.2	2772
	24P			36.8	1245	45.5	3186
	36P			42.8	1787	52.2	4531
	50P			51.0	2457	61.0	5764
	2T			16.0	206	21.2	724
	4T			18.2	351	24.0	971
	6T			22.0	470	28.5	1402
	12T			29.8	866	37.5	2384
	16T			33.2	1122	41.2	2847
	36T			48.5	2390	58.2	5515
0.75	2P	1.11	0.6	15.0	189	20.0	569
	4P			17.2	319	23.0	912
	6P			21.0	425	27.0	1144
	8P			23.8	542	29.8	1355
	10P			27.0	672	34.0	1811
	12P			28.0	759	35.0	1956
	16P			31.5	999	39.6	2655
	20P			35.5	1231	43.5	3103
	24P			39.5	1462	48.0	3557
	36P			45.5	2101	55.2	5002
	50P			54.5	2888	64.5	6433
	2T			17.0	241	22.5	797
	4T			19.2	425	25.2	1073
	6T			23.5	558	30.0	1533
	12T			31.2	1010	39.2	2637
	16T			35.2	1331	43.5	3175
	36T			51.2	2838	61.2	6149

Fire Resistant Instrumentation Cables

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500V Individual & Collective Screen
Mica, XLEVA Insulated, IS OS, Unarmoured & Armoured, LSZH Sheathed Cable
CU/MICA/XLEVA/IS OS/LSZH or CU/MICA/XLEVA/IS OS/LSZH/SWA/LSZH
Model Code: MVIOL or MVIOLSL

Conductor			Insulation	Unarmoured		Armoured	
Nominal Area	No. of Pair/ Triple	Stranded Dia.	Thickness	Approx. Overall Dia.	Approx. Weight	Approx. Overall Dia.	Approx. Weight
(mm^2)	(no.)	(mm)	(mm)	(mm)	(kg/km)	(mm)	(kg/km)
1.0	2P	1.29	0.6	16.0	207	20.8	602
	4P			18.2	352	24.0	961
	6P			21.8	475	27.8	1232
	8P			25.0	607	31.8	1660
	10P			28.5	753	35.5	1953
	12P			29.5	869	36.5	2130
	16P			33.0	1126	41.0	2849
	20P			37.0	1389	45.5	3331
	24P			41.5	1672	51.0	4338
	36P			48.0	2403	57.8	5483
	50P			57.0	3303	67.2	7008
	2T			17.5	272	23.2	853
	4T			20.2	474	26.0	1148
	6T			24.5	629	31.5	1662
	12T			33.2	1165	41.0	2888
	16T			37.0	1516	45.2	3457
	36T			53.8	3247	63.8	6713
1.5	2P	1.59	0.6	17.0	248	22.8	815
	4P			19.8	424	25.5	1085
	6P			23.5	579	30.5	1588
	8P			26.8	742	33.8	1879
	10P			30.5	921	37.8	2225
	12P			31.8	1066	40.0	2726
	16P			35.8	1382	44.0	3258
	20P			40.0	1705	48.5	3834
	24P			44.8	2051	54.5	4945
	36P			52.0	2957	61.8	6318
	50P			61.8	4065	73.5	9031
	2T			18.8	321	24.5	941
	4T			21.8	564	27.5	1308
	6T			26.4	776	33.2	1893
	12T			35.8	1446	44.0	3322
	16T			40.0	1883	48.5	3984
	36T			58.5	4074	68.8	7867
2.5	2P	2.01	0.7	19.2	319	24.8	953
	4P			22.5	571	28.5	1342
	6P			27.2	772	34.0	1912
	8P			31.0	999	38.0	2323
	10P			35.5	1252	43.8	3126
	12P			36.8	1438	45.0	3377
	16P			41.5	1893	50.8	4516
	20P			46.8	2355	56.5	5335
	24P			52.0	2806	62.0	6167
	36P			60.2	4083	72.0	8895
	50P			71.8	5648	84.0	11420
	2T			21.5	427	27.5	1145
	4T			25.2	768	32.0	1822
	6T			30.5	1060	37.5	2345
	12T			41.2	2012	51.0	4659
	16T			46.5	2644	56.5	5623
	36T			68.0	5744	80.5	11129

Note : For technical specification, please refer to Table 9 to 13 (Page 69)

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Thermocouple Extension & Compensating Cables

1	Conductor	Positive(+)	Negative(-)
	Type EX	Nickel Chromium	Copper Nickel
	Type KX	Nickel Chromium	Nickel Aluminum
	Type TX	Copper	Copper Nickel
2	Insulation	PE, PVC or XLPE	
3	Filler	Non-hygroscopic Material (if required)	
4	Screen	AL Foil or CU Foil	
5	Bedding	PVC or LSZH	
6	Armouring	Galvanized Steel Wire	
7	Oversheath	PVC or LSZH	

* LSZH: Low Smoke Zero Halogen

Thermocouple Extension & Compensating Cables

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500V Collective Screen
XLPE Insulated, OS, Unarmoured or Armoured, PVC Sheathed Cable
Type KX (NiCr/NiAl) Extension Cable
Model Code: Type KX-XOP or Type KX-XOPSP

Standard Reference	IEC 60584-3, BS EN 60584-3, BS EN 50288-7

Application :	This cable is designed for interconnection between thermocouple probes and control instrumentation
Construction :	Nickel chromium/nickel aluminum, XLPE insulation, overall screen, unarmoured or galvanized steel wire armoured, PVC sheathed cable
Insulation Colour :	(+) Green (NiCr), (-) White (NiAl)
Sheath Colour :	Green
Operating Temperature :	-25°C ~ +200°C
Maximum Temperature :	900°C

Conductor			Insulation	Unarmoured		Armoured	
Nominal Area	No. of Pair	Stranded Dia.	Thickness	Approx. Overall Dia.	Approx. Weight	Approx. Overall Dia.	Approx. Weight
(mm^2)	(no.)	(mm)	(mm)	(mm)	(kg/km)	(mm)	(kg/km)
0.5	1P	0.8	0.6	6.8	49	11.4	240
	2P			9.8	86	14.5	347
	4P			11.2	130	16.0	428
	5P			12.3	153	17.0	479
	8P			15.0	229	20.0	630
	10P			17.5	288	23.0	868
	12P			17.8	321	23.7	937
	16P			19.8	399	25.5	1070
	20P			22.0	496	28.2	1258
1.0	1P	1.13	0.6	7.4	62	12.0	270
	2P			11.0	118	15.8	414
	4P			12.5	188	17.5	520
	5P			13.8	217	18.8	603
	8P			17.0	348	22.8	929
	10P			19.2	402	25.2	1097
	12P			20.2	495	26.0	1190
	16P			22.2	625	28.5	1400
	20P			25.0	722	32.0	1836
1.3	1P	1.29	0.6	7.8	70	12.4	286
	2P			11.5	135	16.5	446
	4P			13.5	214	18.5	591
	5P			14.7	255	19.8	665
	8P			18.2	413	24.0	1042
	10P			20.6	487	27.0	1242
	12P			21.2	591	28.2	1490
	16P			23.8	761	31.0	1778
	20P			26.8	879	34.0	2087
1.5	1P	1.38	0.6	8.0	75	12.6	298
	2P			11.8	145	16.8	465
	4P			13.8	232	19.0	619
	5P			15.2	277	20.2	698
	8P			18.5	453	24.6	1096
	10P			21.4	531	27.5	1307
	12P			22.0	650	28.2	1411
	16P			24.5	838	31.8	1878
	20P			27.5	964	34.8	2207

Thermocouple Extension & Compensating Cables

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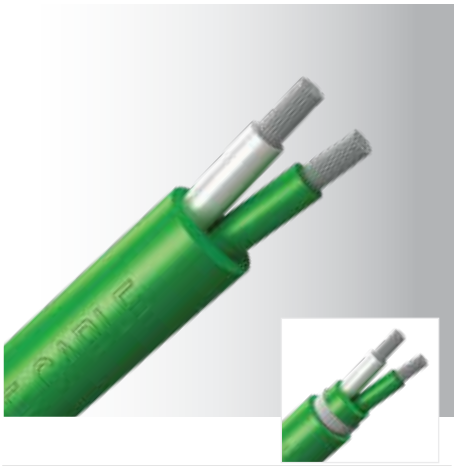
500V Individual & Collective Screen
XLPE Insulated, ISOS, Unarmoured or Armoured, PVC Sheathed Cable
Type KX (NiCr/NiAl) Extension Cable
Model Code: Type KX-XIOP or Type KX-XIOPSP



Standard Reference	IEC 60584-3, BS EN 60584-3, BS EN 50288-7

Application :	This cable is designed for interconnection between thermocouple probes and control instrumentation
Construction :	Nickel chromium/nickel aluminum, XLPE insulation, individual & overall screen, unarmoured or galvanized steel wire armoured, PVC sheathed cable
Insulation Colour :	(+) Green (NiCr), (-) White (NiAl)
Sheath Colour :	Green
Operating Temperature :	-25°C ~ +200°C
Maximum Temperature:	900°C

Conductor			Insulation	Unarmoured		Armoured	
Nominal Area	No. of Pair	Stranded Dia.	Thickness	Approx. Overall Dia.	Approx. Weight	Approx. Overall Dia.	Approx. Weight
(mm^2)	(no.)	(mm)	(mm)	(mm)	(kg/km)	(mm)	(kg/km)
0.5	2P	0.8	0.6	11.0	119	15.8	410
	4P			12.5	178	17.5	521
	5P			14.0	218	19.0	597
	8P			17.0	329	23.2	932
	10P			19.5	414	25.5	1096
	12P			20.2	465	26.5	1174
	16P			22.5	595	29.0	1384
	20P			25.2	726	32.5	1805
1.0	2P	1.13	0.6	12.0	154	17.0	474
	4P			14.0	247	19.2	633
	5P			15.5	295	20.5	712
	8P			19.5	459	25.2	1130
	10P			21.8	566	28.0	1330
	12P			22.8	653	29.0	1454
	16P			25.5	840	32.6	1940
	20P			28.6	1044	36.0	2286
1.3	2P	1.29	0.6	13.0	180	18.0	531
	4P			15.0	289	20.2	697
	5P			16.5	347	22.5	925
	8P			20.2	529	26.6	1250
	10P			23.2	665	30.5	1663
	12P			24.4	768	31.5	1807
	16P			27.0	989	34.5	2168
	20P			30.5	1227	39.0	2830
1.5	2P	1.38	0.6	13.2	193	18.5	542
	4P			15.5	311	20.8	711
	5P			17.0	374	23.0	945
	8P			21.0	572	27.2	1275
	10P			24.0	719	31.0	1714
	12P			25.0	831	32.0	1860
	16P			28.0	1072	35.5	2208
	20P			31.5	1331	39.8	2886

