

# SOLFLEX

## H1Z2Z2-K



**Miguēlez**  
CABLES

NEARBY AND RELIABLE



211 MIGUÉLEZ - ARTICLE GROUP



**90°C**  
**120°C**  
(20000 h)  
Max. operating temperature in conductor

**mm<sup>2</sup>**  
Tinned copper, class 5

Single-core cable

**1.8 kV DC**  
Rated voltage

Frequent bending

**Flex**  
High flexibility

Easy stripping

**-40° to +90°C**  
Resistance to extreme temperatures

**UV**  
UV resistance

**AD7**  
Water/humidity (AD7)

**O<sub>3</sub>**  
Ozone resistance

**pH scale**  
Resistance to acid and alkaline solutions

**Useful lifespan**  
≥ 30 years

Suitable for equipment class II

Photovoltaic installations

Outdoor application (AN3)

Switchboard and equipment wiring

Buried in conduit in the ground

Surface assembly

On cable ladders

On cable trays

**Eca** Reaction to fire (CPR)

Flame retardant (IEC 60332-1-2)

Low smoke opacity (IEC 61034-2)  
T > 60%

Low acidity and conductivity of gases (IEC 60754-2)  
pH > 4.3  
< 10 μS/cm

**HCI** Halogen free (IEC 60754-1)  
< 0.5%



Manufacturing range: 1,5...-240 mm<sup>2</sup>  
CPR-classified range: 2,5...-35 mm<sup>2</sup>  
Certified range: 1,5...-50 mm<sup>2</sup>

## STANDARDS

- Construction and tests: **EN 50618 and IEC 62930**
- LOW VOLTAGE DIRECTIVE: **2014/35/UE**
- CPR REGULATION No. 305/2011/EU:  
Reaction to fire (EN 50575 & EN 13501-6) → **Eca**
- Fire performance standards (when CPR Regulation is not applicable):  
**IEC 60332-1-2, IEC 60754-1, IEC 60754-2 & IEC 61034-2**

## TECHNICAL CHARACTERISTICS

Technical designation: **H1Z2Z2-K**

Rated voltage: **U<sub>0</sub>/U<sub>AC</sub>: 1.0/1.0 kV & U<sub>DC</sub>: 1.5 kV**

Maximum allowable voltage: **U<sub>max AC</sub>: 1.2 kV & U<sub>max DC</sub>: 1.8 kV**

Maximum operating temperature in the conductor:

- Normal operation: **90 °C (120 °C - 20,000 h)**  
*They are designed to operate at a normal maximum conductor temperature of 90 °C, but for a maximum of 20,000 hours a maximum conductor temperature of 120 °C at a maximum ambient temperature of 90 °C is permitted.*
- In short-circuit (t ≤ 5s): **250 °C**

Ambient temperature range of use:

- Max: **+90 °C**
- Min: **-40 °C**

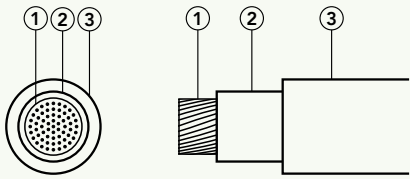
Test voltage: **6.5 kV AC** (5 minutes)



## CONSTRUCTIVE DESCRIPTION

Standards: **EN 50618 & IEC 62930**

**Single-core cables with insulation and oversheath.**



- 1. Conductor:** Tinned copper, flexible, class 5 according to IEC 60228.
- 2. Insulation:** Crosslinked polyolefin-compound, halogen-free, with low smoke and non-corrosive gases in the case of fire.
- 3. Oversheath:** Crosslinked polyolefin-compound, halogen-free, with low smoke and non-corrosive gases in the case of fire. Oversheath colours available: Black and red. Other colours on request and with minimum order quantities (MOQ).

## FIRE PERFORMANCE FEATURES

**Reaction to fire. CPR Regulation (EU) No. 305/2011**

Reaction to fire class: **Eca** (EN 50575:2014 + A1:2016, EN 13501-6).

