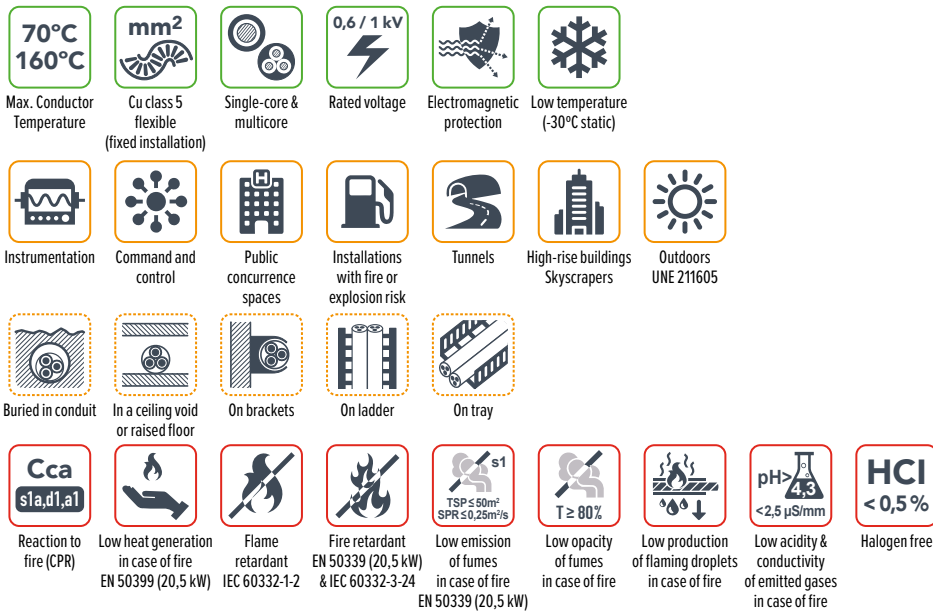




AFIRENAS SHIELD

Z1C4Z1-K (AS) 0,6/1 kV

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STANDARDS

- ▶ Standards (construction and tests): **IEC 60502-1 y UNE 21123-4**
- ▶ Compliance with the **Low Voltage Directive (LVD): 2014/35/UE**
- ▶ **Construction Products Regulation (CPR)** - Regulation (EU) N° 305/2011:
Reaction to fire → Cca-s1a,d1,a1
- ▶ Fire performance:
IEC 60332-1-2, IEC 60332-3-24, IEC 60754-1, IEC 60754-2, IEC 61034-2

TECHNICAL FEATURES

Technical designation:
Z1C4Z1-K(AS) 0,6/1 kV

Rated voltage:
0,6/1 kV A.C. (U₀/U) / 1,5 kV D.C.

Maximum allowable voltage:
1,2 kV A.C. (U_m) / 1,8 kV D.C.

Maximum conductor temperature:

- Normal operation: **70°C**
- Short-circuit (t≤5s): **160°C**

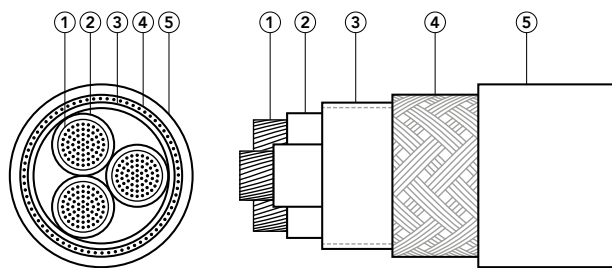
Range of temperatures:

- Max: +50°C
- Min: -30°C (static, protected against mechanical damage and vibrations)

Voltage test: 3,5 kV A.C. (5 minutes)

CONSTRUCTION DESCRIPTION

Standards (construction and tests): **IEC 60502-1 & UNE 21123-4**
Single-core or multicore cable.



- 1. Conductor:** Flexible, annealed, plain copper conductor, class 5 according to IEC 60228; UNE-EN 60228.
- 2. Insulation:** Halogen free material based on a thermoplastic polyolefin.
Core identification:
– From 2 up to 5 cores: HD 308 S2.
– More than 5 cores: EN 50334 (black numbered + G/Y).
• **Assembly of cores. In multicore cables, the cores are cabled helically**
- 3. y 4. Shield:** Aluminum/polyester tape [3] + Braid of tinned copper wires [4]. Shield 100 % coverage (Braid with a coverage > 65 %).
NOTE: Other particular coverages or materials (i.e.: polyester tape and / or plain copper braid) on request.
- 5. Oversheath:**
Halogen free material based on a thermoplastic polyolefin type ST₈ acc. to International standard IEC 60502-1.
Sheath colour: Green.