Thermocouple Extension & Compensating Cables

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500V Collective Screen
XLPE Insulated, OS, Unarmoured or Armoured, LSZH Sheathed Cable
Type KX (NiCr/NiAl) Extension Cable
Model Code: Type KX-XOL or Type KX-XOLSL

Standard Reference	IEC 60584-3, BS EN 60584-3, BS EN 50288-7
Flame Retardant Ref.	EC 60332-3, IEC 60754 IEC 61034

Application :	This flame retardant cable is designed for interconnection between thermocouple probes and control instrumentation
Construction :	Nickel chromium/nickel aluminum, XLPE insulation, individual & overall scren, unarmoured or galvanized steel wire armoured, LSZH sheathed cable
Insulation Colour :	(+) Green (NiCr), (-) White (NiAl)
Sheath Colour :	Green
Operating Temperature :	-25°C ~ +200°C
Maximum Temperature:	900°C

Thermocouple Extension & Compensating Cables

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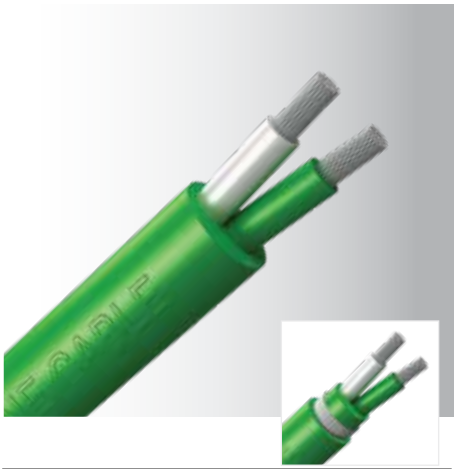
500V Individual & Collective Screen
XLPE Insulated, ISOS, Unarmoured or Armoured, LSZH Sheathed Cable
Type KX (NiCr/NiAl) Extension Cable
Model Code: Type KX-XIOL or Type KX-XIOLSL



Standard Reference	IEC 60584-3, BS EN 60584-3, BS EN 50288-7
Flame Retardant Ref.	EC 60332-3, IEC 60754 IEC 61034

Application :	This flame retardant cable is designed for interconnection between thermocouple probes and control instrumentation
Construction :	Nickel chromium/nickel aluminum, XLPE insulation, individual & overall screen, unarmoured or galvanized steel wire armoured, LSZH sheathed cable
Insulation Colour :	(+) Green (NiCr), (-) White (NiAl)
Sheath Colour :	Green
Operating Temperature :	-25°C ~ +200°C
Maximum Temperature:	900°C

Conductor			Insulation	Unarmoured		Armoured	
Nominal Area	No. of Pair	Stranded Dia.	Thickness	Approx. Overall Dia.	Approx. Weight	Approx. Overall Dia.	Approx. Weight
(mm^2)	(no.)	(mm)	(mm)	(mm)	(kg/km)	(mm)	(kg/km)
0.5	2P	0.8	0.6	11.0	119	15.8	410
	4P			12.5	178	17.5	521
	5P			14.0	218	19.0	597
	8P			17.0	329	23.2	932
	10P			19.5	414	25.5	1096
	12P			20.2	465	26.5	1174
	16P			22.5	595	29.0	1384
	20P			25.2	726	32.5	1805
1.0	2P	1.13	0.6	12.0	154	17.0	474
	4P			14.0	247	19.2	633
	5P			15.5	295	20.5	712
	8P			19.5	459	25.2	1130
	10P			21.8	566	28.0	1330
	12P			22.8	653	29.0	1454
	16P			25.5	840	32.6	1940
	20P			28.6	1044	36.0	2286
1.3	2P	1.29	0.6	13.0	180	18.0	531
	4P			15.0	289	20.2	697
	5P			16.5	347	22.5	925
	8P			20.2	529	26.6	1250
	10P			23.2	665	30.5	1663
	12P			24.4	768	31.5	1807
	16P			27.0	989	34.5	2168
	20P			30.5	1227	39.0	2830
1.5	2P	1.38	0.6	13.2	193	18.5	542
	4P			15.5	311	20.8	711
	5P			17.0	374	23.0	945
	8P			21.0	572	27.2	1275
	10P			24.0	719	31.0	1714
	12P			25.0	831	32.0	1860
	16P			28.0	1072	35.5	2208
	20P			31.5	1331	39.8	2886

Thermocouple Extension & Compensating Cables

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500V Collective Screen
XLPE Insulated, OS, Unarmoured or Armoured, PVC Sheathed Cable
Type EX (NiCr/CuNi) Extension Cable
Model Code: Type EX-XOP or Type EX-XOPSP

Standard Reference	IEC 60584-3, BS EN 60584-3, BS EN 50288-7

Application :	This cable is designed for interconnection between thermocouple probes and control instrumentation
Construction :	Nickel chromium/copper nickel, XLPE insulation, overall screen, unarmoured or galvanized steel wire armoured, PVC sheathed cable
Insulation Colour :	(+) Violet (NiCr), (-) White (CuNi)
Sheath Colour :	Violet
Operating Temperature :	-25°C ~ +200°C
Maximum Temperature:	500°C

Conductor			Insulation	Unarmoured		Armoured	
Nominal Area	No. of Pair	Stranded Dia.	Thickness	Approx. Overall Dia.	Approx. Weight	Approx. Overall Dia.	Approx. Weight
(mm^2)	(no.)	(mm)	(mm)	(mm)	(kg/km)	(mm)	(kg/km)
0.5	1P	0.8	0.6	6.8	49	11.4	240
	2P			9.8	86	14.5	347
	4P			11.2	130	16.0	428
	5P			12.3	153	17.0	479
	8P			15.0	229	20.0	630
	10P			17.5	288	23.0	868
	12P			17.8	321	23.7	937
	16P			19.8	399	25.5	1070
	20P			22.0	496	28.2	1258
1.0	1P	1.13	0.6	7.4	62	12.0	270
	2P			11.0	118	15.8	414
	4P			12.5	188	17.5	520
	5P			13.8	217	18.8	603
	8P			17.0	348	22.8	929
	10P			19.2	402	25.2	1097
	12P			20.2	495	26.0	1190
	16P			22.2	625	28.5	1400
	20P			25.0	722	32.0	1836
1.3	1P	1.29	0.6	7.8	70	12.4	286
	2P			11.5	135	16.5	446
	4P			13.5	214	18.5	591
	5P			14.7	255	19.8	665
	8P			18.2	413	24.0	1042
	10P			20.6	487	27.0	1242
	12P			21.2	591	28.2	1490
	16P			23.8	761	31.0	1778
	20P			26.8	879	34.0	2087
1.5	1P	1.38	0.6	8.0	75	12.6	298
	2P			11.8	145	16.8	465
	4P			13.8	232	19.0	619
	5P			15.2	277	20.2	698
	8P			18.5	453	24.6	1096
	10P			21.4	531	27.5	1307
	12P			22.0	650	28.2	1411
	16P			24.5	838	31.8	1878
	20P			27.5	964	34.8	2207

Thermocouple Extension & Compensating Cables

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500V Individual & Collective Screen
XLPE Insulated, ISOS, Unarmoured or Armoured, PVC Sheathed Cable
Type EX (NiCr/CuNi) Extension Cable
Model Code: Type EX-XIOP or Type EX-XIOPSP

Standard Reference	IEC 60584-3, BS EN 60584-3, BS EN 50288-7

Application :	This cable is designed for interconnection between thermocouple probes and control instrumentation
Construction :	Nickel chromium/copper nickel, XLPE insulation, individual & overall screen, unarmoured or galvanized steel wire armoured, PVC sheathed cable
Insulation Colour :	(+) Violet (NiCr), (-) White (CuNi)
Sheath Colour :	Violet
Operating Temperature :	-25°C ~ +200°C
Maximum Temperature:	500°C

Conductor			Insulation	Unarmoured		Armoured	
Nominal Area	No. of Pair	Stranded Dia.	Thickness	Approx. Overall Dia.	Approx. Weight	Approx. Overall Dia.	Approx. Weight
(mm^2)	(no.)	(mm)	(mm)	(mm)	(kg/km)	(mm)	(kg/km)
0.5	2P	0.8	0.6	11.0	119	15.8	410
	4P			12.5	178	17.5	521
	5P			14.0	218	19.0	597
	8P			17.0	329	23.2	932
	10P			19.5	414	25.5	1096
	12P			20.2	465	26.5	1174
	16P			22.5	595	29.0	1384
	20P			25.2	726	32.5	1805
1.0	2P	1.13	0.6	12.0	154	17.0	474
	4P			14.0	247	19.2	633
	5P			15.5	295	20.5	712
	8P			19.5	459	25.2	1130
	10P			21.8	566	28.0	1330
	12P			22.8	653	29.0	1454
	16P			25.5	840	32.6	1940
	20P			28.6	1044	36.0	2286
1.3	2P	1.29	0.6	13.0	180	18.0	531
	4P			15.0	289	20.2	697
	5P			16.5	347	22.5	925
	8P			20.2	529	26.6	1250
	10P			23.2	665	30.5	1663
	12P			24.4	768	31.5	1807
	16P			27.0	989	34.5	2168
	20P			30.5	1227	39.0	2830
1.5	2P	1.38	0.6	13.2	193	18.5	542
	4P			15.5	311	20.8	711
	5P			17.0	374	23.0	945
	8P			21.0	572	27.2	1275
	10P			24.0	719	31.0	1714
	12P			25.0	831	32.0	1860
	16P			28.0	1072	35.5	2208
	20P			31.5	1331	39.8	2886

Thermocouple Extension & Compensating Cables

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500V Collective Screen
XLPE Insulated, OS, Unarmoured or Armoured, LSZH Sheathed Cable
Type EX (NiCr/CuNi) Extension Cable
Model Code: Type EX-XOL or Type EX-XOLSL

Standard Reference	IEC 60584-3, BS EN 60584-3, BS EN 50288-7
Flame Retardant Ref.	EC 60332-3, IEC 60754 IEC 61034

Application :	This flame retardant cable is designed for interconnection between thermocouple probes and control instrumentation
Construction :	Nickel chromium/copper nickel, XLPE insulation, overall screen, unarmoured or galvanized steel wire armoured, LSZH sheathed cable
Insulation Colour :	(+) Violet (NiCr), (-) White (CuNi)
Sheath Colour :	Violet
Operating Temperature :	-25°C ~ +200°C
Maximum Temperature:	500°C

Conductor			Insulation	Unarmoured		Armoured	
Nominal Area	No. of Pair	Stranded Dia.	Thickness	Approx. Overall Dia.	Approx. Weight	Approx. Overall Dia.	Approx. Weight
(mm^2)	(no.)	(mm)	(mm)	(mm)	(kg/km)	(mm)	(kg/km)
0.5	1P	0.8	0.6	6.8	49	11.4	240
	2P			9.8	86	14.5	347
	4P			11.2	130	16.0	428
	5P			12.3	153	17.0	479
	8P			15.0	229	20.0	630
	10P			17.5	288	23.0	868
	12P			17.8	321	23.7	937
	16P			19.8	399	25.5	1070
	20P			22.0	496	28.2	1258
1.0	1P	1.13	0.6	7.4	62	12.0	270
	2P			11.0	118	15.8	414
	4P			12.5	188	17.5	520
	5P			13.8	217	18.8	603
	8P			17.0	348	22.8	929
	10P			19.2	402	25.2	1097
	12P			20.2	495	26.0	1190
	16P			22.2	625	28.5	1400
	20P			25.0	722	32.0	1836
1.3	1P	1.29	0.6	7.8	70	12.4	286
	2P			11.5	135	16.5	446
	4P			13.5	214	18.5	591
	5P			14.7	255	19.8	665
	8P			18.2	413	24.0	1042
	10P			20.6	487	27.0	1242
	12P			21.2	591	28.2	1490
	16P			23.8	761	31.0	1778
	20P			26.8	879	34.0	2087
1.5	1P	1.38	0.6	8.0	75	12.6	298
	2P			11.8	145	16.8	465
	4P			13.8	232	19.0	619
	5P			15.2	277	20.2	698
	8P			18.5	453	24.6	1096
	10P			21.4	531	27.5	1307
	12P			22.0	650	28.2	1411
	16P			24.5	838	31.8	1878
	20P			27.5	964	34.8	2207

Thermocouple Extension & Compensating Cables

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500V Individual & Collective Screen
XLPE Insulated, ISOS, Unarmoured or Armoured, LSZH Sheathed Cable
Type EX (NiCr/CuNi) Extension Cable
Model Code: Type EX-XIOL or Type EX-XIOLSL

Standard Reference	IEC 60584-3, BS EN 60584-3, BS EN 50288-7
Flame Retardant Ref.	EC 60332-3, IEC 60754 IEC 61034

Application :	This flame retardant cable is designed for interconnection between thermocouple probes and control instrumentation
Construction :	Nickel chromium/copper nickel, XLPE insulation, individual & overall screen, unarmoured or galvanized steel wire armoured, LSZH sheathed cable
Insulation Colour :	(+) Violet (NiCr), (-) White (CuNi)
Sheath Colour :	Violet
Operating Temperature :	-25°C ~ +200°C
Maximum Temperature:	500°C

Conductor			Insulation	Unarmoured		Armoured	
Nominal Area	No. of Pair	Stranded Dia.	Thickness	Approx. Overall Dia.	Approx. Weight	Approx. Overall Dia.	Approx. Weight
(mm^2)	(no.)	(mm)	(mm)	(mm)	(kg/km)	(mm)	(kg/km)
0.5	2P	0.8	0.6	11.0	119	15.8	410
	4P			12.5	178	17.5	521
	5P			14.0	218	19.0	597
	8P			17.0	329	23.2	932
	10P			19.5	414	25.5	1096
	12P			20.2	465	26.5	1174
	16P			22.5	595	29.0	1384
	20P			25.2	726	32.5	1805
1.0	2P	1.13	0.6	12.0	154	17.0	474
	4P			14.0	247	19.2	633
	5P			15.5	295	20.5	712
	8P			19.5	459	25.2	1130
	10P			21.8	566	28.0	1330
	12P			22.8	653	29.0	1454
	16P			25.5	840	32.6	1940
	20P			28.6	1044	36.0	2286
1.3	2P	1.29	0.6	13.0	180	18.0	531
	4P			15.0	289	20.2	697
	5P			16.5	347	22.5	925
	8P			20.2	529	26.6	1250
	10P			23.2	665	30.5	1663
	12P			24.4	768	31.5	1807
	16P			27.0	989	34.5	2168
	20P			30.5	1227	39.0	2830
1.5	2P	1.38	0.6	13.2	193	18.5	542
	4P			15.5	311	20.8	711
	5P			17.0	374	23.0	945
	8P			21.0	572	27.2	1275
	10P			24.0	719	31.0	1714
	12P			25.0	831	32.0	1860
	16P			28.0	1072	35.5	2208
	20P			31.5	1331	39.8	2886

Thermocouple Extension & Compensating Cables

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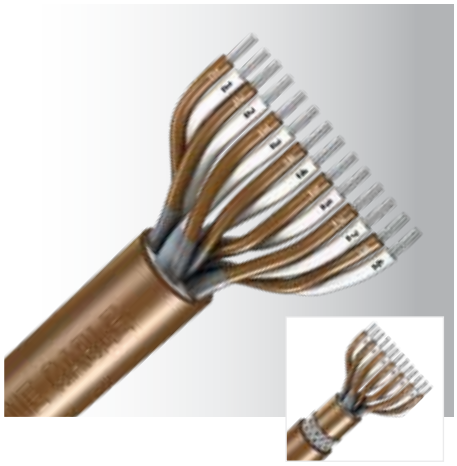
500V Collective Screen,
XLPE Insulated, OS, Unarmoured or Armoured, PVC Sheathed Cable
Type TX (Cu/CuNi) Extension Cable
Model Code: Type TX-XOP or Type TX-XOPSP



Standard Reference	IEC 60584-3, BS EN 60584-3, BS EN 50288-7

Application :	This cable is designed for interconnection between thermocouple probes and control instrumentation
Construction :	Copper/copper nickel, XLPE insulation, overall screen, unarmoured or galvanized steel wire armoured, PVC sheathed cable
Insulation Colour :	(+) Brown (Cu), (-) White (CuNi)
Sheath Colour :	Brown
Operating Temperature :	-25°C ~ + 100°C
Maximum Temperature:	300°C

Conductor			Insulation	Unarmoured		Armoured	
Nominal Area	No. of Pair	Stranded Dia.	Thickness	Approx. Overall Dia.	Approx. Weight	Approx. Overall Dia.	Approx. Weight
(mm^2)	(no.)	(mm)	(mm)	(mm)	(kg/km)	(mm)	(kg/km)
0.5	1P	0.8	0.6	6.8	49	11.4	240
	2P			9.8	86	14.5	347
	4P			11.2	130	16.0	428
	5P			12.3	153	17.0	479
	8P			15.0	229	20.0	630
	10P			17.5	288	23.0	868
	12P			17.8	321	23.7	937
	16P			19.8	399	25.5	1070
	20P			22.0	496	28.2	1258
1.0	1P	1.13	0.6	7.4	62	12.0	270
	2P			11.0	118	15.8	414
	4P			12.5	188	17.5	520
	5P			13.8	217	18.8	603
	8P			17.0	348	22.8	929
	10P			19.2	402	25.2	1097
	12P			20.2	495	26.0	1190
	16P			22.2	625	28.5	1400
	20P			25.0	722	32.0	1836
1.3	1P	1.29	0.6	7.8	70	12.4	286
	2P			11.5	135	16.5	446
	4P			13.5	214	18.5	591
	5P			14.7	255	19.8	665
	8P			18.2	413	24.0	1042
	10P			20.6	487	27.0	1242
	12P			21.2	591	28.2	1490
	16P			23.8	761	31.0	1778
	20P			26.8	879	34.0	2087
1.5	1P	1.38	0.6	8.0	75	12.6	298
	2P			11.8	145	16.8	465
	4P			13.8	232	19.0	619
	5P			15.2	277	20.2	698
	8P			18.5	453	24.6	1096
	10P			21.4	531	27.5	1307
	12P			22.0	650	28.2	1411
	16P			24.5	838	31.8	1878
	20P			27.5	964	34.8	2207

Thermocouple Extension & Compensating Cables

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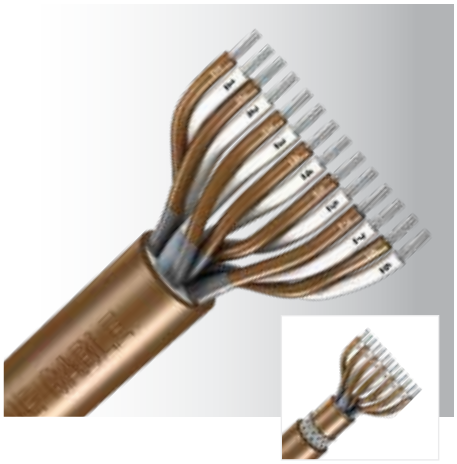
500V Individual & Collective Screen
XLPE Insulated, ISOS, Unarmoured or Armoured, PVC Sheathed Cable
Type TX (Cu/CuNi) Extension Cable
Model Code: Type TX-XIOP or Type TX-XIOPSP



Standard Reference	IEC 60584-3, BS EN 60584-3, BS EN 50288-7

Application :	This cable is designed for interconnection between thermocouple probes and control instrumentation
Construction :	Copper/Nickel Copper, XLPE insulation, individual & overall screen, unarmoured or galvanized steel wire armoured, PVC sheathed cable
Insulation Colour :	(+) Brown (Cu), (-) White (CuNi)
Sheath Colour :	Brown
Operating Temperature :	-25°C ~ +100°C
Maximum Temperature:	300°C

Conductor			Insulation	Unarmoured		Armoured	
Nominal Area	No. of Pair	Stranded Dia.	Thickness	Approx. Overall Dia.	Approx. Weight	Approx. Overall Dia.	Approx. Weight
(mm^2)	(no.)	(mm)	(mm)	(mm)	(kg/km)	(mm)	(kg/km)
0.5	2P	0.8	0.6	11.0	119	15.8	410
	4P			12.5	178	17.5	521
	5P			14.0	218	19.0	597
	8P			17.0	329	23.2	932
	10P			19.5	414	25.5	1096
	12P			20.2	465	26.5	1174
	16P			22.5	595	29.0	1384
	20P			25.2	726	32.5	1805
1.0	2P	1.13	0.6	12.0	154	17.0	474
	4P			14.0	247	19.2	633
	5P			15.5	295	20.5	712
	8P			19.5	459	25.2	1130
	10P			21.8	566	28.0	1330
	12P			22.8	653	29.0	1454
	16P			25.5	840	32.6	1940
	20P			28.6	1044	36.0	2286
1.3	2P	1.29	0.6	13.0	180	18.0	531
	4P			15.0	289	20.2	697
	5P			16.5	347	22.5	925
	8P			20.2	529	26.6	1250
	10P			23.2	665	30.5	1663
	12P			24.4	768	31.5	1807
	16P			27.0	989	34.5	2168
	20P			30.5	1227	39.0	2830
1.5	2P	1.38	0.6	13.2	193	18.5	542
	4P			15.5	311	20.8	711
	5P			17.0	374	23.0	945
	8P			21.0	572	27.2	1275
	10P			24.0	719	31.0	1714
	12P			25.0	831	32.0	1860
	16P			28.0	1072	35.5	2208
	20P			31.5	1331	39.8	2886