DoP: **MEH1Z2Z2K**; AVCP system: **3**; NB: **1722**

**Eca:**

- Flame retardant: EN 60332-1-2; IEC 60332-1-2 (H<sub>2</sub> ≤ 425mm)

*The packaging label (coil, reel or drum) will have the CE marking acc. to the CPR Regulation (EU) No. 305/2011 (articles 8 and 9).*

**Other behaviors in case of fire**

**(when the CPR Regulation does not apply):**

- Flame retardant: IEC 60332-1-2
- Halogen-free and low emission of toxic gases: IEC 60754-1 (HCl < 0.5%)
- Low smoke opacity: IEC 61034-2 (Light transmittance ≥ 60%)
- Low acidity and corrosivity of gases: IEC 60754-2 (pH > 4.3; conductivity of gases < 10 μS/mm)



Zarapicos, Salamanca



## APPLICATIONS

**Installation type:** Mobile or fixed. Demanding mobile service.

**User guide:**

Specially designed for the wiring of photovoltaic installations, mobile or fixed, with direct and permanent exposure to the sunlight (UV radiation) and weather.

Specific uses:

- Wiring between photovoltaic panels.
- Wiring between photovoltaic panels and junction box.
- Installation between junction box and inverter.
- Installation between photovoltaic panels and the DC/AC inverter (when there is no junction box).
- **Ideal** for photovoltaic trackers, very common in solar farms, which require **high flexibility and aptitude for mobile service**.
- Suitable for **permanent use** outdoors in mobile, suspended or fixed installations.
- It is able to operate for a maximum period of **20,000 h** (2.28 years) at a **maximum conductor temperature of 120 °C** and a maximum ambient temperature of 90 °C.
- Suitable for use with **Class II** equipment (double insulation).
- It is inherently **short-circuit and earth fault proof** according to **HD 60364-5-52**.
- Its expected **lifespan under normal usage conditions**, as long as the installation, use and handling conditions are respected, is at least **30 years**.



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**Installation methods\*:**

- Surface mounted inside conduits or protective channels or directly installed on clamps, ladders or cable trays.
- It can be used in rooftop installations or in other types of architectural integrations.
- It can be installed as internal wiring of electrical panels or equipments.
- Buried in conduit in the ground.

In the case of placing the cable on clamps, the horizontal distance between the clamps will not be more than 20 times the diameter of the cable. The distance is also valid between support points in case of laying on cable racks or on trays. In no case should this distance exceed 80 cm.

- **Weather and UV resistant** according to annex E of standard IEC 62930 and EN 50618.
- **Permanent outdoor use**, condition AN3.
- **Suitable for the presence of vibrations**, condition AH3.
- **Impact resistance**, condition AG2.
- **Resistance to corrosive or polluting substances**, condition AF3.
- **Presence of water**, condition AD7.
- **Resistance to extreme temperatures** (-40 to +90 °C).
- **Ozone resistance**.
- **Thermal endurance test** according to standards IEC 60216-1 / EN 60216-1 and IEC 60216-2 / EN 60216-2.
- **Resistance of the roof to acid** (N-Oxalic acid) **and alkaline** (N-Sodium Hydroxide) solutions according to standards IEC 60811-404 / EN 60811-404.

**Minimum laying temperature during its installation and assembly of accessories:** -25 °C. This temperature is valid for the cables themselves, not for the environment. In the event that the cables have a lower temperature, they must be heated.

**Minimum bending radius:**

- Fixed installation: **3 x D** (D≤12), **4 x D** (D>12).
- Free movement or at the entrance of an apparatus: **4 x D** (D≤12), **5 x D** (12<D≤20), **6 x D** (D>20).
- (D= overall diameter of the cable in mm).

**Maximum pulling forces (during installation):**

- If the pulling force is applied on the conductors: **F= 50 x S** N (Newtons); (S= cross-sectional area of conductor in mm<sup>2</sup>).
- If the pulling force is applied on the oversheath: **F= 5 x D<sup>2</sup>** N (Newtons); (D= overall diameter of the cable in mm).
- With a maximum of 1,000 N (Newtons), whatever the traction method used.

\* The installation systems and additional requirements established by any applicable regulation, law and/or standard must be met.



