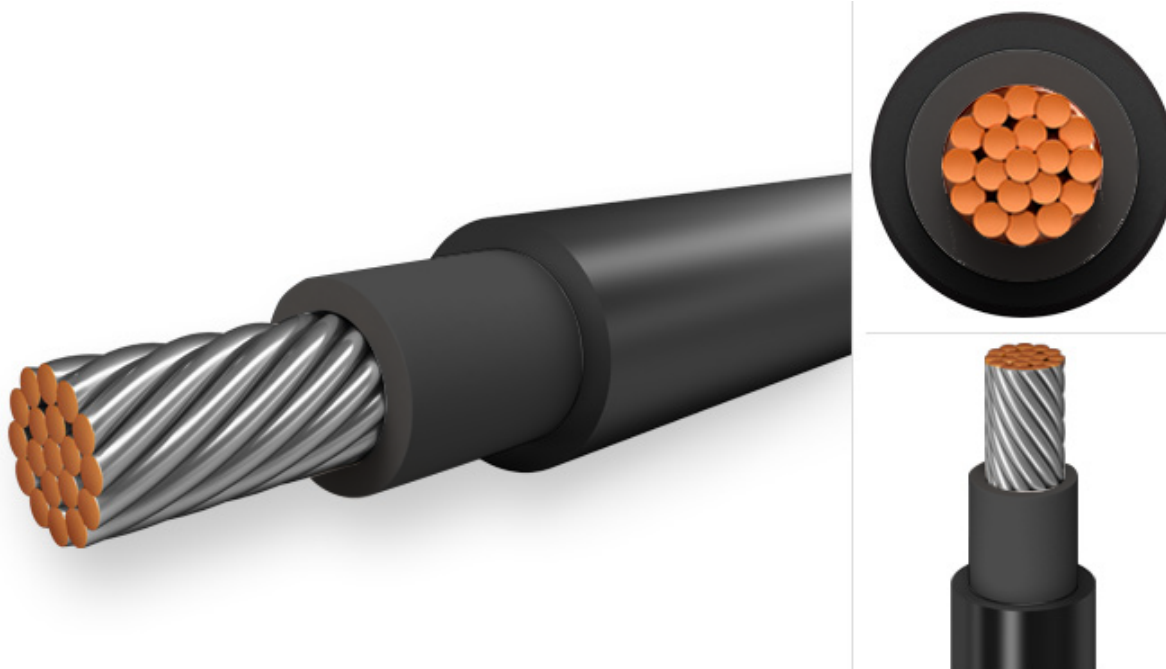




# SMI SOLAR CABLE



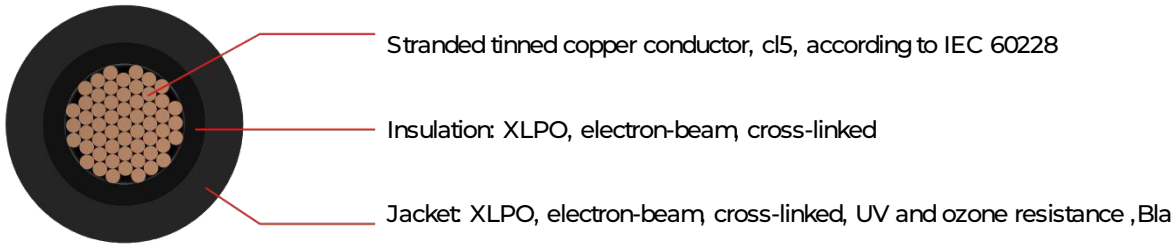
## Technical data:

Standards	EN 50618/TUV 2Pfg 1169/08.07/ IEC62930
Conductor	Tinned copper, class 5 acc. To EN 60288-7 and IEC 60228
Insulation	Halogen free, cross link polyolefin
Outer Sheath	Halogen free, cross link polyolefin, oil and UV resistance
Sheath Color	Red, black
Operating Temperature	-40°C to 90°C
Max. Temperature (service)	125°C
Max. Temperature (short-circuit)	250°C
Estimated Lifetime	≥ 25 years
Nominal Voltage U <sub>0</sub> /U	1,0/1,0 kV (AC) 1,5/1,5kV (DC)
Test Voltage	6500V
Min. Bending Radius	5 x Ø

## Applications:

SMI H1Z2Z2-K is a solar cable, TÜV and EN certified, specially designed for the connection of photovoltaic panels. This versatile single-conductor cable is designed to meet the varying needs of the solar industry. Highly flexible cable, compatible with all major connectors. Suitable for all kind of photovoltaic systems, panels mounted on roofs of building and extended solar power plants. This cable can withstand damp conditions including total immersion in water (AD7).

## Construction



## Dimension (approx)

Cross-section (mm <sup>2</sup> )	Cu-Conductor Ø (mm)	Insulation Ø (mm)	Sheath Ø (mm)
2.5	1.95	3.40	5.10
4	2.45	3.85	5.50
6	3.00	4.45	6.10
10	4.00	5.50	7.20
16	5.05	6.50	8.10
25	6.80	8.70	10.80
35	8.10	10.00	12.40

## Technical data

Construction (mm <sup>2</sup> )	2.5	4	6	10	16	25	35
Max. Conductor resistance at 20°C(Ω/km )	8.21	5.09	3.39	1.95	1.24	0.795	0.565
Voltage drop 20°C loop (mV/m.A)	16.42	10.18	6.78	3.90	2.48	1.590	1.13
Voltage drop 90°C loop (mV/m.A)	20.94	12.98	8.65	4.97	3.16	2.03	1.44
Max. Cable weight (kg/km)	43	59	79	126	186	303	416

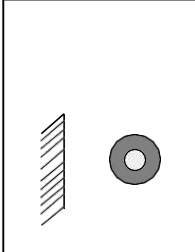
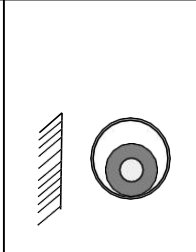
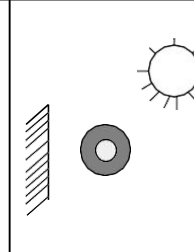
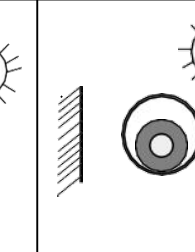
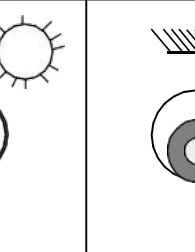
Note : The circuit is regarded as a loop and the current is calculated at 1Amps.

## Voltage rating according to EN 50618

Max. permitted voltage	U <sub>0</sub>	1.8KV (DC)
Nominal voltage	U <sub>0</sub>	1.5KV (DC)
	U <sub>0</sub> /U	1/1 KV (AC, 50Hz)
Testing voltage	6.5 KV, AC, 50Hz 5 min	
Operating temperature	- 40 °C up to + 90 °C	
Min. bending radius	Fixed installation	> 6 x cable-Ø
	Occasionally moved	> 8 x cable-Ø
Maximal Maximal pull force	40 N / mm <sup>2</sup> (1 x conductor x 40 N/mm <sup>2</sup> )	

## Max. Current rating (Ampere at 50 Hz) (according to IEC 60287) for AC&DC application

(Calculation is valid for thermal soil resistivity : 1.00 K.m/W and Load Factor : 1.00)

					
	in air (60°C) no sun	in air (60°C) no sun in plastic Pipe	in air (60°C) with sun	in air (60°C) with sun in plastic Pipe	( max 20°depth 1m) in plastic Pipe
Conductor (mm <sup>2</sup> )	Temp. 90°C	Temp. 90°C	Temp. 90°C	Temp. 90°C	Temp. 90°C
2.5	42	38	40	36	53
4	55	49	52	45	68
6	70	64	66	59	86
10	97	86	93	80	117
16	129	115	122	107	152
25	170	147	160	136	193
35	214	183	201	169	238

	in air (60°C) no sun	in air (60°C) with sun	in Plastic-Pipe (max 20° depth 1m)
Conductor (mm <sup>2</sup> )	Temp90°C	Temp. 90°C	Temp. 90°C
2.5	30	27	36
4	40	36	47
6	51	45	58
10	71	64	80
16	95	85	102
25	127	113	132
35	161	143	163