Thermocouple Extension & Compensating Cables

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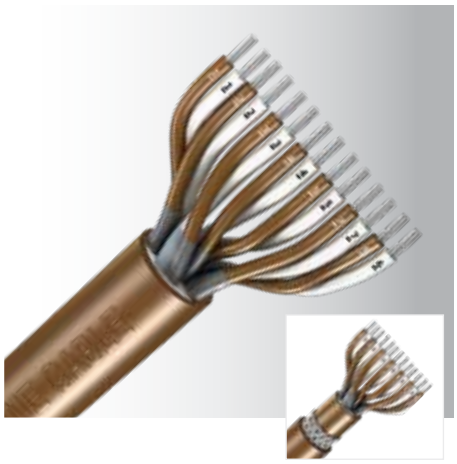
500V Collective Screen
XLPE Insulated, OS, Unarmoured or Armoured, LSZH Sheathed Cable
Type TX (Cu/CuNi) Extension Cable
Model Code: Type TX-XOL or Type TX-XOLSL



Standard Reference	IEC 60584-3, BS EN 60584-3, BS EN 50288-7
Flame Retardant Ref.	EC 60332-3, IEC 60754 IEC 61034

Application :	This flame retardant cable is designed for interconnection between thermocouple probes and control instrumentation
Construction :	Copper/copper nickel, XLPE insulation, individual & overall screen, unarmoured or galvanized steel wire armoured, LSZH sheathed cable
Insulation Colour :	(+) Brown (Cu), (-) White (CuNi)
Sheath Colour :	Brown
Operating Temperature :	-25°C ~ +100°C
Maximum Temperature:	300°C

Conductor			Insulation	Unarmoured		Armoured	
Nominal Area	No. of Pair	Stranded Dia.	Thickness	Approx. Overall Dia.	Approx. Weight	Approx. Overall Dia.	Approx. Weight
(mm^2)	(no.)	(mm)	(mm)	(mm)	(kg/km)	(mm)	(kg/km)
0.5	1P	0.8	0.6	6.8	49	11.4	240
	2P			9.8	86	14.5	347
	4P			11.2	130	16.0	428
	5P			12.3	153	17.0	479
	8P			15.0	229	20.0	630
	10P			17.5	288	23.0	868
	12P			17.8	321	23.7	937
	16P			19.8	399	25.5	1070
	20P			22.0	496	28.2	1258
1.0	1P	1.13	0.6	7.4	62	12.0	270
	2P			11.0	118	15.8	414
	4P			12.5	188	17.5	520
	5P			13.8	217	18.8	603
	8P			17.0	348	22.8	929
	10P			19.2	402	25.2	1097
	12P			20.2	495	26.0	1190
	16P			22.2	625	28.5	1400
	20P			25.0	722	32.0	1836
1.3	1P	1.29	0.6	7.8	70	12.4	286
	2P			11.5	135	16.5	446
	4P			13.5	214	18.5	591
	5P			14.7	255	19.8	665
	8P			18.2	413	24.0	1042
	10P			20.6	487	27.0	1242
	12P			21.2	591	28.2	1490
	16P			23.8	761	31.0	1778
	20P			26.8	879	34.0	2087
1.5	1P	1.38	0.6	8.0	75	12.6	298
	2P			11.8	145	16.8	465
	4P			13.8	232	19.0	619
	5P			15.2	277	20.2	698
	8P			18.5	453	24.6	1096
	10P			21.4	531	27.5	1307
	12P			22.0	650	28.2	1411
	16P			24.5	838	31.8	1878
	20P			27.5	964	34.8	2207

Thermocouple Extension & Compensating Cables

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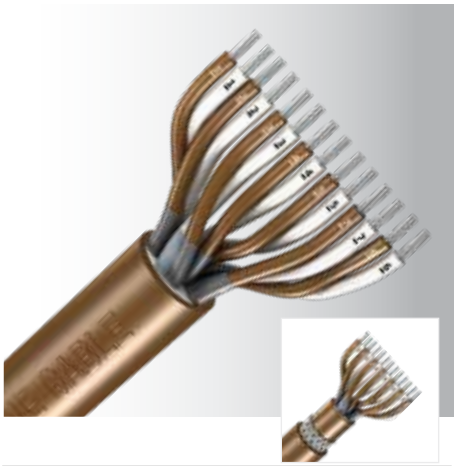
500V Individual & Collective Screen
XLPE Insulated, ISOS, Unarmoured or Armoured, LSZH Sheathed Cable
Type TX (Cu/CuNi) Extension Cable
Model Code: Type TX-XIOL or Type TX-XIOLSL



Standard Reference	IEC 60584-3, BS EN 60584-3, BS EN 50288-7
Flame Retardant Ref.	EC 60332-3, IEC 60754 IEC 61034

Application :	This flame retardant cable is designed for interconnection between thermocouple probes and control instrumentation
Construction :	Copper/copper nickel, XLPE insulation, individual & overall screen, unarmoured or galvanized steel wire armoured, LSZH sheathed cable
Insulation Colour :	(+) Brown (Cu), (-) White (CuNi)
Sheath Colour :	Brown
Operating Temperature :	-25°C ~ +100°C
Maximum Temperature:	300°C

Conductor			Insulation	Unarmoured		Armoured	
Nominal Area	No. of Pair	Stranded Dia.	Thickness	Approx. Overall Dia.	Approx. Weight	Approx. Overall Dia.	Approx. Weight
(mm^2)	(no.)	(mm)	(mm)	(mm)	(kg/km)	(mm)	(kg/km)
0.5	2P	0.8	0.6	11.0	119	15.8	410
	4P			12.5	178	17.5	521
	5P			14.0	218	19.0	597
	8P			17.0	329	23.2	932
	10P			19.5	414	25.5	1096
	12P			20.2	465	26.5	1174
	16P			22.5	595	29.0	1384
	20P			25.2	726	32.5	1805
1.0	2P	1.13	0.6	12.0	154	17.0	474
	4P			14.0	247	19.2	633
	5P			15.5	295	20.5	712
	8P			19.5	459	25.2	1130
	10P			21.8	566	28.0	1330
	12P			22.8	653	29.0	1454
	16P			25.5	840	32.6	1940
	20P			28.6	1044	36.0	2286
1.3	2P	1.29	0.6	13.0	180	18.0	531
	4P			15.0	289	20.2	697
	5P			16.5	347	22.5	925
	8P			20.2	529	26.6	1250
	10P			23.2	665	30.5	1663
	12P			24.4	768	31.5	1807
	16P			27.0	989	34.5	2168
	20P			30.5	1227	39.0	2830
1.5	2P	1.38	0.6	13.2	193	18.5	542
	4P			15.5	311	20.8	711
	5P			17.0	374	23.0	945
	8P			21.0	572	27.2	1275
	10P			24.0	719	31.0	1714
	12P			25.0	831	32.0	1860
	16P			28.0	1072	35.5	2208
	20P			31.5	1331	39.8	2886

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Variable Speed Drive Cables

1	Conductor	Plain Annealed Copper Wire
2	Insulation	PVC or XLPE
3	Bedding	PVC or LSZH
4	Screen	Copper Tape
5	Separation Sheath	PVC or LSZH
6	Armouring	Galvanized Steel Wire
7	Outersheath	PVC or LSZH

* LSZH: Low Smoke Zero Halogen

Variable Speed Drive Cables

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600/1000V 3 Phase-Core + 3 Earth-Core
XLPE Insulated, Copper Tape Screen, Unarmoured & Armoured, PVC Sheathed Cable
CU/XLPE/PVC/CTS/PVC or CU/XLPE/PVC/CTS/SWA/PVC
Model Code: XPCTP or XPCTPSP

Standard Reference	IEC 60502-1, IEC 60228

Application :	For applications that require electromagnetic compatibility (EMC) to supply motors from variable speed controllers in fixed installation, suitable for variable speed drive equipment or other applications requiring screened cables
Construction :	Plain annealed copper wire, XLPE insulation, copper tape screen, unarmoured or galvanized steel wire armoured, PVC bedding & sheathed cable
Insulation Colour :	Phase-Core: Brown, Black, Grey Earth-Core: Green/Yellow
Sheath Colour :	Black
Operating Temperature :	90°C

Cores Conductor	Phase-Core				Earth-Core	Unarmoured		Armoured	
	Nominal Area	Conductor Class Type	Conductor Dia.	Core Thickness	Combined Area	Approx. Overall Dia.	Approx. Weight	Approx. Overall Dia.	Approx. Weight
(no.)	(mm²)	(mm)	(mm)	(mm)	(mm²)	(mm)	(kg/km)	(mm)	(kg/km)
3C+3E	1.5	2 (Fixed)	1.59	0.7	4.5 (3 x 1.5)	16.5	346	22.0	847
	2.5		2.01	0.7	4.5 (3 x 1.5)	17.2	389	22.5	915
	4		2.55	0.7	4.5 (3 x 1.5)	18.0	450	23.6	1000
	6		3.12	0.7	7.5 (3 x 2.5)	19.5	566	25.0	1155
	10		4.05	0.7	12 (3 x 4)	22.2	781	28.5	1593
	16		5.10	0.7	18 (3 x 6)	24.5	1058	31.0	1966
	25		6.15	0.9	18 (3 x 6)	27.5	1381	34.0	2382
	35		7.30	0.9	18 (3 x 6)	29.2	1694	36.0	2772
	50		8.50	1.0	30 (3 x 10)	32.5	2248	40.0	3753
	70		10.1	1.1	48 (3 x 16)	37.8	3178	45.2	4894
	95		11.8	1.1	48 (3 x 16)	41.0	4169	48.4	6024
	120		13.0	1.2	75 (3 x 25)	46.0	5312	54.5	7881
	150		14.4	1.4	75 (3 x 25)	49.0	6266	58.0	9049
	185		16.2	1.6	105 (3 x 35)	54.5	8045	64.0	11190
	240		18.8	1.7	150 (3 x 50)	62.2	10649	71.8	15055
	300		21.3	1.8	150 (3 x 50)	66.5	12610	76.0	17320
3C+3E	1.5	5 (Flexible)	1.57	0.7	4.5 (3 x 1.5)	17.0	343	22.5	845
	2.5		2.04	0.7	4.5 (3 x 1.5)	17.5	387	23.0	913
	4		2.6	0.7	4.5 (3 x 1.5)	18.5	449	24.0	999
	6		3.5	0.7	7.5 (3 x 2.5)	20.5	581	26.0	1193
	10		4.6	0.7	12 (3 x 4)	23.4	805	29.5	1655
	16		5.7	0.7	18 (3 x 6)	26.6	1096	32.5	2062
	25		7.1	0.9	18 (3 x 6)	30.0	1421	35.5	2500
	35		8.5	0.9	18 (3 x 6)	32.0	1753	37.5	2911
	50		10.2	1.0	30 (3 x 10)	36.5	2416	43.5	4073
	70		12.0	1.1	48 (3 x 16)	42.2	3377	48.8	5258
	95		13.9	1.1	48 (3 x 16)	45.5	4280	52.2	6315
	120		15.5	1.2	75 (3 x 25)	51.8	5450	59.5	8299
	150		17.6	1.4	75 (3 x 25)	56.2	6558	64.0	9710
	185		19.5	1.6	105 (3 x 35)	62.5	8341	71.0	11863
	240		22.4	1.7	150 (3 x 50)	71.0	11157	80.5	16141
	300		25.1	1.8	150 (3 x 50)	75.8	13124	85.0	18407

