Multicore XLPE/LSF/SWA/LSF Control Cable

600/1000 V

Application

Sheathed, multicore control cable. Especially for use in areas where fire would create dense smoke and toxic fumes causing a major threat to life and equipment.

Specifications

- In accordance with BS6724
- **Conductors:** Stranded Class 2 copper conductors to BS EN 60228
- **Insulation:** XLPE insulation Type GP8 to BS7655
- **Core Identification:** Number printed in black ink on white XLPE insulated cores
- **Inner Sheath:** LSF inner sheath Type LTS1 to BS7655
- Mild galvanised steel wires to BSEN10257-1
- **Outer Sheath:** Black LSF outer sheath Type LTS1 to BS7655
- Flame retardant to BS EN 60332-3-24 & IEC60332-3-24 Cat. C as a minimum
- **Temperature Rating:** 90°C maximum conductor operating temperature
- **Voltage Rating:** 600/1000 V

Multicore XLPE/LSF/SWA/LSF Control Cable

600/1000 V

Anixter Number	Number of Cores	Nominal Conductor Area mm^2	Insulation Thickness mm	Diam under Armour mm	Armour Wire Size mm	Nominal O/D mm	Approx Weight kg/km	Min Bending Radius (fixed bend) mm
A2-AU-0015N	2	1.5	0.6	7.7	0.9	12.1	310	80
A2-AV-0015N	3	1.5	0.6	8.2	0.9	12.6	340	80
A2-AX-0015N	4	1.5	0.6	8.9	0.9	13.3	390	90
BS6724-5C-0015N	5	1.5	0.6	9.7	0.9	14.3	420	90
A3-03-C007	7	1.5	0.6	10.6	0.9	15.2	490	100
A3-03-C010	10	1.5	0.6	13.2	1.25	18.7	700	120
A3-03-C012	12	1.5	0.6	13.9	1.25	19.4	830	120
A3-03-C019	19	1.5	0.6	16.5	1.25	22.2	1070	140
A3-03-C027	27	1.5	0.6	20.1	1.6	26.7	1518	170
A3-03-C037	37	1.5	0.6	22.4	1.6	29.0	1880	180
A2-AU-0025N	2	2.5	0.7	9.0	0.9	13.6	360	90
A2-AV-0025N	3	2.5	0.7	9.5	0.9	14.1	400	90
A2-AX-0025N	4	2.5	0.7	10.4	0.9	15.0	470	90
BS6724-5C-0025N	5	2.5	0.7	11.5	0.9	16.1	510	100
A3-P3-C007	7	2.5	0.7	12.5	1.25	17.1	600	110
A3-P3-C010	10	2.5	0.7	15.8	1.25	21.5	890	130
A3-P3-C012	12	2.5	0.7	16.7	1.25	22.4	1020	140
A3-P3-C019	19	2.5	0.7	20.0	1.6	26.6	1530	160
A3-P3-C027	27	2.5	0.7	23.9	1.6	30.7	1960	190
A3-P3-C037	37	2.5	0.7	27.0	1.6	33.8	2530	190

For further technical information see page 1:64.
For conductor short-circuit ratings refer to page 19:28.
For armour short-circuit ratings refer to page 19:34.

Technical Information

- Multicore XLPE/PVC/SWA/PVC 600/1000 V
- Multicore XLPE/LSF/SWA/LSF 600/1000 V
- Multicore XLPE/LC/PVC/SWA/PVC 600/1000 V

CURRENT CARRYING CAPACITY (Amperes)

Direct Burial			In Single-Way Duct		
Nominal Conductor Area	2 Core	3 & 4 Core	Nominal Conductor Area	2 Core	3 & 4 Core
mm^2	Arm'd	Arm'd	mm^2	Arm'd	Arm'd
1.5	38	32	1.5	31	26
2.5	49	42	2.5	41	34
4	65	55	4	53	45
6	81	69	6	67	56
10	109	92	10	89	75
16	141	119	16	115	96
25	183	152	25	148	124
35	219	182	35	178	149
50	259	217	50	211	177
70	317	266	70	260	218
95	381	319	95	313	263
120	433	363	120	357	300
150	485	406	150	401	338
185	547	458	185	455	382
240	632	529	240	527	442
300	708	592	300	592	496
400	799	667	400	669	570

