TOXFREE® LSZH Z1C4Z1-K (AS)

Halogen free (LSZH) screened power cable.
BASED ON: IEC 60502-1 / UNE 21123-4

C_{ca}

APPLICATION

Toxfree® Z1C4Z1-K is a screened LSZH safety cable.
In case of fire, it does not emit toxic or corrosive gases, thereby protecting public health and avoiding any possible damage to electronic equipment. For this reason, its use is highly recommended for public places and for all installations where it is necessary avoid to electric interference of nearby circuits.

CONSTRUCTION

Conductor
Electrolytic annealed copper, class 5 (flexible) according to EN 60228 and IEC 60228.

Insulation
Special polyolefin with low smoke and halogen free fumes under fire conditions.
The standard identification of insulated conductors according to HD 308 is the following:

1 x	Natural
2 x	Blue + Brown
3 G	Blue + Brown + Green/Yellow
4 G	Brown + Black + Grey + Green/Yellow
4 x	Brown + Black + Grey + Blue
5 G	Brown + Black + Grey + Green/Yellow + Blue
6 or more	Black numbered + Green/yellow

Screen
Coverage of 100% composed by aluminium-polyester tape and tinned copper braid.

Outer sheath
Low smoke halogen free polyolefin fire retardant.
Green colour.
Other outer sheath colours available on request.
The ripcord allows you to gently tear the outer sheath allowing you to gently peel it away without damaging the screen.

CHARACTERISTICS

Electrical performance
Low voltage: 0,6/1 kV

Thermal performance
Maximum conductor temperature: 70°C.
Maximum short-circuit temperature: 160°C (max. 5 s).
Minimum service temperature: -40°C (static, with protection).

Fire performance
Flame non-propagation according to EN 60332-1 / IEC 60332-1.
Fire non-propagation according to EN 60332-3 / IEC 60332-3 and EN 50399.
Reaction to fire CPR: C_{ca}-s1a, d1, a1 according to 50575.
Low smoke halogen free according to EN 60754-1 / IEC 60754-1.
Low corrosive gases emission according to EN 60754-2 / IEC 60754-2.
Low smoke emission according to EN 61034 / IEC 61034:
Light transmittance > 80%.

Mechanical performance
Minimum bending radius during installation: 5x cable diameter.
Impact resistance: AG2 Medium severity.

Environmental performance
Chemical & Oil resistance: Acceptable.
UV Resistant according to EN 50618.
Water resistance: AD5 Jets.

Installation conditions
Open Air.
Buried.
In conduit.

STANDARDS / COMPLIANCE

Based on
IEC 60502-1 / UNE 21123-4

Standards and approvals
RoHS / CE

CPR (Construction Products Regulation)
C_{ca}-s1a, d1, a1

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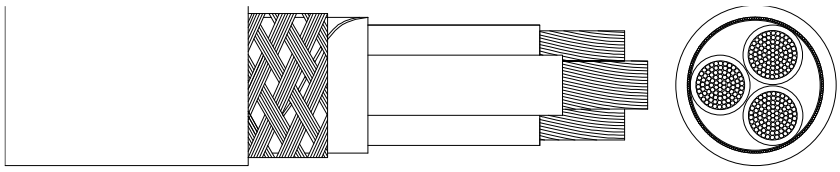
DIMENSIONS & ADMISSIBLE INTENSITIES