Flame Retardant Variable Speed Drive Cables

KEYSTONE CABLE
tel (65) 6367 0107 fax (65) 6365 2963
www.keystone-cable.com

600/1000V 3 Phase-Core + 3 Earth-Core
XLPE Insulated, Copper Tape Screen, Unarmoured & Armoured, LSZH Sheathed Cable
CU/XLPE/LSZH/CTS/LSZH or CU/XLPE/LSZH/CTS/SWA/LSZH
Model Code: XLCTL or XLCTLSL

Standard Reference	IEC 60502-1, IEC 60228
Flame Retardant Ref.	IEC 60332-3, IEC 60754, IEC 61034

Application :	For applications that require electromagnetic compatibility (EMC) to supply motors from variable speed controllers in fixed installation, suitable for variable speed drive equipment or other applications requiring screened cables
Construction :	Plain annealed copper wire, XLPE insulation, copper tape screen, unarmoured or galvanized steel wire armoured, LSZH bedding & sheathed cable
Insulation Colour :	Phase-Core: Brown, Black, Grey Earth-Core: Green/Yellow
Sheath Colour :	Black
Operating Temperature :	90°C

Cores Conductor	Phase-Core				Earth-Core	Unarmoured		Armoured	
	Nominal Area	Conductor Class Type	Conductor Dia.	Core Thickness	Combined Area	Approx. Overall Dia.	Approx. Weight	Approx. Overall Dia.	Approx. Weight
(no.)	(mm²)	(mm)	(mm)	(mm)	(mm²)	(mm)	(kg/km)	(mm)	(kg/km)
3C+3E	1.5	2 (Fixed)	1.59	0.7	4.5 (3 x 1.5)	16.5	346	22.0	847
	2.5		2.01	0.7	4.5 (3 x 1.5)	17.2	389	22.5	915
	4		2.55	0.7	4.5 (3 x 1.5)	18.0	450	23.6	1000
	6		3.12	0.7	7.5 (3 x 2.5)	19.5	566	25.0	1155
	10		4.05	0.7	12 (3 x 4)	22.2	781	28.5	1593
	16		5.10	0.7	18 (3 x 6)	24.5	1058	31.0	1966
	25		6.15	0.9	18 (3 x 6)	27.5	1381	34.0	2382
	35		7.30	0.9	18 (3 x 6)	29.2	1694	36.0	2772
	50		8.50	1.0	30 (3 x 10)	32.5	2248	40.0	3753
	70		10.1	1.1	48 (3 x 16)	37.8	3178	45.2	4894
	95		11.8	1.1	48 (3 x 16)	41.0	4169	48.4	6024
	120		13.0	1.2	75 (3 x 25)	46.0	5312	54.5	7881
	150		14.4	1.4	75 (3 x 25)	49.0	6266	58.0	9049
	185		16.2	1.6	105 (3 x 35)	54.5	8045	64.0	11190
	240		18.8	1.7	150 (3 x 50)	62.2	10649	71.8	15055
	300		21.3	1.8	150 (3 x 50)	66.5	12610	76.0	17320
3C+3E	1.5	5 (Flexible)	1.57	0.7	4.5 (3 x 1.5)	17.0	343	22.5	845
	2.5		2.04	0.7	4.5 (3 x 1.5)	17.5	387	23.0	913
	4		2.6	0.7	4.5 (3 x 1.5)	18.5	449	24.0	999
	6		3.5	0.7	7.5 (3 x 2.5)	20.5	581	26.0	1193
	10		4.6	0.7	12 (3 x 4)	23.4	805	29.5	1655
	16		5.7	0.7	18 (3 x 6)	26.6	1096	32.5	2062
	25		7.1	0.9	18 (3 x 6)	30.0	1421	35.5	2500
	35		8.5	0.9	18 (3 x 6)	32.0	1753	37.5	2911
	50		10.2	1.0	30 (3 x 10)	36.5	2416	43.5	4073
	70		12.0	1.1	48 (3 x 16)	42.2	3377	48.8	5258
	95		13.9	1.1	48 (3 x 16)	45.5	4280	52.2	6315
	120		15.5	1.2	75 (3 x 25)	51.8	5450	59.5	8299
	150		17.6	1.4	75 (3 x 25)	56.2	6558	64.0	9710
	185		19.5	1.6	105 (3 x 35)	62.5	8341	71.0	11863
	240		22.4	1.7	150 (3 x 50)	71.0	11157	80.5	16141
	300		25.1	1.8	150 (3 x 50)	75.8	13124	85.0	18407

KEYSTONE CABLE
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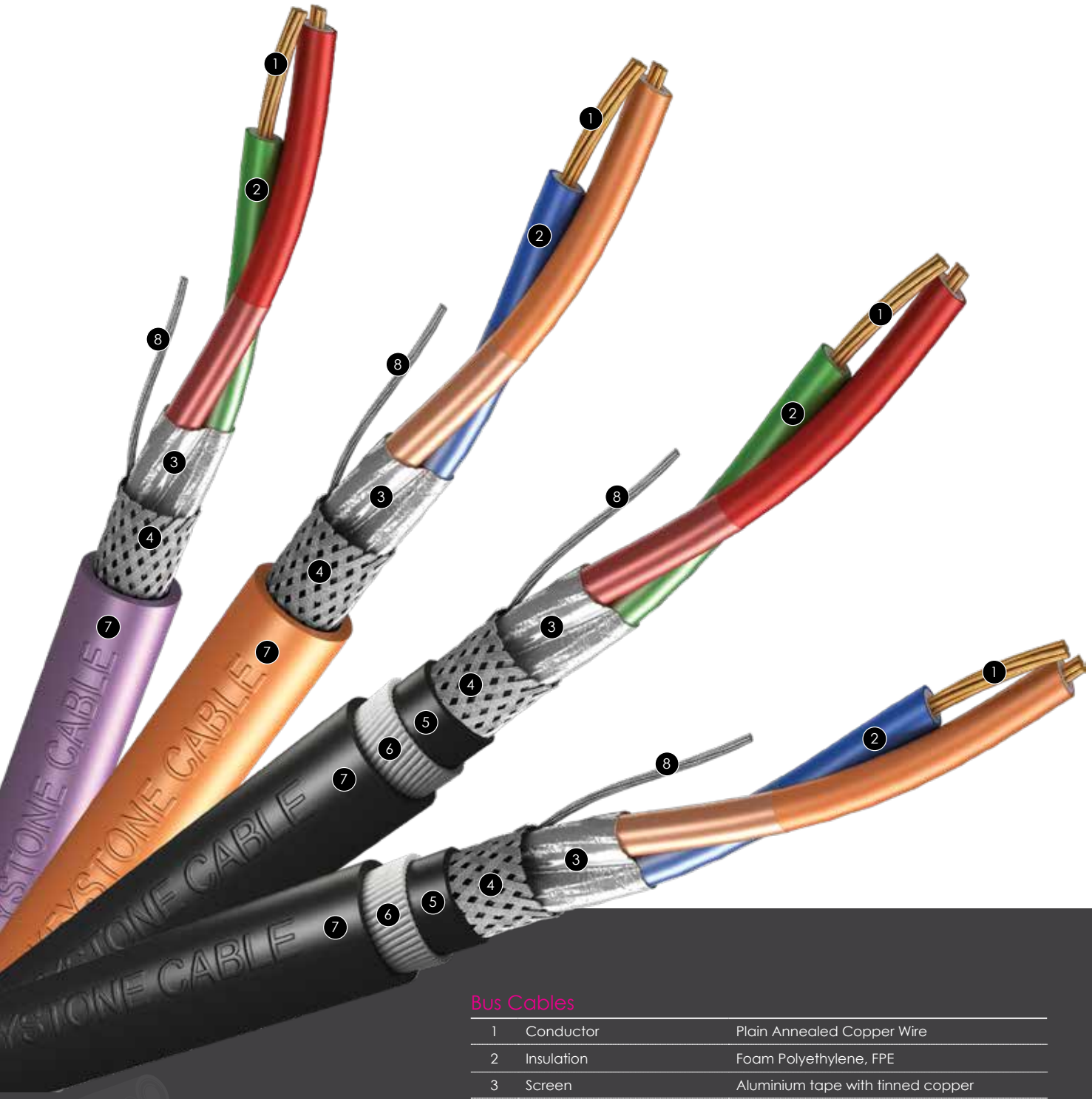

Bus Cables

1	Conductor	Plain Annealed Copper Wire
2	Insulation	Foam Polyethylene, FPE
3	Screen	Aluminium tape with tinned copper
4	Screen	Tinned Copper Wire Braid
5	Bedding	PVC or LSZH
6	Armouring	Galvanized Steel Wire
7	Outersheath	PVC or LSZH
8	Drain wire	Tinned Copper Wire

* LSZH: Low Smoke Zero Halogen

Profibus - DP Cable

KEYSTONE CABLE
tel (65) 6367 0107 fax (65) 6365 2963
www.keystone-cable.com

300V Single Pair FPE Insulated, Double Shield, Unarmoured & Armoured, PVC Sheathed Cable
CU/FPE/OS/OBS/PVC or CU/FPE/OS/OBS/PVC/SWA/PVC