### Conversion factors for different thermal soil resistivity

$\rho$ (K. m/W)	0.50	0.70	1.00	1.50	2.00	2.50
Buried cables	1.25	1.13	1	0.85	0.76	0.68
Buried cables in pipe	1.08	1.05	1	0.93	0.87	0.83

### Conversion factors for different ambient temperature and depth

Ambient Temperature (°C)	20	30	40	50	60	70	80	85
Factor	1.35	1.26	1.18	1.09	1.00	0.89	0.78	0.72

### Conversion factors for parallel Installations

(Only valid for soil resistivity 1.0 K.m/W and soil temperature 20 °C)

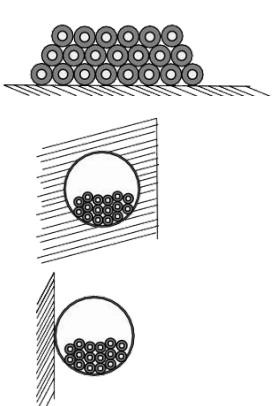
	Parallels cable systems (center distance 7 cm) 1 core							
Parallel laying in soil	1	2	3	4	5	6	8	10
Factor	1	0.87	0.77	0.73	0.70	0.68	0.65	0.63

	Parallels cable systems (center distance 15 cm) 3 core							
Parallel laying in soil	1	2	3	4	5	6	8	10
Factor	1	0.85	0.75	0.70	0.66	0.63	0.59	0.56

**Conversion factors for inside a cable ladder (According to VDE 0298-4)**

	Number of cables					
	1	2	3	4	6	9
Parallel laying inside a trench touched	1	0.88	0.82	0.79	0.76	0.73
Factor	1	0.88	0.82	0.79	0.76	0.73

**Conversion factors for bunched laying direct on the wall or floor , in electrical installation duct, on the wall or in the wall (acc. DIN VDE 0298-4:2013-06)**

Bunched laying	Number of cables															
	1	2	3	4	5	6	7	8	9	10	12	14	16	18	20	
	1	0.80	0.70	0.65	0.60	0.57	0.54	0.52	0.50	0.48	0.45	0.43	0.41	0.39	0.38	

**Standard specifications / Material properties**

Approval	EN 50618/IEC62930
Halogen free	IEC 62821 -1:2015
Fire performance	IEC 60332-1 -2:2004
Smoke emission	IEC 61034-2
UV resistant	HD 605



## Current-carrying capacities

Cable current-carrying capacities, in amperes, are according to EN 50618, and for the following conditions:

- Free in air installation: single-core cable and ambient temperature of 60 °C; with adequate ventilation
- On surfaces installation, : single-core cable directly on a wall with low thermal conductivity, ambient temperature of 60 °C.
- To cables adjacent on surfaces installation: ambient temperature of 60 °C.
- it is supposed a direct current circuit.

Water resistance: AD7 Immersion

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

Conductor Size mm <sup>2</sup>	Free In Air A	On Surface A	To cables adjacent on surface A	Max. Conductor Resistance Ω /KM @20°C	Voltage Drop mV/A.m
1.5	30	29	24	13.7	33.99
2.5	41	39	33	8.21	20.40
4	55	52	44	5.09	12.60
6	70	67	57	3.39	8.42
10	98	93	79	1.95	4.87
16	132	125	107	1.24	3.09