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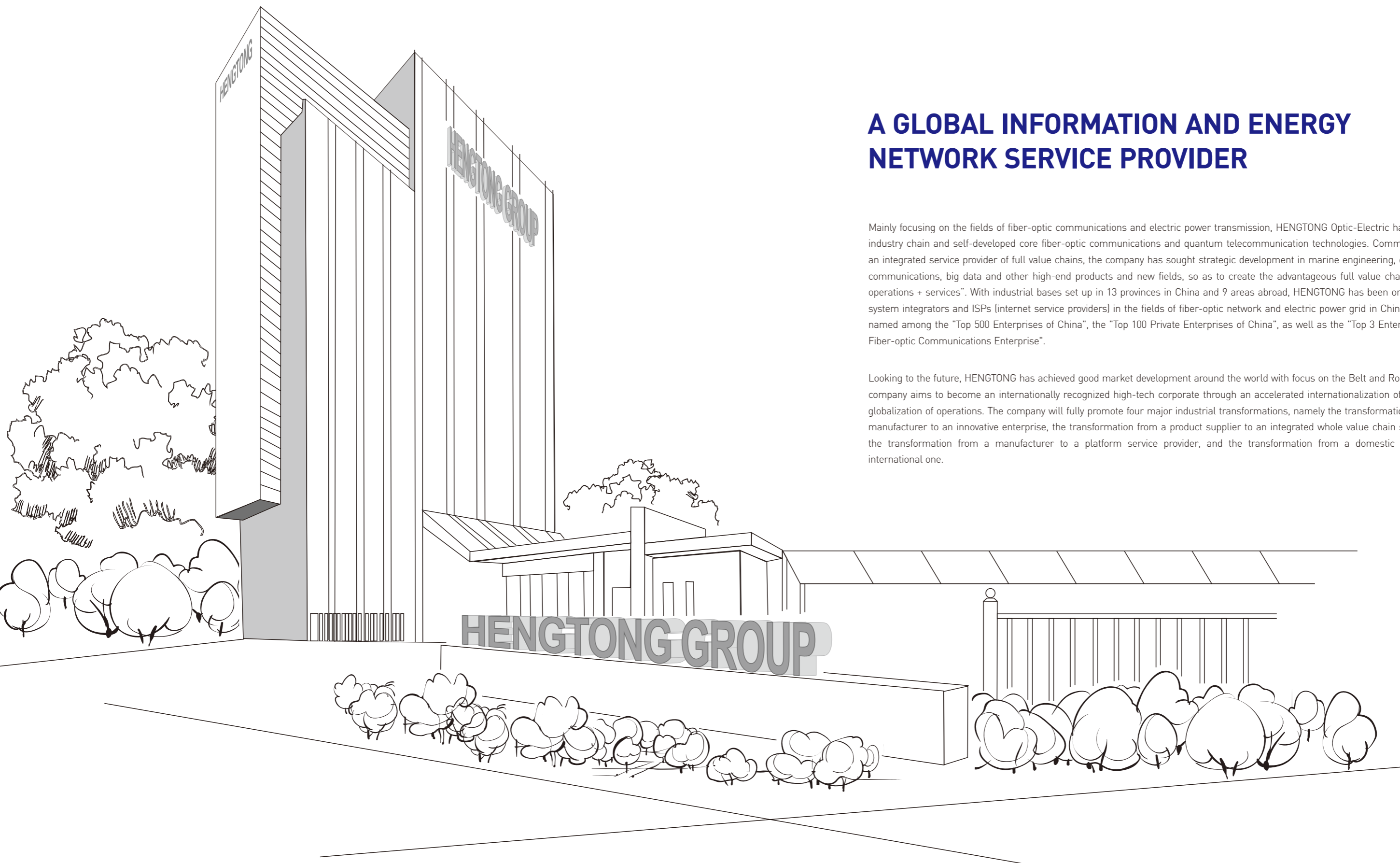
# PHOTOVOLTAIC CABLES

**HENG TONG OPTIC-ELECTRIC**  
A Global Information and Energy Network  
Service Provider



# ***Introduction***

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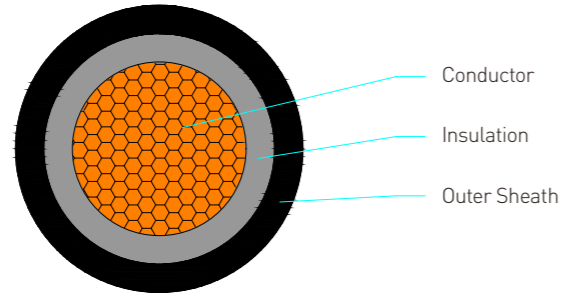
## A GLOBAL INFORMATION AND ENERGY NETWORK SERVICE PROVIDER

Mainly focusing on the fields of fiber-optic communications and electric power transmission, HENG TONG Optic-Electric has built up a full industry chain and self-developed core fiber-optic communications and quantum telecommunication technologies. Committed to building an integrated service provider of full value chains, the company has sought strategic development in marine engineering, quantum secure communications, big data and other high-end products and new fields, so as to create the advantageous full value chain of "product + operations + services". With industrial bases set up in 13 provinces in China and 9 areas abroad, HENG TONG has been one of the leading system integrators and ISPs (internet service providers) in the fields of fiber-optic network and electric power grid in China, and has been named among the "Top 500 Enterprises of China", the "Top 100 Private Enterprises of China", as well as the "Top 3 Enterprises of Global Fiber-optic Communications Enterprise".

