



# TOPSOLAR<sup>®</sup> PV Al 1500 V

Aluminium PV cable.

ACCORDING TO: IEC 60502-1



# E<sub>ca</sub>

## APPLICATION

TOPSOLAR<sup>®</sup> PV 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.

- Solar PV installations.
- Heavy impact and armoured versions also available.

## 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	Brown + Black + Grey
3 x + 1 x	Brown + Black + Grey + Blue (reduced cross-section)
4 x	Brown + Black + Grey + Blue

### 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.  
Reaction to fire CPR: E<sub>ca</sub> according to EN 50575.  
Reduced halogen emission. Chlorine < 15%.



### Mechanical performance

Minimum bending radius during installation: 5x cable diameter.  
Impact resistance: AG3 High severity.



### Environmental performance

Chemical resistance: Good.  
Grease & mineral oils resistance: Good.  
UV Resistant according to EN 50618 and HD 605/A1.  
Water resistance: AD8 Submersion.



### Installation conditions

Open Air.  
Buried.  
In conduit.

## STANDARDS / COMPLIANCE



According to  
IEC 60502-1



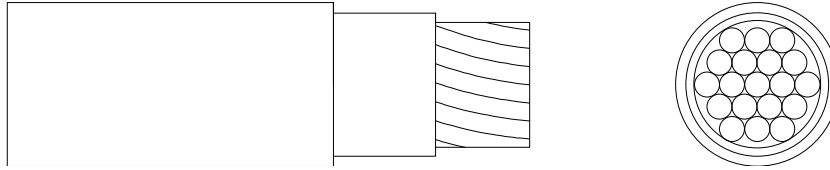
Standards and approvals  
RETIE / RoHS / CE



CPR (Construction Products Regulation)  
E<sub>ca</sub>



## DIMENSIONS & ADMISSIBLE INTENSITIES



Cross-section (mm <sup>2</sup> )	Diameter (mm)	Weight (Kg/km)	R max. 20°C (Ω/km)	Open air (A) <sup>1</sup>	Buried (A) <sup>2</sup>	Voltage drop (V/A · km) <sup>3</sup>
1 x 50	14,5	255	0,641	184	139	1,643
1 x 70	16,6	340	0,443	237	170	1,135
1 x 95	17,7	425	0,320	289	204	0,820
1 x 120	19,3	520	0,253	337	233	0,648
1 x 150	20,7	610	0,206	389	261	0,528
1 x 185	22,5	740	0,164	447	296	0,420
1 x 240	24,9	930	0,125	530	343	0,320
1 x 300	27,0	1.095	0,100	613	386	0,256
1 x 400	30,0	1.395	0,0778	740	444	0,199
1 x 500	34,3	1.755	0,0605	856	510	0,155
1 x 630	38,4	2.225	0,0469	996	588	0,120
2 x 240 *	50,2	3.510	0,125	470	343	0,320
3 x 95 + 1 x 50 *	39,9	2.090	0,320	257	204	0,820
3 x 150 + 1 x 95 *	46,6	3.040	0,206	346	261	0,528
3 x 185 *	47,2	3.130	0,164	397	296	0,420
3 x 240 *	52,9	3.990	0,125	470	343	0,320
3 x 240 + 1 x 120 *	56,7	4.430	0,125	470	343	0,320
3 x 300 *	57,2	4.695	0,100	543	386	0,256
3 x 300 + 1 x 150 *	61,7	5.260	0,100	543	386	0,256
3 x 400 *	63,7	5.950	0,0778	650	444	0,199
3 x 1 x 70	35,2	1.035	0,443	237	170	1,135
3 x 1 x 95	38,3	1.295	0,320	289	204	0,820
3 x 1 x 95 + 1 x 50	40,4	1.555	0,320	289	204	0,820
3 x 1 x 120	41,5	1.585	0,253	337	233	0,648
3 x 1 x 150	44,5	1.855	0,206	389	261	0,528
3 x 1 x 150 + 1 x 70	47,0	2.200	0,206	389	261	0,528
3 x 1 x 185	48,4	2.245	0,164	447	296	0,420
3 x 1 x 185 + 1 x 95	51,1	2.675	0,164	447	296	0,420
3 x 1 x 240	53,5	2.810	0,125	530	343	0,320
3 x 1 x 240 + 1 x 120	56,5	3.345	0,125	530	343	0,320
3 x 1 x 300	58,1	3.330	0,100	613	386	0,256
3 x 1 x 300 + 1 x 150	61,3	3.940	0,100	613	386	0,256
3 x 1 x 400	64,7	4.240	0,0778	740	444	0,199
3 x 1 x 400 + 1 x 240	68,3	5.185	0,0778	740	444	0,199
4 x 95 *	42,0	2.300	0,320	257	204	0,820

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Cross-section (mm <sup>2</sup> )	Diameter (mm)	Weight (Kg/km)	R max. 20°C (Ω/km)	Open air (A) <sup>1</sup>	Buried (A) <sup>2</sup>	Voltage drop (V/A · km) <sup>3</sup>
4 x 120 *	46,1	2.800	0,253	300	233	0,648
4 x 150 *	49,3	3.320	0,206	346	261	0,528
4 x 1 x 120	46,5	2.100	0,253	337	233	0,648
4 x 1 x 150	49,9	2.465	0,206	389	261	0,528
4 x 1 x 240	60,0	3.745	0,125	530	343	0,320
4 x 1 x 300	65,1	4.435	0,100	613	386	0,256
4 x 1 x 400	72,3	5.670	0,0778	740	444	0,199

\* Cable based on IEC 60502-1

<sup>1</sup> 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.

<sup>2</sup> 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.

<sup>3</sup> At maximum conductor temperature and  $\cos\phi=1$ .

In all cases are supposed a single-phase circuit.

## SHORT-CIRCUIT CURRENT-CARRYING CAPACITIES

<b>Time (s)</b>	0,1	0,2	0,3	0,5	1	1,5	2	2,5	3
<b>A/mm<sup>2</sup></b>	299	211	173	134	94	77	67	60	55

## CORRECTION FACTORS FOR AIR TEMPERATURE

<b>Air T. (°C)</b>	20	25	30	35	40	45	50	55	60
<b>Factor</b>	1,08	1,04	1	0,96	0,91	0,87	0,82	0,76	0,71

## CORRECTION FACTORS FOR GROUND TEMPERATURE

<b>Ground T. (°C)</b>	10	15	20	25	30	35	40	45	50
<b>Factor</b>	1,07	1,04	1	0,96	0,93	0,89	0,85	0,8	0,76

## CORRECTION FACTORS FOR SOIL THERMAL RESISTIVITY

<b>Direct buried cables</b>							
	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	1,5	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.