Standard Reference	BS EN 50170, BS EN 50288-7, DIN 19254 T3, IEC61158-2, UL Style 2571

Application :	For applications that require time-critical communication between automation systems and distributed peripherals
Construction :	Plain annealed solid or stranded copper wire, foam polyethylene with skin insulation, twisted pair, coated aluminium tape, metallic surface outward in contact with tinned copper drain wire and tinned copper wire braid, unarmoured or galvanized steel wire armoured, PVC bedding & sheathed cable
Insulation Colour :	Red(+), Green(-)
Sheath Colour :	Unarmoured - Violet (Non Ex), Blue (Ex) Armoured - Black
Operating Temperature :	80°C

Conductor		Insulation	Unarmoured Cable		Armoured Cable	
Size	No./Dia. of Strand	Thickness	Approx. Overall Dia.	Approx. Weight	Approx. Overall Dia.	Approx. Weight
(AWG)	(no./mm)	(mm)	(mm)	(kg/km)	(mm)	(kg/km)
22	1/0.64	0.6	8.0	80	12.8	370
22	7/0.25	0.6	8.4	89	13.2	382

Electrical Properties	**22 AWG**
Max. Conductor Resistance	110 Ω / km
Max. Screen Resistance	9.5 Ω / km
Min. Insulation Resistance	5 GΩ / km
Max. Mutual Capacitance	30nF / km
Max. Capacitance Unbalance	1500pF /km
Min. Bending Radius	Unarmoured: 6D (Fixed), 10D (Repeated) Armoured: 10D (Fixed)
Characteristics Impedance	150 ± 15 Ω

Frequency	ATTENUATION Max
(MHz)	(dB/100m)
0.0096	2.5
0.0384	4.0
4	22.0
16	42.0

Flame Retardant Profibus - DP Cable

KEYSTONE CABLE
tel (65) 6367 0107 fax (65) 6365 2963
www.keystone-cable.com

300V Single Pair FPE Insulated, Double Shield, Unarmoured & Armoured, LSZH Sheathed Cable
CU/FPE/OS/OBS/LSZH or CU/FPE/OS/OBS/LSZH/SWA/LSZH

Standard Reference	BS EN 50170, BS EN 50288-7, DIN 19254 T3, IEC61158-2, UL Style 2571
Flame Retardant Ref.	IEC 60332-3, IEC 60754, IEC 61034

Application :	For applications that require time-critical communication between automation systems and distributed peripherals, especially suitable for areas where fire would create dense smoke and toxic fumes, imposing major threat to lives and equipment
Construction :	Plain annealed solid or stranded copper wire, foam polyethylene with skin insulation, twisted pair, coated aluminium tape, metallic surface outward in contact with tinned copper drain wire and tinned copper wire braid, unarmoured or galvanized steel wire armoured, LSZH bedding & sheathed cable
Insulation Colour :	Red(+), Green(-)
Sheath Colour :	Unarmoured - Violet (Non Ex), Blue (Ex) Armoured - Black
Operating Temperature :	80°C

Conductor		Insulation	Unarmoured Cable		Armoured Cable	
Size	No./Dia. of Strand	Thickness	Approx. Overall Dia.	Approx. Weight	Approx. Overall Dia.	Approx. Weight
(AWG)	(no./mm)	(mm)	(mm)	(kg/km)	(mm)	(kg/km)
22	1/0.64	0.6	8.0	80	12.8	370
22	7/0.25	0.6	8.4	89	13.2	382

Electrical Properties	**22 AWG**
Max. Conductor Resistance	110 Ω / km
Max. Screen Resistance	9.5 Ω / km
Min. Insulation Resistance	5 GΩ / km
Max. Mutual Capacitance	30nF / km
Max. Capacitance Unbalance	1500pF /km
Characteristics Impedance	150 ± 15 Ω
Min. Bending Radius	Unarmoured: 6D (Fixed), 10D (Repeated) Armoured: 10D (Fixed)

Frequency	ATTENUATION Max
(MHz)	(dB/100m)
0.0096	2.5
0.0384	4.0
4	22.0
16	42.0

Profibus - PA Cable

KEYSTONE CABLE
tel (65) 6367 0107 fax (65) 6365 2963
www.keystone-cable.com

300V Single Pair FPE Insulated, Double Shield, Unarmoured & Armoured, PVC Sheathed Cable
CU/FPE/OS/OBS/PVC or CU/FPE/OS/OBS/PVC/SWA/PVC

Standard Reference	BS EN 50170, BS EN 50288-7, DIN 19254 T3, IEC61158-2, UL Style 2571

Application :	For use in process automation, for connecting control systems with field instruments and in potentially explosive atmospheres
Construction :	Plain annealed solid or stranded copper wire, foam polyethylene or polyethylene insulated, twisted pair, coated aluminium tape, metallic surface outward in contact with tinned copper drain wire and tinned copper wire braid, unarmoured or galvanized steel wire armoured, PVC bedding & sheathed cable
Insulation Colour :	Red(+), Green(-)
Sheath Colour :	Unarmoured - Black (Non Ex), Blue (Ex) Armoured - Black
Operating Temperature :	80°C

Conductor		Insulation		Unarmoured Cable		Armoured Cable	
Size	No./Dia. of Strand	Material	Thickness	Approx. Overall Dia.	Approx. Weight	Approx. Overall Dia.	Approx. Weight
(AWG)	(no./mm)		(mm)	(mm)	(kg/km)	(mm)	(kg/km)
18	1/1.05	FPE	0.6	8.0	76	13.0	393
18	7/0.40	FPE	0.6	8.2	80	13.3	394
16	7/0.50	PE	0.6	9.5	110	13,5	410

Electrical Properties	**18 AWG**	**16AWG**
Max. Conductor Resistance	22 Ω / km	13.3 Ω / km
Max. Screen Resistance	9 Ω / km	7 Ω / km
Min. Insulation Resistance	5 GΩ / km	5 GΩ / km
Mutual Capacitance	55nF / km	60nF / km
Max. Capacitance Unbalance	≤ 2pF /km	≤ 2pF /km
Characteristics Impedance	100 ± 20 Ω	100 ± 20 Ω
Min. Bending Radius	Unarmoured: 6D (Fixed), 10D (Repeated) Armoured: 10D (Fixed)	

Frequency	**18 AWG**	**16 AWG**
	ATTENUATION Max	ATTENUATION Max
(MHz)	(dB/100m)	(dB/100m)
0.039	3.0	2.7

Flame Retardant Profibus - PA Cable

KEYSTONE CABLE
tel (65) 6367 0107 fax (65) 6365 2963
www.keystone-cable.com

300V Single Pair FPE Insulated, Double Shield, Unarmoured & Armoured, LSZH Sheathed Cable
CU/FPE/OS/OBS/LSZH or CU/FPE/OS/OBS/LSZH/SWA/LSZH

Standard Reference	BS EN 50170, BS EN 50288-7, DIN 19254 T3, IEC61158-2, UL Style 2571
Flame Retardant Ref.	IEC 60332-3, IEC 60754, IEC 61034

Application :	For use in process automation, for connecting control systems with field instruments and in potentially explosive atmospheres, especially suitable for areas where fire would create dense smoke and toxic fumes, imposing major threat to lives and equipment
Construction :	Plain annealed solid or stranded copper wire, foam polyethylene or polyethylene insulated, twisted pair, coated aluminium tape, metallic surface outward in contact with tinned copper drain wire and tinned copper wire braid, unarmoured or galvanized steel wire armoured, LSZH bedding & sheathed cable
Insulation Colour :	Red(+), Green(-)
Sheath Colour :	Unarmoured - Black (Non Ex), Blue (Ex) Armoured - Black
Operating Temperature :	80°C

Conductor		Insulation		Unarmoured Cable		Armoured Cable	
Size	No./Dia. of Strand	Material	Thickness	Approx. Overall Dia.	Approx. Weight	Approx. Overall Dia.	Approx. Weight
(AWG)	(no./mm)		(mm)	(mm)	(kg/km)	(mm)	(kg/km)
18	1/1.05	FPE	0.6	8.0	76	13.0	393
18	7/0.40	FPE	0.6	8.2	80	13.3	394
16	7/0.50	PE	0.6	9.5	110	13,5	410

Electrical Properties	**18 AWG**	**16AWG**
Max. Conductor Resistance	22 Ω / km	13.3 Ω / km
Max. Screen Resistance	9 Ω / km	7 Ω / km
Min. Insulation Resistance	5 GΩ / km	5 GΩ / km
Mutual Capacitance	55nF / km	60nF / km
Max. Capacitance Unbalance	≤ 2pF /km	≤ 2pF /km
Characteristics Impedance	100 ± 20 Ω	100 ± 20 Ω
Min. Bending Radius	Unarmoured: 6D (Fixed), 10D (Repeated) Armoured: 10D (Fixed)	

Frequency	**18 AWG**	**16 AWG**
	ATTENUATION Max	ATTENUATION Max
(MHz)	(dB/100m)	(dB/100m)
0.039	3.0	2.7

Foundation Fieldbus Cable

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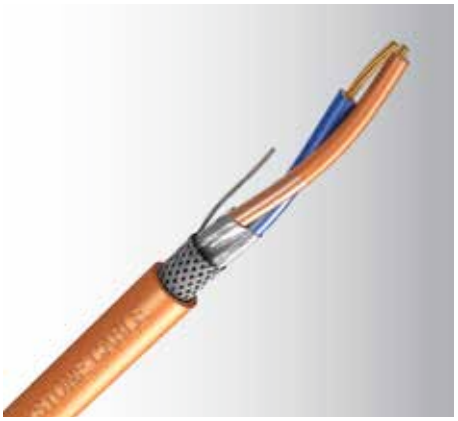
300V Single Pair FPE Insulated, Double Shield, PVC Sheathed Cable
CU/FPE/OS/OBS/PVC



Standard Reference	FF-844 H1, IEC61158-2, BS EN 50288-7

Application :	For use in data communication networks and industrial process control instruments
Construction :	Plain annealed solid or stranded copper wire, foam polyethylene, polyethylene or cross-linked polyethylene insulated, twisted pair,coated aluminium tape, metallic surface outward in contact with tinned copper drain wire and tinned copper wire braid, PVC sheathed cable
Insulation Colour :	Orange(+), Blue(-)
Sheath Colour :	Unarmoured - Orange (Non Ex), Blue (Ex)
Operating Temperature :	80°C

Conductor		Insulation		Single Pair Cable	
Size	No./Dia. of Strand	Material	Thickness	Approx. Overall Dia.	Approx. Weight
(AWG)	(no./mm)		(mm)	(mm)	(kg/km)
18	7/0.40	FPE	0.6	8.0	96
16	7/0.50	PE or XLPE	0.6	9.7	129
14	7/0.62	PE or XLPE	0.6	11.5	172

Electrical Properties	**18 AWG**	**16AWG**	**14AWG**
Max. Conductor Resistance	44 Ω / km	28 Ω / km	17.9 Ω / km
Min. Insulation Resistance	5 GΩ / km	5 GΩ / km	5 GΩ / km
Max. Mutual Capacitance	65nF / km	65nF / km	65nF / km
Max. Capacitance Unbalance	2pF /km	2pF /km	2pF /km
Characteristics Impedance	100 ± 20 Ω	100 ± 20 Ω	100 ± 20 Ω
Min. Bending Radius	6D (Fixed), 10D (Repeated)		

Frequency	**18 AWG**	**16 AWG**	**14 AWG**
	ATTENUATION Max	ATTENUATION Max	ATTENUATION Max
(MHz)	(dB/100m)	(dB/100m)	(dB/100m)
0.039	3.0	3.0	3.0

Foundation Fieldbus Cable

KEYSTONE CABLE
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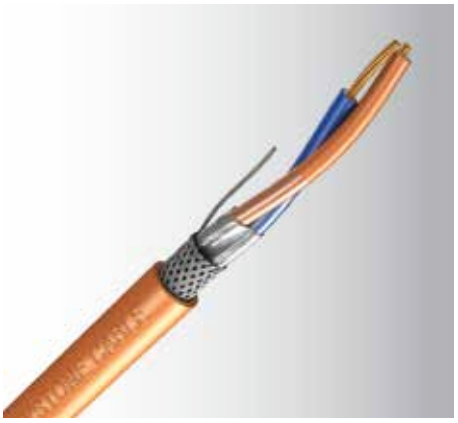
www.keystone-cable.com

300V Multi Pair PE Insulated, Individual & Overall Aluminium Tape Screen, PVC Sheathed Cable
CU/PE/ISOS/PVC



Application :	For use in data communication networks and industrial process control instruments
Construction :	Plain annealed copper wire, polyethylene or cross-linked polyethylene insulated, twisted pair, individual and overall aluminium tape with tinned copper drain wire screened, PVC sheathed cable
Insulation Colour :	Orange(+), Blue(-)
Sheath Colour :	Unarmoured - Orange (Non Ex), Blue (Ex)
Operating Temperature :	80°C

Standard Reference	FF-844 H1, IEC61158-2, BS EN 50288-7

No. of Pair	Conductor		Insulation		Multi Pair Cable	
	Size	No./Dia. of Strand	Material	Thickness	Approx. Overall Dia.	Approx. Weight
	(AWG)	(no./mm)		(mm)	(mm)	(kg/km)
2	18	7/0.40	PE or XLPE	0.6	11.0	141
	16	7/0.52	PE or XLPE	0.6	12.7	192
3	18	7/0.40	PE or XLPE	0.6	12.0	191
	16	7/0.52	PE or XLPE	0.6	13.5	252
4	18	7/0.40	PE or XLPE	0.6	13.2	243
	16	7/0.52	PE or XLPE	0.6	15.0	332

Electrical Properties	**18 AWG**	**16AWG**
Max. Conductor Resistance	44 Ω / km	27.4 Ω / km
Min. Insulation Resistance	5 GΩ / km	5 GΩ / km
Nom. Mutual Capacitance	80nF / km	80nF / km
Max. Capacitance Unbalance	4nF /km	4nF /km
Characteristics Impedance	100 ± 20 Ω	100 ± 20 Ω
Min. Bending Radius	6D (Fixed), 10D (Repeated)	

Frequency	**18 AWG**	**16 AWG**
	ATTENUATION Max	ATTENUATION Max
(MHz)	(dB/100m)	(dB/100m)
0.039	3.0	3.0

Flame Retardant Foundation Fieldbus Cable

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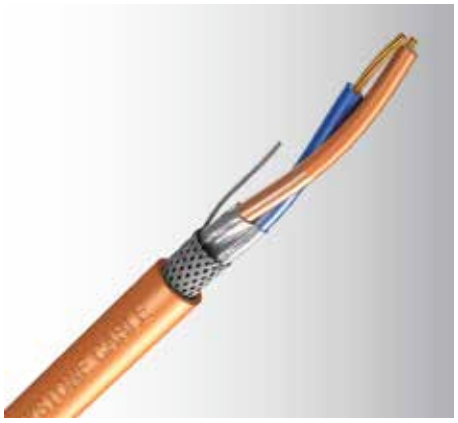
300V Single Pair FPE Insulated, Double Shield, LSZH Sheathed Cable
CU/FPE/OS/OBS/LSZH



Standard Reference	FF-844 H1, IEC61158-2, BS EN 50288-7
Flame Retardant Ref.	IEC 60332-3, IEC 60754, IEC 61034

Application :	For use in data communication networks and industrial process control instruments, especially suitable for areas where fire would create dense smoke and toxic fumes, imposing major threat to lives and equipment
Construction :	Plain annealed copper wire, foam polyethylene with skin insulation, polyethylene or cross-linked polyethylene insulated, coated aluminium tape screen with metallic surface outward in contact with tinned copper drain wire, LSZH sheathed cable
Insulation Colour :	Orange(+), Blue(-)
Sheath Colour :	Unarmoured - Orange (Non Ex), Blue (Ex)
Operating Temperature :	80°C

Conductor		Insulation		Single Pair Cable	
Size	No./Dia. of Strand	Material	Thickness	Approx. Overall Dia.	Approx. Weight
(AWG)	(no./mm)		(mm)	(mm)	(kg/km)
18	7/0.40	FPE	0.6	8.0	96
16	7/0.50	PE or XLPE	0.6	9.7	129
14	7/0.62	PE or XLPE	0.6	11.5	172

Electrical Properties	**18 AWG**	**16AWG**	**14AWG**
Max. Conductor Resistance	44 Ω / km	28 Ω / km	17.9 Ω / km
Min. Insulation Resistance	5 GΩ / km	5 GΩ / km	5 GΩ / km
Max. Mutual Capacitance	65nF / km	65nF / km	65nF / km
Max. Capacitance Unbalance	2pF /km	2pF /km	2pF /km
Characteristics Impedance	100 ± 20 Ω	100 ± 20 Ω	100 ± 20 Ω
Min. Bending Radius	6D (Fixed), 10D (Repeated)		

Frequency	**18 AWG**	**16 AWG**	**14 AWG**
	ATTENUATION Max	ATTENUATION Max	ATTENUATION Max
(MHz)	(dB/100m)	(dB/100m)	(dB/100m)
0.039	3.0	3.0	3.0

Flame Retardant Foundation Fieldbus Cable

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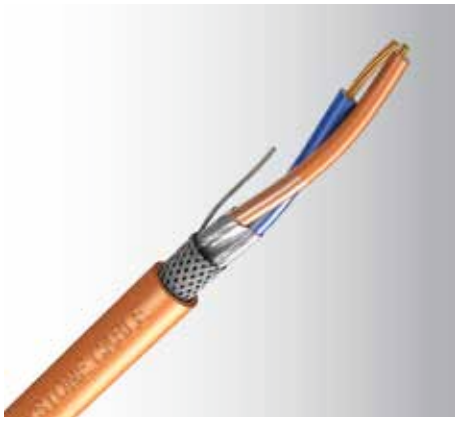
300V Multi Pair PE Insulated, Aluminium Tape Screen,
LSZH Sheathed Cable
CU/PE/ISOS/LSZH



Standard Reference	FF-844 H1, IEC61158-2, BS EN 50288-7
Flame Retardant Ref.	IEC 60332-3, IEC 60754, IEC 61034

Application :	For use in data communication networks and industrial process control instruments, especially suitable for areas where fire would create dense smoke and toxic fumes, imposing major threat to lives and equipment
Construction :	Plain annealed copper wire, polyethylene or cross-linked polyethylene insulated, twisted pair, individual and overall aluminium tape with tinned copper drain wire screened, LSZH bedding & sheathed cable
Insulation Colour :	Orange(+), Blue(-)
Sheath Colour :	Unarmoured - Orange (Non Ex), Blue (Ex)
Operating Temperature :	80°C

No. of Pair	Conductor		Insulation		Multi Pair Cable	
	Size	No./Dia. of Strand	Material	Thickness	Approx. Overall Dia.	Approx. Weight
	(AWG)	(no./mm)		(mm)	(mm)	(kg/km)
2	18	7/0.40	PE or XLPE	0.6	11.0	141
	16	7/0.52	PE or XLPE	0.6	12.7	192
3	18	7/0.40	PE or XLPE	0.6	12.0	191
	16	7/0.52	PE or XLPE	0.6	13.5	252
4	18	7/0.40	PE or XLPE	0.6	13.2	243
	16	7/0.52	PE or XLPE	0.6	15.0	332

Electrical Properties	18 AWG	16AWG
Max. Conductor Resistance	44 Ω / km	27.4 Ω / km
Min. Insulation Resistance	5 GΩ / km	5 GΩ / km
Nom. Mutual Capacitance	80nF / km	80nF / km
Max. Capacitance Unbalance	4nF /km	4nF /km
Characteristics Impedance	100 ± 20 Ω	100 ± 20 Ω
Min. Bending Radius	6D (Fixed), 10D (Repeated)	

Frequency	**18 AWG**	**16 AWG**
	ATTENUATION Max	ATTENUATION Max
(MHz)	(dB/100m)	(dB/100m)
0.039	3.0	3.0

Technical Data

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Multi-Core Cables with XLPE Insulation, Copper Tape Screen and PVC Outersheath

Table 1 : Current-Carrying Capacities (Amp) [CU/XLPE/PVC/CTS/PVC Cables]

Conductor Operating Temperature : 90°C
Ambient Temperature : 30°C

IEC60502-1

Conductor cross-sectional area	Clipped Direct	On a perforated cable tray
	one 3-core cable or one 4-core cable 3-phase a.c.	one 3-core cable or one 4-core cable 3-phase a.c.
mm²	A	A
1.5	22	23
2.5	30	32
4	40	42
6	52	54
10	71	75
16	96	100
25	119	127
35	147	158
50	179	192
70	229	246
95	278	298
120	322	346
150	371	399
185	424	456
240	500	538
300	576	621
400	667	741

Note : For rating factors of ambient temperature other than 30°C please refer to Table 3
For rating factors of ground temperature other than 15°C please refer to Table 4