**DIMENSIONAL CHARACTERISTICS**

Code	Nominal cross-sectional area	Insulation thickness	Oversheath thickness	Overall diameter	Total weight	Maximum electrical resistance of the conductor at 20 °C (DC)	Current-carrying capacity. Single cable free in air (1)	Current-carrying capacity. Single cable on a surface (1)	Current-carrying capacity. Two loaded cables touching, on a surface (1)
	mm <sup>2</sup>	mm	mm	mm	kg/km	Ω / km	A	A	A
82110101-50	1 x 1,5	0,7	0,8	4,5	28	13,7	30	29	24
82110102-50	1 x 2,5	0,7	0,8	5,1	39	8,21	41	39	33
82110100040	1 x 4	0,7	0,8	5,6	55	5,09	55	52	44
82110100060	1 x 6	0,7	0,8	6,3	74	3,39	70	67	57
82110100100	1 x 10	0,7	0,8	7,3	117	1,95	98	93	79
82110100160	1 x 16	0,7	0,9	8,6	175	1,24	132	125	107
82110100250	1 x 25	0,9	1,0	10,6	257	0,795	176	167	142
82110100350	1 x 35	0,9	1,1	11,5	352	0,565	218	207	176
82110100500	1 x 50	1,0	1,2	13,4	498	0,393	276	262	221
82110100700	1 x 70	1,1	1,2	15,1	687	0,277	347	330	278
82110100950	1 x 95	1,1	1,3	16,8	891	0,210	416	395	333
82110101200	1 x 120	1,2	1,3	18,8	1.132	0,164	488	464	390
82110101500	1 x 150	1,4	1,4	21,2	1.413	0,132	566	538	453
82110101850	1 x 185	1,6	1,6	24,2	1.740	0,108	644	612	515
82110102400	1 x 240	1,7	1,7	26,8	2.284	0,0817	775	736	620

The values of 'Weight' and 'Overall diameter' indicated are approximate and are subject to normal manufacturing tolerances.

**IMPORTANT:** The cross-sectional areas with CPR classification for the "Reaction to fire" characteristic appear in the blue zone.

(1) For ambient temperature of 60 °C and maximum conductor temperature of 120 °C.

For other temperatures, conditions or methods of installation, use the current-carrying capacities of standard HD 60364-5-52 or consult our Technical Department.

Standard HD 60364-7-712 section 712.523.101 indicates that, for the design of cables subjected to direct heating from the lower part of the photovoltaic panels, the ambient temperature to be taken into account for their sizing should be at least equal to 70 °C.

NOTE: The maximum period of time expected for use at the maximum temperature of 120 °C and an ambient temperature of 90 °C is limited to 20,000 h.

**Correction factors for temperatures other than 60 °C** (see note (1) of the above table)

Ambient temperature	up to 60 °C	70 °C	80 °C	90 °C
Correction factor	1	0,92	0,84	0,75







## PACKAGING



Coil 100 m (00) ( $s=4, 6 \text{ \& } 10 \text{ mm}^2$ )



Drum (03)



Reel 500 m (07)  
Reel 1000 m (09)  
Reel 2500 m (0P)  
Reel 3000 m (30) } ( $s=4, 6 \text{ \& } 10 \text{ mm}^2$ )

Code*	Nominal cross-sectional area	Quantity coil/reel	Quantity pallet	MIGÜELEZ packaging code
	mm <sup>2</sup>	m	m	
82110100040XX00	1 x 4	100	7.200	00
82110100040XX07	1 x 4	500	9000	07
82110100040XX09	1 x 4	1.000	12.000	09
82110100040XX0P	1 x 4	2.500	10.000	0P
82110100060XX00	1 x 6	100	7.200	00
82110100060XX07	1 x 6	500	9.000	07
82110100060XX09	1 x 6	1.000	12.000	09

\* Replace "XX" with the appropriate color code (black - "92" or red - "94").

The packaging label (coil, reel or drum) will have the CE marking indicating the CPR Regulation (EU) No. 305/2011 (articles 8 and 9).

## COLOURS

### Available oversheath colors:

- Black (92)
- Red (94)

Other colours on request and subject to minimum order quantities (MOQ).



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# Miguelez

CABLES

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 Part of the solution

*Cables with respect for you and for future generations.*