Looking to the future, HENG TONG has achieved good market development around the world with focus on the Belt and Road Initiative. The company aims to become an internationally recognized high-tech corporate through an accelerated internationalization of production and globalization of operations. The company will fully promote four major industrial transformations, namely the transformation from an R&D manufacturer to an innovative enterprise, the transformation from a product supplier to an integrated whole value chain service provider, the transformation from a manufacturer to a platform service provider, and the transformation from a domestic company to an international one.

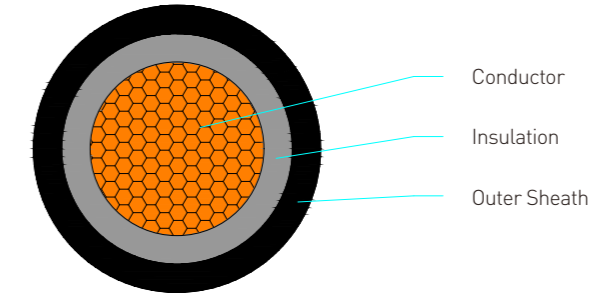
### Photovoltaic Cables

H1Z2Z2-K 0.6/1kV AC 1500V DC  
Standards: EN 50618



### Photovoltaic Cables

PV1-F 0.6/1kV AC 1800V DC  
Standards: 2 Pfg 1169



#### Technical data

**Temperature range**  
 Maximum conductor temperature in normal use: 120°C  
 Lowest ambient temperature in normal use: -40°C  
 Minimum installation temperature (cable): 0°C  
 Maximum conductor temperature at short circuit of 5s: 250°C  
**Minimal bending radius:**  
 During installation: 4D  
 D is outer diameter of cable.

#### Construction

**Conductor:** Class 5, tinned annealed circular copper.  
**Insulation:** 125°C low smoke halogen free cross-linked polyolefin.  
**Outer Sheath:** 125°C low smoke halogen free cross-linked polyolefin.  
**Insulation Colour:** Black.  
**Sheath Colour:** Black or Red.

#### Application

The cable is used at the d.c. side of photovoltaic systems with a maximum permissible voltage of d.c. 1500V. Cable for junction box, interconnection between modules, or between module array and connection box.

#### Secondary transmission parameter

No. of cores & Cross sectional area	Nominal thickness of insulation	Nominal thickness of sheath	Max. overall diameter of cable	Approx. weight of cable	Max. D.C. resistance at 20°C	Min. insulation resistance at 20°C
	mm	mm	mm	kg/km	Ω/km	MΩ/km
1x1.5	0.7	0.8	5.6	43	13.7	860
1x2.5	0.7	0.8	6.4	55	8.21	690
1x4	0.7	0.8	7.0	71	5.09	580
1x6	0.7	0.8	7.7	92	3.39	500
1x10	0.7	0.8	8.8	138	1.95	420
1x16	0.7	0.9	11.3	211	1.24	340
1x25	0.9	1.0	13.6	315	0.795	340
1x35	0.9	1.1	15.9	425	0.565	290
1x50	1.0	1.2	16.4	566	0.393	270
1x70	1.1	1.2	19.4	779	0.277	250
1x95	1.1	1.3	21.1	993	0.210	220
1x120	1.2	1.3	23.6	1242	0.164	210
1x150	1.4	1.4	28.3	1558	0.132	210
1x185	1.6	1.6	29.9	1889	0.108	200
1x240	1.7	1.7	31.2	2411	0.0817	200

#### Technical data

**Temperature range**  
 Maximum conductor temperature in normal use: 120°C  
 Lowest ambient temperature in normal use: -40°C  
 Minimum installation temperature (cable): 0°C  
 Maximum conductor temperature at short circuit of 5s: 200°C  
**Minimal bending radius:**  
 During installation: 4D  
 D is outer diameter of cable.

#### Construction

**Conductor:** Class 5, tinned annealed circular copper.  
**Insulation:** 125°C low smoke halogen free cross-linked polyolefin.  
**Outer Sheath:** 125°C low smoke halogen free cross-linked polyolefin.  
**Insulation Colour:** Black.  
**Sheath Colour:** Black or Red.



#### Application

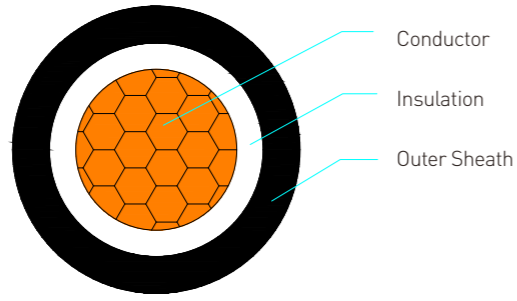
The cable is used at the d.c. side of photovoltaic systems with a maximum permissible voltage of d.c. 1800V. Cable for junction box, interconnection between modules, or between module array and connection box.