FIRE PERFORMANCE

Reaction to fire. CPR Regulation (EU) n° 305/2011

Reaction to fire (class): **Cca-s1a,d1,a1**
(EN 50575:2014 + A1:2016, EN 13501-6)

DoP: **MC1000Z1C4Z1K**; EVCP system: **1+**; NB: **0099**

Cca:

- **Flame retardant:** EN 60332-1-2; IEC 60332-1-2 (H₄₂₅ mm)
- **Fire retardant:** EN 50399 (20,5 kW) F_s ≤ 2 m
- **Low heat generation in case of fire:**
THR ≤ 30 MJ; HRR ≤ 60 kW; FIGRA ≤ 300 W/s
(EN 50399 (flame source:20,5 kW))

s1a: **Low production and opacity of emitted smokes:**
TSP ≤ 50 m²; SPR ≤ 0,25 m²/s; Transmittance > 80 %
(EN 50399 (flame source:20,5 kW), EN 61034-2)

d1: **Low production of flaming droplets:**

No flaming droplets/particles persisting longer than 10' occurs within 1200'. (EN 50399 (flame source:20,5 kW))

a1: **Low acidity and conductivity of the emitted gases:**

pH≥4,3; conductivity < 2,5 μS/mm (EN 60754-2; IEC 60754-2)

Other fire performances (when the CPR Regulation is not applicable):

- **Flame retardant:** IEC 60332-1-2
- **Fire retardant:** IEC 60332-3-24
- **Halogen free and low toxicity of emitted gases:**
IEC 60754-1 (HCl<0,5%)
- **Low opacity of emitted gases:**
IEC 61034-2 (Transmittance > 60 %)
- **Low acidity and conductivity of emitted gases:**
IEC 60754-2 (pH>4,3 & conductivity<2,5 μS/mm)

APPLICATIONS

Tipo de instalación: Fixed.

Guía de utilización:

Shielded cable indicated for fixed installations where electromagnetic protection is required.

It is specially designed for use as a power, command or control cable (solenoid valves, regulation...) in industrial installations, public concurrence places (airports, museums, malls and shopping centres, schools, hospitals, cinemas, hotels, sports stadiums...) or, in general, whenever an important fire risk exists or it's required a low smoke emission and corrosive gazes in case of fire (i.e.: Railway and roadway tunnels, canalisations with bunched cables, vertical canalisations in buildings...).

Ideal when it is required to protect the cable itself, nearby signal cables or electronic equipment against possible electromagnetic disturbances and interferences.

Suitable installation methods*:

- Surface mounted (directly installed or on cable trays, cable ladders, cleats, brackets or in cable ducting (conduit), pipes or similar closed systems)).

In the case the cable is installed on cable brackets or cleats, the horizontal distance between cleats should not surpass 20 times the overall diameter of the cable. The distance is also valid between points of support in case of laying on cable racks or inside cable trays. The maximal distance between supports will never be greater than 80 cm under any circumstances.

- Embedded (in cable ducting).
- In building voids and cavities (directly or on cable trays, cable ladders, in cable ducting).
- Buried in ground (in conduit).

Suitable for indoor and outdoor installations (not suitable for permanent exposure to UV radiation).

Cables and bundles of cables are to be tightened in such a way that damages in form of indentation marks by pressure caused by heat expansion are avoided. Indentation marks by pressure caused by heat expansion are avoided.

Lowest temperature for cable laying and installation: 0°C (under normal conditions of care). This temperature is valid for the cable itself and not for the environment. If possible, the temperature of the cable shall be raised before laying, e.g. in a heated building, to facilitate handling and reduce the risk of damages.

Minimum bending radius:

10 x D (mm), where D= overall diameter of the cables (mm).

Bending nearby the temperature limits should be carried out extra carefully.

Maximum pulling force:

The maximum pulling force must not exceed:

- If the traction force is applied on the conductors
F = 50 x S (N), where "S" is the cross-sectional area of the conductors (mm²) and 50 N/mm² is the permissible tensile stress for cables with copper conductors.
- If the traction force is applied on the outer sheath
F = 5 x D² (N), where D = overall diameter of the cable (mm).

** It must be respected the methods of installation established by the standards and regulations that will affect each individual case.*



