



C_{ca}

APPLICATION

Toxfree® Z1C4Z1-K is a screened LSHF 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 conductor, class 5 (flexible) according to EN 60228 and IEC 60228.

Insulation

Special polyolefin insulation, with low smoke and halogen free fumes under fire conditions.

The standard identification of insulated conductors according to UNE 21089-1 and 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 (LSHF) polyolefin. Green colour, non-toxic and fire retardant. The ripcord allows you to gently tear the outer sheath allowing you to gently peel it away without damaging the screen.

Other outer sheath colours available on request.

CHARACTERISTICS

⚡ Electrical performance

Low voltage: 0,6/1 kV

🔥 Thermal performance

Maximum service 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.

LSHF (Low Smoke Halogen Free) according to EN 60754-1 / IEC 60754-1.

Low smoke emission according to EN 61034 / IEC 61034:

Light transmittance > 80%.

Low corrosive gases emission according to EN 60754-2 / IEC 60754-2.

📏 Mechanical performance

Minimum bending radius: 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 to

IEC 60502-1 / UNE 21123-4



Standards and approvals

RoHS / CE

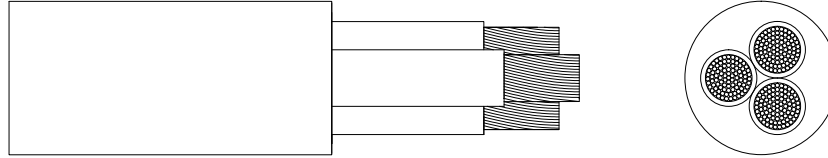


CPR (Construction Products Regulation)

C_{ca}-s1a, d1, a1



DIMENSIONS & ADMISSIBLE INTENSITIES



Cross-section (mm ²)	Diameter (mm)	Weight (kg/km)	Open air (A) ¹	Buried in duct (A) ²	Voltage drop (V/A · km) ³
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 1,5	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 1,5	10,2	155	18,5	18	25,1
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 1,5	11,0	180	18,5	18	25,1
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 1,5	11,8	230	18,5	18	25,1
8 G 1,5	12,8	260	18,5	18	25,1
10 G 1,5	13,8	305	18,5	18	25,1
12 G 1,5	14,6	350	18,5	18	25,1

¹ Reference method F for single-core and method E for multicore cables 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 service temperature and $\cos\varphi=1$.

For cables having 2 conductors or 3 conductors up to 10 mm², it is supposed a single-phase circuit. For the rest of the cables it is supposed a three-phase circuit.

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. (°C)	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. (°C)	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.