Cross-section (mm^2)	Diameter (mm)	Weight (kg/km)	Open air (A) [1]	Buried (A) [2]	Voltage drop (V/A · km) [3]
2 x 1	7,8	85	16,5	16	46,7
2 x 1,5	8,6	105	22	22	31,8
2 x 2,5	9,9	135	30	29	19,1
2 x 4	10,8	170	40	37	11,8
2 x 6	11,5	210	51	46	7,9
3 G 1	8,5	100	16	16,5	46,7
3 G 1,5	9,4	130	22	22	31,8
3 G 2,5	10,3	165	30	29	19,1
3 G 4	11,5	215	40	37	11,8
3 G 6	12,6	280	51	46	7,9
3 x 10	16,4	460	70	60	4,6
3 x 16	18,4	640	94	78	2,9
3 x 25	22,4	970	119	99	1,9
3 x 35	25,2	1.275	148	119	1,3
3 x 50	29,5	1.760	180	140	0,92
4 G 1	9,1	120	14	14	40,4
4 G 1,5	10,2	155	18,5	18	27,6
4 G 2,5	11,0	200	25	24	16,5
4 G 4	12,5	270	34	30	10,3
4 G 6	13,4	350	43	38	6,8
4 G 10	18,0	585	60	50	4,0
4 G 16	20,7	835	80	64	2,5
4 G 70	36,1	3.070	196	143	0,56
5 G 1	9,9	145	14	14	40,4
5 G 1,5	11,0	180	18,5	18	27,6
5 G 2,5	12,0	240	25	24	16,5
5 G 4	13,7	325	34	30	10,3
5 G 6	15,2	425	43	38	6,8
5 G 10	19,8	720	60	50	4,0
5 G 16	23,0	1.035	80	64	2,5
5 G 25	27,2	1.550	101	82	1,6
5 G 35	29,8	2.045	126	98	1,2
5 G 50	36,5	2.860	153	116	0,80
7 G 1	10,4	175	14	14	40,4
7 G 1,5	11,8	230	18,5	18	27,6
7 G 2,5	13,2	300	25	24	16,5
8 G 1,5	12,8	260	18,5	18	27,6
8 G 2,5	14,2	345	25	24	16,5
10 G 1	12,0	225	14	14	40,4
10 G 1,5	13,8	305	18,5	18	27,6
10 G 2,5	16,7	425	25	24	16,5
12 G 1	12,6	260	14	14	40,4
12 G 1,5	14,6	350	18,5	18	27,6
12 G 2,5	16,1	475	25	24	16,5
14 G 1	13,5	295	14	14	40,4
14 G 1,5	15,5	395	18,5	18	27,6
14 G 2,5	18,0	550	25	24	16,5

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Cross-section (mm^2)	Diameter (mm)	Weight (kg/km)	Open air (A) [1]	Buried (A) [2]	Voltage drop (V/A · km) [3]
16 G 1,5	16,8	445	18,5	18	27,6
16 G 2,5	19,1	630	25	24	16,5
18 G 1	15,5	370	14	14	40,4
19 G 1,5	17,2	500	18,5	18	27,6
19 G 2,5	19,6	710	25	24	16,5
24 G 1,5	19,3	620	18,5	18	27,6
24 G 2,5	21,8	880	25	24	16,5
25 G 1	18,4	500	14	14	40,4
27 G 1,5	21,1	695	18,5	18	27,6
27 G 2,5	23,1	975	25	24	16,5
37 G 1,5	22,8	910	18,5	18	27,6
37 G 2,5	27,1	1.320	25	24	16,5

[1] Reference method E according to IEC 60364-5-52 in open air at 30°C ambient temperature.
[2] Reference method D1 according to IEC 60364-5-52. Buried in duct at 0,7 m depth with soil thermal resistivity of 2,5 K·m/W and 20°C of ground temperature.
[3] At maximum conductor temperature and cosφ=1.For cables having 2 conductors or 3 conductors up to 10 mm^2, are supposed a single-phase circuit. For the rest of the cables are supposed a three-phase circuit.

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SHORT-CIRCUIT CURRENT-CARRYING CAPACITIES

Time (s)	0,1	0,2	0,3	0,5	1	1,5	2	2,5	3
A/mm²	452	320	261	202	143	117	101	90	83

CORRECTION FACTORS FOR AIR TEMPERATURE

Air T. (ºC)	20	25	30	35	40	45	50	55	60
Factor	1,08	1,04	1	0,96	0,91	0,87	0,82	0,76	0,71

CORRECTION FACTORS FOR GROUND TEMPERATURE

Ground T. (ºC)	10	15	20	25	30	35	40	45	50
Factor	1,07	1,04	1	0,96	0,93	0,89	0,85	0,8	0,76

CORRECTION FACTORS FOR SOIL THERMAL RESISTIVITY

Moisture degree of soil	Very damp	Slightly damp	Slightly dry	Dry	Very dry
Thermal Resist. (K·m/W)	1	1,5	2	2,5	3
Factor	1,18	1,10	1,05	1	0,96

Other correction factors (for grouping cables, for harmonic currents), that are not in this specification, can be applied. Further information can be found in IEC 60364-5-52.