Standard depth of laying 0.5m
Thermal resistivity of soil 1.2°C m/W
Standard ground temperature 15°C
Ambient air temperature 25°C
Maximum conductor temperature 90°C
2 core - single phase a.c. 3 & 4 core - three phase a.c.
Ratings do not apply if the cable is protected by a semi-enclosed fuse to BS3036.
For further guidance refer to the BS7671 (IEE Wiring Regulations - latest edition) and ERA publication 69-30 Part 5.
3 & 4 core ratings also apply to 5 core cables.

Air		
Nominal Conductor Area	2 Core	3 & 4 Core
mm^2	Arm'd	Arm'd
1.5	31	26
2.5	41	35
4	55	47
6	70	59
10	95	82
16	126	107
25	164	140
35	202	172
50	244	209
70	306	263
95	378	324
120	437	376
150	499	430
185	576	495
240	680	584
300	775	666
400	892	766

For cables of five core and above it is assumed only two cores are loaded simultaneously (i.e. live and neutral) and the two core rating should be taken. In instances where several cores are loaded simultaneously, the following rating factors should be applied to the two core current rating:

Number of cores	2	3	4	5	6	7	10	12
Factor	1.0	0.87	0.78	0.72	0.67	0.63	0.56	0.53

Number of cores	14	19	24	27	30	37	44	46	48
Factor	0.51	0.45	0.42	0.4	0.39	0.36	0.34	0.33	0.33

Technical Information

- XLPE/PVC/SWA/PVC
- XLPE/LSF/SWA/LSF
- XLPE/LC/PVC/SWA/PVC 600/1000 V

Conductor operating temperature 90°C

NB. for ambient air and ground temperatures other than those specified the following rating factors should be applied:

Cables Laid in Air

Ambient air temp °C	25	30	35	40	45	50	55
Rating factor	1.0	0.96	0.92	0.88	0.83	0.78	0.73

Cables laid direct in ground and in single-way ducts

Ground temp °C	10	15	20	25	30	35	40
Rating factor	1.03	1.0	0.97	0.93	0.89	0.86	0.82

VOLTAGE DROP (per Ampere per metre):

Conductor Cross Sectional Area	2 Core Cable d.c.	2 Core Cable Single Phase a.c.			3, 4 or 5 Core Cable Three Phase a.c.		
1	2	3			4		
mm^2	mV	mV			mV		
1.5	31	31			27		
2.5	19	19			16		
4	12	12			10		
6	7.9	7.9			6.8		
10	4.7	4.7			4.0		
16	2.9	2.9			2.5		
		r	x	z	r	x	z
25	1.85	1.85	0.160	1.90	1.60	0.140	1.65
35	1.35	1.35	0.155	1.35	1.15	0.135	1.15
50	0.98	0.99	0.155	1.00	0.86	0.135	0.87
70	0.67	0.67	0.150	0.69	0.59	0.130	0.60
95	0.49	0.50	0.150	0.52	0.43	0.130	0.45
120	0.39	0.40	0.145	0.42	0.34	0.130	0.37
150	0.31	0.32	0.145	0.35	0.28	0.125	0.30
185	0.25	0.26	0.145	0.29	0.22	0.125	0.26
240	0.195	0.20	0.140	0.24	0.175	0.125	0.21
300	0.155	0.16	0.140	0.21	0.140	0.120	0.185
400	0.120	0.13	0.145	0.195	0.115	0.125	0.170

- Multicore PCU/XLPE/PVC 600/1000V to BS5467
- Multicore PCU/XLPE/PVC/SWA/PVC 600/1000 V to BS5467
- Multicore PCU/XLPE/LSF/SWA/LSF 600/1000 V to BS6724
- Multicore PCU/XLPE/LC/PVC/SWA/PVC 600/1000 V