CARACTERÍSTICAS DIMENSIONALES

Code	Number of cores and cross-sectional area	Insulation thickness	Overall diameter	Weight	Maximum electrical resistance in D.C. (20°C)
	mm ²	mm	mm	kg/km	Ω/km
82150101-50	1X1,5	0,8	6,7	67	13,3
82150102-50	1X2,5	0,8	7,1	79	7,98
82150100040	1X4	1,0	8,1	107	4,95
82150100060	1X6	1,0	8,6	131	3,30
82150100100	1X10	1,0	9,5	178	1,91
82150100160	1X16	1,0	10,5	238	1,21
82150100250	1X25	1,2	12,0	334	0,780
82150100350	1X35	1,2	13,3	433	0,554
82150100500	1X50	1,4	15,1	591	0,386
82150100700	1X70	1,4	17,1	798	0,272
82150100950	1X95	1,6	19,0	1033	0,206
82150101200	1X120	1,6	20,9	1283	0,161
82150101500	1X150	1,8	23,0	1573	0,129
82150101850	1X185	2,0	25,2	1903	0,106
82150102400	1X240	2,2	28,0	2469	0,0801
82150201-50	2X1,5	0,8	9,8	128	13,3
82150202-50	2X2,5	0,8	10,6	154	7,98
82150200040	2X4	1,0	12,8	210	4,95
82150200060	2X6	1,0	14,4	262	3,30
82150200100	2X10	1,0	16,2	402	1,91
82150200160	2X16	1,0	18,2	530	1,21
82150200250	2X25	1,2	21,4	748	0,780
82150311-50	3G1,5	0,8	10,2	138	13,3
82150312-50	3G2,5	0,8	11,1	182	7,98
82150310040	3G4	1,0	13,4	250	4,95
82150310060	3G6	1,0	15,1	322	3,30
82150300100	3X10	1,0	17,0	504	1,91
82150310100	3G10	1,0	17,0	504	1,91
82150300160	3X16	1,0	19,2	698	1,21
82150300250	3X25	1,2	22,6	978	0,780
82150401-50	4X1,5	0,8	11,1	150	13,3
82150411-50	4G1,5	0,8	11,1	150	13,3
82150402-50	4X2,5	0,8	12,0	224	7,98
82150412-50	4G2,5	0,8	12,0	224	7,98
82150410040	4X4	1,0	14,6	308	4,95
82150410040	4G4	1,0	14,6	308	4,95
82150400060	4X6	1,0	16,5	415	3,30
82150410060	4G6	1,0	16,5	415	3,30
82150400100	4X10	1,0	18,6	628	1,91
82150400160	4X16	1,0	21,0	852	1,21
82150400250	4X25	1,2	24,8	1288	0,780
82150511-50	5G1,5	0,8	12,0	192	13,3
82150512-50	5G2,5	0,8	13,1	255	7,98
82150510040	5G4	1,0	16,0	268	4,95
82150510060	5G6	1,0	17,9	482	3,30
82150510100	5G10	1,0	20,3	750	1,91
82150510160	5G16	1,0	23,0	1065	1,21
82150510250	5G25	1,2	27,3	1602	0,780
82150611-50	6G1,5	0,8	12,9	224	13,3
82150612-50	6G2,5	0,8	14,1	289	7,98
82150711-50	7G1,5	0,8	12,9	245	13,3
82150712-50	7G2,5	0,8	14,1	319	7,98
82150811-50	8G1,5	0,8	14,1	275	13,3
82150812-50	8G2,5	0,8	15,5	359	7,98
82150911-50	9G1,5	0,8	14,8	300	13,3
82150912-50	9G2,5	0,8	16,2	394	7,98
82151011-50	10G1,5	0,8	16,0	330	13,3
82151012-50	10G2,5	0,8	17,6	435	7,98

Code	Number of cores and cross-sectional area	Insulation thickness	Overall diameter	Weight	Maximum electrical resistance in D.C. (20°C)
	mm ²	mm	mm	kg/km	Ω/km
82151111-50	11G1,5	0,8	16,0	350	13,3
82151112-50	11G2,5	0,8	17,6	464	7,98
82151211-50	12G1,5	0,8	16,5	375	13,3
82151212-50	12G2,5	0,8	18,1	499	7,98
82151311-50	13G1,5	0,8	17,0	401	13,3
82151312-50	13G2,5	0,8	18,7	536	7,98
82151411-50	14G1,5	0,8	17,5	426	13,3
82151412-50	14G2,5	0,8	19,3	570	7,98
82151511-50	15G1,5	0,8	18,0	451	13,3
82151512-50	15G2,5	0,8	19,9	604	7,98
82151611-50	16G1,5	0,8	18,5	477	13,3
82151612-50	16G2,5	0,8	20,4	640	7,98
82151711-50	17G1,5	0,8	18,9	504	13,3
82151712-50	17G2,5	0,8	20,9	677	7,98
82151811-50	18G1,5	0,8	19,4	528	13,3
82151812-50	18G2,5	0,8	21,4	711	7,98
82151911-50	19G1,5	0,8	19,8	553	13,3
82151912-50	19G2,5	0,8	21,9	745	7,98
82152011-50	20G1,5	0,8	20,2	577	13,3
82152012-50	20G2,5	0,8	22,4	779	7,98
82152111-50	21G1,5	0,8	20,8	611	13,3
82152112-50	21G2,5	0,8	23,0	823	7,98
82152211-50	22G1,5	0,8	21,2	637	13,3
82152212-50	22G2,5	0,8	23,5	858	7,98
82152311-50	23G1,5	0,8	21,6	660	13,3
82152312-50	23G2,5	0,8	23,9	891	7,98
82152412-50	24G2,5	0,8	24,4	925	7,98
82152512-50	25G2,5	0,8	24,8	958	7,98

Weight and overall diameter values are approximate and subject to normal manufacturing tolerances.

PACKAGING



Drum

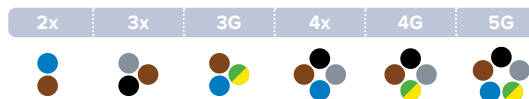
COLORS

OVERSHEATH: Green

CORE IDENTIFICATION:

Multicore cables (From 2 up to 5 cores):

HD 308 S2 and UNE 21089-1.



Multicore cables (More than 5 cores):

EN 50334.

One core is green/yellow and the rest are black with number identification.



Longitudinal arrangement of the marks:



Transversal arrangement of marks:

