LSZH Flame Retardant Prefabricated Branch Cables

KEYSTONE CABLE
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0.6/1kV Single-Core
XLPE Insulated, Unarmoured, LSZH Sheathed Cable
Description: CU/XLPE/LSZH-AT-UV
Model Code: XL-AT-UV

Application :	This cable is used in power supply and distribution system for high-rise residential, commercial buildings, hotels, and factories.
Voltage rating :	0.6/1kV
Construction :	Plain annealed copper (IEC 60228 Class 2), XLPE insulated, unarmoured, anti-termite and UV resistant LSZH compound sheathed cable
Insulation colour :	Natural
Sheath colour :	Black
Specification :	IEC 60502-1, BS 6724, IEC 60332-1-2, IEC 60332-3, IEC 60754, IEC 61034
Operating temperature :	90˚C

Conductor			Insulation	Part No.	Unarmoured Cable	
Nominal Area	No./Diam. of Strand	Approx. Diam.	Thickness		Approx. Overall Diam.	Approx. Weight
(mm^2)	(no./mm)	(mm)	(mm)		(mm)	(kg/km)
10	7/1.35	4.05	0.7	**1101B******	8.5	155
16	7/1.70	5.10	0.7	**1201B******	9.5	225
25 (cs)	7/2.14	6.20	0.9	**1301B******	11.2	335
35 (cs)	19/1.53	7.30	0.9	**1401B******	12.3	435
50 (cs)	19/1.78	8.20	1.0	**1501B******	13.5	570
70 (cs)	19/2.14	10.00	1.1	**1601B******	15.3	800
95 (cs)	19/2.52	11.80	1.1	**1701B******	17.4	1080
120 (cs)	37/2.03	13.00	1.2	**1801B******	18.8	1330
150 (cs)	37/2.25	14.40	1.4	**1901B******	20.8	1630
185 (cs)	37.2.52	16.20	1.6	**2001B******	23.1	2030
240 (cs)	61/2.25	18.80	1.7	**2101B******	26.3	2650
300 (cs)	61/2.52	21.20	1.8	**2201B******	29.1	3260
400 (cs)	61/2.85	24.30	2.0	**2301B******	32.9	4140
500 (cs)	61/3.20	27.40	2.2	**2401B******	36.7	5200
630	127/2.52	32.76	2.4	**2501B******	42.8	6650
800	127/2.85	37.05	2.6	**2601B******	48.0	8450
1000	127/3.20	41.60	2.8	**2701B******	53.0	10600

**** Stands for branch size, please contact us for more information.

Current rating and voltage drop
For Unarmoured Cable, please refer to Table 3 & 4 (Page 26)

(cs) : Circular Compact Stranded Conductor

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Single-Core Cables with XLPE Insulation, PVC (or LSZH) Outersheath 0.6/1kV

Table 3 : Current-Carrying Capacities (Amp)
[CU/XLPE/PVC, CU/XLPE/LSZH, or CU/MT/XLPE/LSZH Cables]

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

IEC 60502-1

Conductor Cross-sectional Area	Reference Method 4 (enclosed in conduit in thermally insulating wall etc)		Reference Method 3 (enclosed in conduit on a wall or in trunking etc)		Reference Method 1 (clipped direct)		Reference Method 11 (on a perforated cable tray, horizontal or vertical)		Reference Method 12 (in free air)		
									Horizontal flat spaced	Vertical flat spaced	Trefoil
	2 cables, 1-phase a.c. or d.c.	3 or 4 cables, 3-phase a.c.	2 cables, 1-phase a.c. or d.c	3 or 4 cables, 3-phase a.c.	2 cables, 1-phase a.c. or d.c. flat and touching	3 or 4 cables, 3-phase a.c. flat and touching or trefoil	2 cables, 1-phase a.c. or d.c. flat and touching	3 or 4 cables, 3-phase a.c. flat and touching or trefoil	2 cables, 1-phase a.c. or d.c. or 3 cables 3-phase a.c.	2 cables, 1-phase a.c. or d.c. or 3 cables 3-phase a.c.	3 cables trefoil, 3-phase a.c.
1	2	3	4	5	6	7	8	9	10	11	12
mm²	A	A	A	A	A	A	A	A	A	A	A
1.5	18	17	22	19	25	23	-	-	-	-	-
2.5	24	23	30	26	34	31	-	-	-	-	-
4	33	30	40	35	46	41	-	-	-	-	-
6	43	39	51	45	59	54	-	-	-	-	-
10	58	53	71	63	81	74	-	-	-	-	-
16	76	70	95	85	109	99	-	-	-	-	-
25	100	91	126	111	143	130	158	140	183	163	138
35	124	111	156	138	176	161	195	176	226	203	171
50	149	135	189	168	228	209	239	215	274	246	209
70	189	170	240	214	293	268	308	279	351	318	270
95	228	205	290	259	355	326	375	341	426	389	330
120	263	235	336	299	413	379	436	398	495	453	385
150	300	270	375	328	476	436	505	461	570	524	445
185	341	306	426	370	545	500	579	530	651	600	511
240	400	358	500	433	644	590	686	630	769	711	606
300	459	410	573	493	743	681	794	730	886	824	701
400	-	-	683	584	868	793	915	849	1065	994	820
500	-	-	783	666	990	904	1044	973	1228	1150	936
630	-	-	900	764	1130	1033	1191	1115	1423	1338	1069
800	-	-	-	-	1288	1179	1358	1275	1581	1485	1214
1000	-	-	-	-	1443	1323	1520	1436	1775	1671	1349

Note : For rating factors of ambient temperature other than 30°C, please refer to Table 9 (Page 29)

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

Conductor Operating Temperature : 90°C

IEC 60502-1

Conductor Cross-sectional Area	2 cables, d.c.	2 cables, 1-phase a.c.						3 or 4 cables, 3-phase a.c.								
		Reference Methods 3 and 4 (enclosed in conduit etc, in or on a wall)			Reference Methods 1 and 11 (clipped direct or on trays touching)			Reference Methods 3 and 4 (enclosed in conduit etc, in or on a wall)			Reference Methods 1, 11 and 12 (trefoil)			Reference Methods 1 and 11 (flat and touching)		
1	2	3			4			5			6			7		
mm²	mV/A/m	mV/A/m			mV/A/m			mV/A/m			mV/A/m			mV/A/m		
1.5	31	31			27			27			27			27		
2.5	19	19			16			16			16			16		
4	12	12			10			10			10			10		
6	7.9	7.9			6.8			6.8			6.8			6.8		
10	4.7	4.7			4.7			4.0			4			4		
16	2.9	2.9			2.9			2.5			2.5			2.5		
		r	x	z	r	x	z	r	x	z	r	x	z	r	x	z
25	1.85	1.85	0.31	1.90	1.85	0.190	1.85	1.60	0.27	1.65	1.60	0.165	1.60	1.60	0.190	1.60
35	1.35	1.35	0.29	1.35	1.35	0.180	1.35	1.15	0.25	1.15	1.15	0.155	1.15	1.15	0.180	1.15
50	0.99	1.00	0.29	1.05	0.99	0.180	1.00	0.87	0.25	0.90	0.86	0.155	0.87	0.86	0.180	0.87
70	0.68	0.70	0.28	0.75	0.68	0.175	0.71	0.60	0.24	0.65	0.59	0.150	0.61	0.59	0.175	0.62
95	0.49	0.51	0.27	0.58	0.49	0.170	0.52	0.44	0.23	0.50	0.43	0.145	0.45	0.43	0.170	0.46
120	0.39	0.41	0.26	0.48	0.39	0.165	0.43	0.35	0.23	0.42	0.34	0.140	0.37	0.34	0.165	0.38
150	0.32	0.33	0.26	0.43	0.32	0.165	0.36	0.29	0.23	0.37	0.28	0.140	0.31	0.28	0.165	0.32
185	0.25	0.27	0.26	0.37	0.26	0.165	0.30	0.23	0.23	0.32	0.22	0.140	0.26	0.22	0.165	0.28
240	0.190	0.21	0.26	0.33	0.20	0.160	0.25	0.185	0.22	0.29	0.170	0.140	0.22	0.170	0.165	0.24
300	0.155	0.175	0.25	0.31	0.160	0.160	0.22	0.150	0.22	0.27	0.140	0.140	0.195	0.135	0.160	0.21
400	0.12	0.140	0.25	0.29	0.130	0.155	0.20	0.125	0.22	0.25	0.110	0.135	0.175	0.110	0.160	0.195
500	0.093	0.120	0.25	0.28	0.105	0.155	0.185	0.100	0.22	0.24	0.090	0.135	0.160	0.088	0.160	0.180
630	0.072	0.100	0.25	0.27	0.086	0.155	0.175	0.088	0.21	0.23	0.074	0.135	0.150	0.071	0.160	0.170
800	0.056	-	-	-	0.072	0.150	0.170	-	-	-	0.062	0.130	0.145	0.059	0.155	0.165
1000	0.045	-	-	-	0.063	0.150	0.165	-	-	-	0.055	0.130	0.140	0.050	0.155	0.165

Note : r = resistive component; x = reactive component; z = impedance value

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Table 9 : Correction Factor for Ambient Air Temperature Other than 30°C to be Applied to the Current-Carrying Capacities for Cables in Free Air

Insulation	Ambient Temperature (°C)															
	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85
XLPE (90°C)	1.15	1.12	1.08	1.04	1.00	0.96	0.91	0.87	0.82	0.76	0.71	0.65	0.58	0.50	0.41	0.29

Table 10 : Correction Factor for Ambient Ground Temperature Other Than 15°C to be Applied to the Current-Carrying Capacities for Cables in Ducts or in Ground

Insulation	Ground Temperature (°C)											
	10	15	20	25	30	35	40	45	50	55	60	65
XLPE (90°C)	1.03	1.00	0.97	0.93	0.89	0.86	0.82	0.77	0.73	0.67	0.63	0.58

Table 11 : Correction Factors for Ambient Temperature & Group Installation

Correction for groups of more than one circuit of single-core cables, or more than one multi-core cable

Reference Methods of Installation		Correction Factor (Cg)													
		Number of Circuits or Multi-Core Cables													
		2	3	4	5	6	7	8	9	10	12	14	16	18	20
Enclosed (Method 3 or 4) or bunched and clipped to a non-metallic surface (Method 1)		0.80	0.70	0.65	0.60	0.57	0.54	0.52	0.50	0.48	0.45	0.43	0.41	0.39	0.38
Single layer clipped to a non-metallic surface (Method 1)	Touching	0.85	0.79	0.75	0.73	0.72	0.72	0.71	0.70	-	-	-	-	-	-
	Spaced*	0.94	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Single layer multi-core on a perforated metal cable tray (Method 11)	Touching	0.86	0.81	0.77	0.75	0.74	0.73	0.73	0.72	0.71	0.70	-	-	-	-
	Spaced*	0.91	0.89	0.88	0.87	0.87	-	-	-	-	-	-	-	-	-
Single layer single-core on a perforated metal cable tray, touching (Method 11)	Horizontal	0.90	0.85	-	-	-	-	-	-	-	-	-	-	-	-
	Vertical	0.85	-	-	-	-	-	-	-	-	-	-	-	-	-
Single layer multi-core touching on ladder supports		0.86	0.82	0.80	0.79	0.78	0.78	0.78	0.77	-	-	-	-	-	-

* Space means a clearance between adjacent surfaces of at least one cable Diam. (D_e). Where the horizontal clearance between adjacent cables exceeds 2 D_e, no correction factor need be applied

Note : 1 The factors in the table are applicable to a group of cables all of the same sizes. The value of the current derived from application of the appropriate factors is the maximum continous current to be carried by any of the cables in the group.

2 If, due to known operating conditions, a cable is expected to carry not more than 30% of its grouped rating, it may be ignored for the purpose of obtaining the rating factor for the rest of the group.

For example, a group of N loaded cables would normally require a group reduction factor of Cg applied to the tabulated Lt. However, if M cables in the group carry loads which are not greater than 0.3Cg Lt amperes, the other cables can be sized by using the group rating factor corresponding to (N-M) cables.