ELECTRICAL CHARACTERISTICS

Conductor Size mm^2	Maximum d.c. Conductor Resistance @ 20°C ohms/km	Maximum a.c. Conductor Resistance @ 90°C ohms/km	Reactance @ 50Hz ohms/km	Impedance @ 90°C, 50Hz ohms/km
1.5	12.1	15.4	0.103	15.4
2.5	7.41	9.45	0.101	9.45
4.0	4.61	5.88	0.0929	5.88
6.0	3.08	3.93	0.0885	3.93
10	1.83	2.33	0.0835	2.33
16	1.15	1.47	0.0815	1.47
25	0.727	0.927	0.0818	0.931
35	0.524	0.668	0.0771	0.672
50	0.387	0.494	0.0765	0.500
70	0.268	0.342	0.0754	0.350
95	0.193	0.247	0.0727	0.257
120	0.153	0.197	0.0723	0.210
150	0.124	0.160	0.0728	0.176
185	0.0991	0.128	0.073	0.147
240	0.0754	0.0989	0.0722	0.122
300	0.0601	0.0802	0.0717	0.108
400	0.047	0.0656	0.0715	0.0970

Conductor Short-Circuit Ratings

XLPE Insulated Cables

Short-Circuit Ratings

Conductor Size mm^2	0.2s duration kA	1.0s duration kA	3.0s duration kA
1.5	0.479	0.214	0.123
2.5	0.799	0.357	0.206
4.0	1.27	0.572	0.330
6.0	1.91	0.858	0.495
10	3.19	1.43	0.825
16	5.11	2.28	1.32
25	7.99	3.57	2.06
35	11.1	5.0	2.88
50	15.9	7.15	4.12
70	22.3	10.0	5.77
95	30.3	13.5	7.84
120	38.3	17.1	9.9
150	47.9	21.4	12.3
185	59.1	26.4	15.2
240	76.7	34.3	19.8
300	95.9	42.9	24.7
400	127	57.2	33.0
500	159	71.5	41.2
630	201	90.0	52.0

N.B: The above ratings assume an adiabatic temperature rise and are based on a conductor temperature of 90°C at start of short-circuit and 250°C at end of shortcircuit.

Armour Short-Circuit Ratings

Two Core XLPE/PVC/SWA/PVC 600/1000V
Two Core XLPE/LSF/SWA/LSF 600/1000V
Two Core MICA/XLPE/LSF/SWA/LSF 600/1000V

Short-Circuit Ratings

Conductor Size mm²	0.2s duration kA	1.0s duration kA	3.0s duration kA
1.5	1.54	0.69	0.398
2.5	1.75	0.782	0.451
4.0	1.95	0.874	0.505
6.0	2.26	1.01	0.583
10	2.68	1.20	0.693
16	4.32	1.93	1.11
25	4.32	1.93	1.11
35	6.17	2.76	1.59
50	7.0	3.13	1.81
70	8.23	3.68	2.12
95	11.6	5.20	3.0
120	12.9	5.75	3.32
150	14.2	6.35	3.67
185	19.7	8.79	5.07
240	22.1	9.89	5.71
300	24.1	10.8	6.24
400	27.3	12.2	7.04

N.B: The above ratings assume an adiabatic temperature rise and are based on an armour temperature of 80°C at start of short-circuit and 200°C at end of short-circuit.

Armour Short-Circuit Ratings

Three Core XLPE/PVC/SWA/PVC 600/1000V
Three Core XLPE/LSF/SWA/LSF 600/1000V
Three Core MICA/XLPE/LSF/SWA/LSF 600/1000V

Short-Circuit Ratings

Conductor Size mm²	0.2s duration kA	1.0s duration kA	3.0s duration kA
1.5	1.65	0.736	0.425
2.5	1.95	0.874	0.505
4.0	2.06	0.920	0.531
6.0	2.37	1.06	0.612
10	4.0	1.79	1.03
16	4.63	2.07	1.20
25	6.37	2.85	1.65
35	7.0	3.13	1.81
50	8.03	3.59	2.07
70	9.26	4.14	2.39
95	13.2	5.89	3.4
120	14.5	6.49	3.75
150	20.7	9.25	5.34
185	22.6	10.1	5.84
240	25.7	11.5	6.64
300	27.7	12.4	7.16
400	31.3	14.0	8.08

N.B: The above ratings assume an adiabatic temperature rise and are based on an armour temperature of 80°C at start of short-circuit and 200°C at end of short-circuit.