Table 2 : Voltage Drop (Per Amp Per Meter) [CU/XLPE/PVC, CU/XLPE/LSZH or CU/MICA/XLPE/LSZH Cables]

Conductor Operating Temperature : 90°C
Ambient Temperature : 30°C

IEC60502-1

Conductor cross-sectional area	3-core or 4-core Cable 3-phase a.c.		
mm²	mV/A/m		
1.5		27	
2.5		16	
4		10	
6		6.8	
10		4.0	
16		2.5	
	r	x	z
25	1.60	0.140	1.65
35	1.15	0.135	1.15
50	0.86	0.135	0.87
70	0.59	0.130	0.60
95	0.43	0.130	0.45
120	0.34	0.130	0.37
150	0.28	0.125	0.30
185	0.22	0.125	0.26
240	0.175	0.125	0.21
300	0.140	0.120	0.185
400	0.115	0.120	0.165

Note : r = conductor resistance at operating temperature
x = reactance
z = impedance

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Multi-Core Cables with XLPE Insulation, Armoured, Copper Tape Screen and PVC Outersheath

Table 3 : Current-Carrying Capacities (Amp) [CU/XLPE/PVC/CTS/SWA/PVC Cables]

Conductor Operating Temperature : 90°C
Ambient Temperature : 30°C

IEC60502-1

Conductor cross-sectional area	Clipped Direct	On a perforated cable tray	Laid direct in ground
	one 3-core cable or one 4-core cable 3-phase a.c.	one 3-core cable or one 4-core cable 3-phase a.c.	one 3-core cable or one 4-core cable 3-phase a.c.
mm^2	A	A	A
1.5	23	25	28
2.5	31	33	36
4	42	44	48
6	53	56	60
10	73	78	80
16	94	99	115
25	124	131	150
35	154	162	180
50	187	197	215
70	238	251	265
95	289	304	315
120	335	353	360
150	386	406	405
185	441	463	460
240	520	546	530
300	599	628	590
400	673	728	670

Note : For rating factors of ambient temperature other than 30°C please refer to Table 3
For rating factors of ground temperature other than 15°C please refer to Table 4

Table 4 : Voltage Drop (Per Amp Per Meter)
[CU/XLPE/PVC/SWA/PVC, CU/XLPE/LSZH/SWA/LSZH, CU/MICA/XLPE/LSZH/SWA/LSZH Cables]

Conductor Operating Temperature : 90°C — BS 6724
Ambient Temperature : 30°C — IEC 60502-1

Conductor cross-sectional area	3 or 4 cables, 3-phase a.c.			3 or 4 cables, 3-phase a.c. In ducts or in ground
mm^2	mV/A/m			mV/A/m
1.5		27.0		25.0
2.5		16.0		15.0
4		10.0		9.7
6		6.8		6.5
10		4.0		3.9
16		2.5		2.6
-	r	x	z	
25	1.600	0.140	1.650	1.600
35	1.150	0.135	1.150	1.200
50	0.860	0.135	0.870	0.870
70	0.590	0.130	0.600	0.610
95	0.430	0.130	0.450	0.450
120	0.340	0.130	0.370	0.360
150	0.280	0.125	0.300	0.300
185	0.220	0.125	0.260	0.250
240	0.175	0.125	0.210	0.210
300	0.140	0.120	0.185	0.190
400	0.115	0.120	0.165	0.180

Note : r = conductor resistance at operating temperature
x = reactance
z = impedance

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Table 5 : Rating Factors for Other Ambient Air Temperatures (XLPE or LSZH Insulated)

Ambient Temperature	25°C	30°C	35°C	40°C	45°C	50°C	55°C	60°C
Rating Factors	1.04	1.00	0.95	0.90	0.85	0.79	0.73	0.67

Table 6 : Rating Factors for Other Ground Temperatures (XLPE or LSZH Insulated)

Ground Temperature	15°C	20°C	25°C	30°C	35°C	40°C	45°C	50°C
Rating Factors	1.00	0.97	0.93	0.89	0.86	0.82	0.77	0.73

Table 7 : Minimum Bending Radius

To install the cables safely without damaging the electrical and physical properties of the cables, the tabulated minimum bending radius must be observed.

Type of Product	Construction	Minimum Bending Radius
XLPE Insulated Power Cables	Unarmoured	8D
	Armoured	10D

Note : D means the overall diameter of cable (mm)

Table 8 : Permissible Maximum Pulling Tension (T)

Conductor	Max. Pulling Tension (Kgf)
Copper	7 x No. of cores x Norminal Area of Conductor

Drum Handing

Handle the drums with care.

It is always recommended and a must with heavy drums -

- To lift drums with a fork-lift truck or a crane when removing them from the vehicle.
- Always lower the drums into an upright position on their flanges.

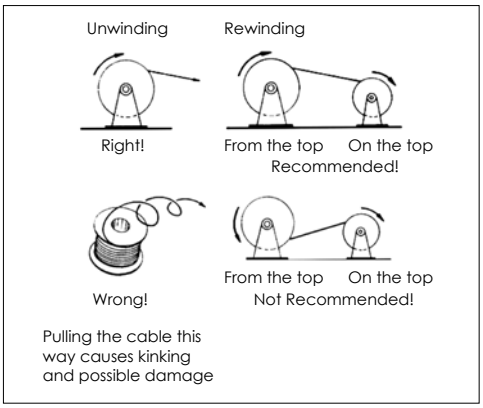

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Table 9 : Electrical Characteristics for Instrumentation Cables

Material	PVC	PE	XLPE	XLEVA	V-90
Max. Conductor Operating Temperature (°C)	70	70	90	105	90
Min. Ambient Temperature (°C)	-15	-15	-15	-15	-15
Max. Working Voltage (r.m.s)	300/500V	300/500V	300/500V	300/500V	300/500V
Test Voltage (1 minute)	2000 V R.M.S between conductors and screen/armour				
Min. Insulation Resistance (mΩ/km)	10	1000	1000	10	10

Table 10 : Conductor Resistance @ 20 °C

Conductor			Plain		Tinned	
Size	Class	Stranding	Single/Multi-Core	Multi-Pair/Triple	Single/Multi-Core	Multi-Pair/Triple
mm^2	-	no./mm	-	-	-	-
0.5	1	1/0.80	36.0	36.7	36.7	37.1
	2	7/0.30	36.0	36.7	36.7	37.1
	5	16/0.20	39.0	39.7	40.1	40.9
0.75	1	1/0.97	24.5	25.0	24.8	25.3
	2	7/0.37	24.5	25.0	24.8	25.3
	5	24/0.20	26.0	26.5	26.7	27.2
1.0	1	1/1.13	18.1	18.4	18.2	18.6
	2	7/0.43	18.1	18.4	18.2	18.6
	5	32/0.20	19.5	19.9	20.0	20.4
1.5	1	1/1.38	121	12.3	12.2	12.4
	2	7/0.53	12.1	12.3	12.2	12.4
	5	30/0.25	13.3	13.6	13.7	14.0
2.5	1	1/1.78	7.41	7.6	7.56	7.71
	2	7/0.67	7.41	7.6	7.56	7.71
	5	50/0.25	8.0	8.1	8.212	8.37

Table 11 : Maximum Inductance to Resistance Ratio (L/R)

Conductor	
Size	L/R Ratio (for adjacent cores)
mm^2	μH/Ω
0.50	25
0.75	25
1.0	25
1.5	40
2.5	60

Table 12 : Maximum Mutual Capacitance Values

Conductor Size	Type of Material	Requirement
mm^2	-	nF/km
0.5	PE XLPE XLEVA	150
0.75		
1.0		
1.5		
2.5	PVC	250

Table 13 : Minimum Bending Radius

Cable Type	Unarmoured	Armoured
Collective Screen (OS)	8D	10D
Individual and Overall Screen (ISOS)	8D	10D

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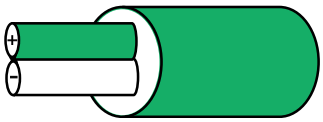
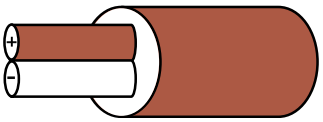
Table 14 : Electrical Characteristics for Thermocouple Cables

Type KX



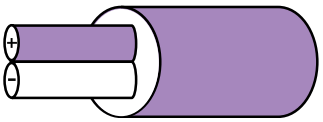
Green (+) White (-)

Type TX



Brown (+) White (-)

Type EX



Vlolet (+) White (-)

Cable Type	Conductor Material		Tolerance Class		Cable Temp. Range	Measuring Junction Temp.
	Positive (+)	Negative (-)	1	2		
TX	Nickel Chromel (NiCr)	Nickel Aluminium (NiAl)	± 60 µV (± 1.5°C)	± 100 µV (± 2.5°C)	-25°C ~ + 200 °C	900 °C
TX	Copper (Cu)	Copper Nickel (CuNi)	± 30 µV (± 0.5°C)	± 60 µV (± 1.0°C)	-25°C ~ + 100 °C	300 °C
EX	Nickel Chromel (NiCr)	Copper Nickel (CuNi)	± 120 µV (± 1.5°C)	± 200 µV (± 2.5°C)	-25°C ~ + 200 °C	500 °C

Table 15 : Minimum Bending Radius

Cable Type	Unarmoured	Armoured
Collective Screen (OS)	8D	10D
Individual and Overall Screen (ISOS)	8D	10D

Wire Gauge Conversion Table

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Conductor Size		Cross-section Area
AWG	mm^2	Nearest Available mm^2
26	0.141	0.14
24	0.241	0.25
22	0.324	0.34
20	0.519	0.5
18	0.823	1.00
16	1.31	1.50
14	2.08	2.50
12	3.31	4.00
10	5.26	6.00
8	8.37	10.00
6	13.3	16.00
4	21.15	25.00
2	33.62	35.00
1	42.41	50.00
1/0	53.49	70.00
2/0	67.23	70.00
3/0	85.01	95.00
4/0	107.2	120.00

Conductor Size		Cross-section Area
MCM	mm^2	Nearest Available mm^2
250	126.70	120-150
300	152.00	150
350	177.30	185
400	202.70	185
450	228.00	240
500	253.40	240
550	278.80	240-300
600	304.00	300
650	329.40	300
700	354.70	300-400
750	380.00	400
800	405.40	400
950	481.40	500
1000	506.70	500
1250	633.40	630
1500	760.00	800
1750	886.70	800-1000
2000	1013.40	1000

Note : AWG - America Wire Gauge
MCM is an abbreviation for thousands of circular mills, an old measurement of wire gauge.
1 MCM = 1 kcmil = 0.5067 square millimeters

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