



Solar Cables for PV Systems

Solar Cable PV ZZ-F (AS)

Overview

This type of cable is designed, manufactured and tested in accordance with the specification EA 0038 and TÜV 2 PfG 1169 / 08.2007 and UTE C-32502 ¹ Flexible cables suitable for mobile services and for fixed installations. Suitable for connection between photovoltaic panels and panels to power inverter. High security cable (AS): no fire retardant, low smoke and halogen free. Suitable for indoor and outdoor facilities.

TECNICAL DATA

Standards

Resistant to water absorption - EN 60811-1-3
Abrasion resistant - EN 50305
Resistant to rupture - EN 60811
Resistant to ozone - EN 60811-2-1
Flame retardant - EN 60332-1-2

Fire Retardant - Class C according to EN 50266-2-4/
IEC 60332-3⁴
Halogen Free⁵ – HCl content < 0.5%pH > 4.3;
conductivity < 10 μ S/mm
Smoke Density⁶ – light transmittance > 60%
Low emission of corrosive gases - EN 50267-2-3

Conductor

Flexible conductor of annealed and tinned copper wires, class 5 composition according to EN 60228/IEC 60228⁷.

Operating Temperature³
-40°C to +120°C

Insulation

Halogen free rubber insulation, EI6 type according to EN 50363-1.

Maximum temperature in short circuit
250°C (max. 5s)

Outer Sheath

Halogen free rubber outer sheath, EM8 type according to EN 50363-6. Color red or black.

Resistant to ultraviolet (UV)
HD 605/A1

Operating Voltage

0.6/1kV (1.8kV CC)

Bending radius (static)
5x \varnothing outdoor

Ambient Temperature²
-40°C to +90°C

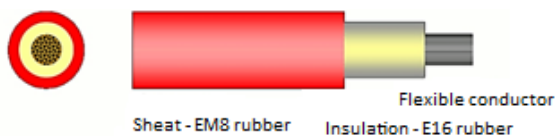


Figure: Solar Cable PV ZZ-F (AS) insulation.

¹ EA 0038: electrical cables for use in photovoltaic systems circuits

² According to EN 60811-1-4

³ According to EN 60216-2: 120 ° C for 20.000 hours, 90 ° for 30 year

⁴ EN 50266 / IEC 60332-3 - Test methods common for cables under fire test. Vertical Flame Propagation Test on cable placed in the vertical position.

⁵ According to EN 50267-2-1 / IEC 60754.

⁶ According to EN 61034-2 / IEC 61034.

⁷ EN 60228 / IEC 60228 - Insulated cable conductors.



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Nominal current-carrying capacities

Table below shows the current-carrying capacities and electric parameters for every cable.

Current-carrying capacities, in ampere, are calculated according to EA 0038 and for the following conditions:

- Open air installation: one single-core cable and ambient temperature of 60°C; with adequate ventilation (supported by cleats and hangers or on perforated tray);
- Adjacent surface installation: one single-core cable directly on a wall with low thermal conductivity; ambient temperature of 60°C;
- All cases assume a direct current circuit.

Voltage drop is calculated with conductor temperature of 120 °C.

Table: Intensities and detailed electric parameters for each solar cable type PV ZZ-F (AS).

Cross section [mm ²]	Inst. Air [A]	Inst. Area [A]	Voltage Drop [V/A·km]
1x2.5	41	33	23.00
1x4	55	44	14.30
1x6	70	57	9.49
1x10	98	79	5.46
1x16	132	107	3.47
1x25	176	142	2.23
1x35	218	176	1.58

Correction factors

The current-carrying capacities must be multiplied by the adequate correction factor when the installation conditions differ from those noted above.

Table: Correction factors for air temperatures other than 60°C for each solar cable type PV ZZ-F (AS).

Air Temperature [°C]	50	55	60	65	70	75	80	85	90
Correction factors	1.08	1.04	1.00	0.96	0.91	0.87	0.82	0.76	0.71

Table: Diameter and weight for each solar cable type PV ZZ-F (AS).

Cross section [mm ²]	Ø Outer [mm]	Weight [kg/km]
1x2.5	5.6	52
1x4	6.1	68
1x6	6.7	89
1x10	7.8	136
1x16	8.8	193
1x25	10.8	294
1x35	11.9	390