TOPSOLAR® PV AWA/SWA Al 1500 V

Aluminium or galvanized wire armour cable.

ACCORDING TO: IEC 60502-1

APPLICATION

TOPSOLAR® PV AWA/SWA DC Feeder Aluminium cable is suitable for all types of underground and open air solar installations.
This cable is recommended for connections between string boxes and photovoltaic inverters in large scale rooftops or ground farms. Suitable for transport and distribution of electric power where there is the possibility of mechanical aggressions.

- Solar PV installations.

CONSTRUCTION

Conductor
Aluminium class 2 according to EN 60228 and IEC 60228.

Insulation
Cross-linked polyethylene, type XLPE according to IEC 60502-1.
The standard identification of insulated conductors according to HD 308, is the following:

1 x	Natural
2 x	Blue + Brown
3 x	Grey + Brown + Black
4 G	Brown + Black + Grey + Green/Yellow
4 x	Brown + Black + Grey + Blue

Inner covering
Extruded PVC.

Armour
Aluminium wire armour (AWA) is used in single-core cables to avoid parasite currents that may overheat the cable.
Galvanized steel wire armour (SWA) is used in multicores cables.

Outer sheath
Special UV resistant PVC, type ST2 according to IEC 60502-1.
Black colour.

CHARACTERISTICS

Electrical performance
Low voltage: 1,5/1,5 (1,8) kV DC according to EN 50618.
1,8/3 (3,6) kV AC according to IEC 60502-1.

Thermal performance
Maximum conductor temperature: 90°C.
Maximum short-circuit temperature: 250°C (max. 5 s).
Minimum service temperature: -40°C (fixed and protected installations).
Minimum installation and handling temperature: 0°C (on cable surface).

Fire performance
Flame non-propagation according to EN 60332-1 / IEC 60332-1.
Reduced halogen emission. Chlorine < 15%.

Mechanical performance
Minimum bending radius: 10x cable diameter.
Impact resistance: AG4 High severity.

Environmental performance
Chemical resistance: Good.
Grease & mineral oils resistance: Good.
UV Resistant according to EN 50618 and HD 605/A1.
Water Resistance: AD7 Immersion

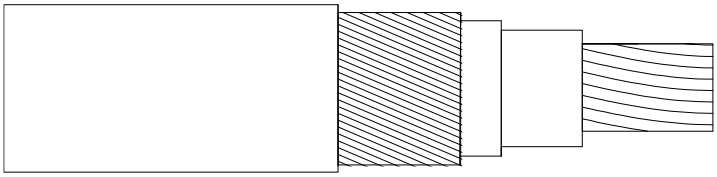
STANDARDS / COMPLIANCE

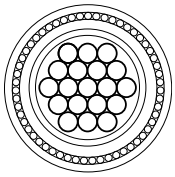
According to
IEC 60502-1

Standards and approvals
CE / RoHS

TOPSOLAR® PV AWA/SWA Al 1500 V

DIMENSIONS & ADMISSIBLE INTENSITIES





Cross-section (mm^2)	Diameter (mm)	Weight (Kg/km)	R20°C (Ω/km)	Open air (A) [1]	Buried (A) [2]	Voltage drop (V/A · km) [3]
1 x 95	24,1	785	0,320	289	204	0,820
1 x 120	25,7	900	0,253	337	233	0,648
1 x 150	26,9	1.005	0,206	389	261	0,528
1 x 185	28,7	1.165	0,164	447	296	0,420
1 x 240	31,4	1.415	0,125	530	343	0,320
1 x 300	33,4	1.610	0,100	613	386	0,256
1 x 400	36,7	2.000	0,0778	740	445	0,199
1 x 500	41,1	2.440	0,0605	856	510	0,155
2 x 150 *	48,5	4.195	0,206	346	261	0,528
2 x 240 *	57,3	5.595	0,125	470	343	0,320
2 x 300 *	61,5	6.290	0,100	543	386	0,256
2 x 400 *	67,4	7.485	0,0778	650	445	0,199
3 x 95 *	44,7	3.820	0,320	257	204	0,820
3 x 120 *	48,6	4.440	0,253	300	233	0,648
3 x 150 *	51,3	4.940	0,206	346	261	0,528
3 x 185 *	55,0	5.570	0,164	397	296	0,420
3 x 240 *	60,8	6.685	0,125	470	343	0,320
3 x 300 *	65,5	7.665	0,100	543	386	0,256
3 x 400 *	71,9	9.130	0,0778	650	445	0,199
3 x 500 *	81,3	11.145	0,0605	750	510	0,155
4 x 185 *	60,5	6.600	0,164	397	296	0,420
4 x 240 *	66,9	7.960	0,125	470	343	0,320
4 x 300 *	72,1	9.120	0,100	543	386	0,256
4 x 400 *	79,8	11.105	0,0778	650	445	0,199

* Cables based on IEC 60502-1

[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 D2 according to IEC 60364-5-52. Directly buried 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 $\cos\varphi=1$.
In all cases are supposed a single-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	299	211	173	134	94	77	67	60	55

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	0,80	0,76

CORRECTION FACTORS FOR SOIL THERMAL RESISTIVITY

Direct buried cables						
0,5 K·m/W	0,7 K·m/W	1 K·m/W	1,5 K·m/W	2 K·m/W	2,5 K·m/W	3 K·m/W
1,88	1,62	1,50	1,28	1,12	1	0,90

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.