Armour Short-Circuit Ratings

Four Core XLPE/PVC/SWA/PVC 600/1000V
Four Core XLPE/LSF/SWA/LSF 600/1000V
Four Core MICA/XLPE/LSF/SWA/LSF 600/1000V

Short-Circuit Ratings

Conductor Size mm²	0.2s duration kA	1.0s duration kA	3.0s duration kA
1.5	1.75	0.782	0.451
2.5	2.06	0.920	0.531
4.0	2.26	1.01	0.583
6.0	3.71	1.66	0.958
10	4.32	1.932	1.12
16	5.14	2.30	1.33
25	7.2	3.22	1.86
35	8.03	3.59	2.07
50	9.26	4.14	2.39
70	13.25	6.03	3.48
95	15.1	6.76	3.90
120	21.2	9.48	5.47
150	23.7	10.6	6.12
185	26.2	11.7	6.77
240	29.7	13.3	7.68
300	32.9	14.7	8.49
400	46.5	20.8	12.0

N.B: The above ratings assume an adiabatic temperature rise and are based on an armour temperature of 80°C at start of short-circuit and 200°C at end of short-circuit.

Armour Short-Circuit Ratings

Five Core XLPE/PVC/SWA/PVC 600/1000V
Five Core XLPE/LSF/SWA/LSF 600/1000V
Five Core MICA/XLPE/LSF/SWA/LSF 600/1000V

Short-Circuit Ratings

Conductor Size mm²	0.2s duration kA	1.0s duration kA	3.0s duration kA
1.5	1.95	0.874	0.505
2.5	2.26	1.01	0.583
4.0	2.57	1.15	0.664
6.0	4.11	1.84	1.06
10	6.98	2.12	1.22
16	7.40	3.31	1.91
25	9.06	4.05	2.34
35	10.3	4.6	2.66
50	14.8	6.62	3.82
70	17.1	7.64	4.41
95	-	-	-
120	-	-	-
150	-	-	-
185	-	-	-
240	-	-	-
300	-	-	-
400	-	-	-

N.B: The above ratings assume an adiabatic temperature rise and are based on an armour temperature of 80°C at start of short-circuit and 200°C at end of short-circuit.

Armour Short-Circuit Ratings

Auxiliary XLPE/PVC/SWA/PVC 600/1000V
Auxiliary XLPE/LSF/SWA/LSF 600/1000V
Auxiliary MICA/XLPE/LSF/SWA/LSF 600/1000V

Short-Circuit Ratings

Conductor Size Number x mm²	0.2s duration kA	1.0s duration kA	3.0s duration kA
7 x 1.5	2.06	0.920	0.531
12 x 1.5	4.0	1.79	1.03
19 x 1.5	4.63	2.07	1.20
27 x 1.5	7.20	3.22	1.86
37 x 1.5	8.03	3.59	2.07
7 x 2.5	2.46	1.10	0.635
12 x 2.5	4.63	2.07	1.20
19 x 2.5	7.20	3.22	1.86
27 x 2.5	8.63	3.86	2.23
37 x 2.5	9.66	4.32	2.49
7 x 4.0	4.0	1.79	1.03
12 x 4.0	7.0	3.13	1.81
19 x 4.0	8.23	3.68	2.12
27 x 4.0	9.88	4.42	2.55
37 x 4.0	41.2	6.35	3.67

N.B: The above ratings assume an adiabatic temperature rise and are based on an armour temperature of 80°C at start of short-circuit and 200°C at end of short-circuit.