#### Secondary transmission parameter

No. of cores & Cross sectional area	Approx. diameter of conductor	Min. thickness of insulation	Min. thickness of sheath	Max. overall diameter of cable	Approx. weight of cable	Max. D.C. resistance at 20°C	Min. bending radius during installation
	mm	mm	mm	mm	kg/km	Ω/km	mm
1x1.5	1.58	0.5	0.5	4.4	30	13.7	18
1x2.5	2.04	0.5	0.5	5.1	42	8.21	21
1x4	2.59	0.5	0.5	6.5	64	5.09	26
1x6	3.17	0.5	0.5	7.1	85	3.39	28
1x10	4.23	0.5	0.5	8.3	130	1.95	41
1x16	5.88	0.5	0.5	11.0	205	1.24	55
1x25	7.33	0.5	0.5	13.4	309	0.795	67
1x35	9.20	0.5	0.5	15.4	412	0.565	77

### Low Voltage Power Cable

CU/XLPE/LSZH 0.6/1kV AC 1500V DC  
Standards: IEC 60502-1, AS/NZS 5000.1



Conductor  
Insulation  
Outer Sheath

#### Technical date

**Temperature range**  
Maximum conductor temperature in normal use: 90°C  
Lowest ambient temperature in normal use: -40°C  
Minimum installation temperature (cable): 0°C  
Maximum conductor temperature at short circuit of 5s: 250°C  
**Minimal bending radius:**  
During installation: 20D  
After installation: 15D  
D is outer diameter of cable.

#### Construction

**Conductor:** Class 2, plain or tinned annealed circular copper IEC 60228/ AS/NZS 1125.  
**Insulation:** XLPE.  
**Outer Sheath:** Low smoke halogen free thermoset compound material LSZH according to IEC 60502-1/ HFS-90-TP according to AS/NZS 3808.  
**Insulation Colour:** Natural.  
**Sheath Colour:** Black.

#### Application

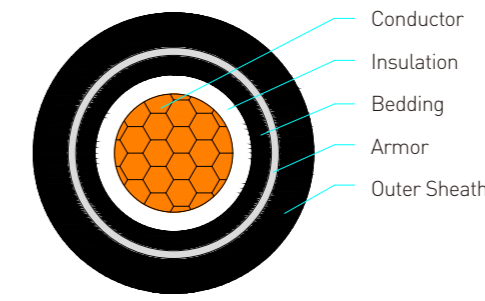
The low voltage d.c. power cable is applied to the connection of the collecting box in the photovoltaic system to the d.c. lightning protection distribution cabinet and the d.c. lightning protection distribution cabinet to the grid connected inverter. Low voltage a.c. power cable is applied to connect d.c. lightning protection switchboard and step-up transformer in photovoltaic system.

#### Secondary transmission parameter

No. of cores & Cross-section area	Nominal thickness of insulation of conductor	Nominal thickness of outer sheath	Max. diameter of cable	Approx. mass of cable	Max. DC resistance of conductor at 20°C
	mm	mm	mm	kg/km	Ω/km
1x1.5	0.7	1.4	7.9	49	12.1
1x2.5	0.7	1.4	8.4	62	7.41
1x4	0.7	1.4	8.9	80	4.61
1x6	0.7	1.4	9.5	102	3.08
1x10	0.7	1.4	10.2	146	1.83
1x16	0.7	1.4	11.2	206	1.15
1x25	0.9	1.4	12.8	304	0.727
1x35	0.9	1.4	13.8	399	0.524
1x50	1.0	1.4	15.1	522	0.387
1x70	1.1	1.4	17.1	729	0.268
1x95	1.1	1.5	18.9	982	0.193
1x120	1.2	1.5	20.5	1219	0.153
1x150	1.4	1.6	22.6	1502	0.124
1x185	1.6	1.7	24.9	1871	0.0991
1x240	1.7	1.8	27.6	2428	0.0754
1x300	1.8	1.8	30.0	3007	0.0601
1x400	2.0	2.0	33.6	3836	0.0470
1x500	2.2	2.1	37.0	4884	0.0366
1x630	2.4	2.2	41.2	6267	0.0283
1x800	2.6	2.3	46.0	7969	0.0221

### Low Voltage Power Cable

CU/XLPE/LSZH/SSTA/LSZH 0.6/1kV AC 1500V DC  
Standards: IEC 60502-1, AS/NZS 5000.1



Conductor  
Insulation  
Bedding  
Armor  
Outer Sheath

#### Technical date

**Temperature range**  
Maximum conductor temperature in normal use: 90°C  
Lowest ambient temperature in normal use: -40°C  
Minimum installation temperature (cable): 0°C  
Maximum conductor temperature at short circuit of 5s: 250°C  
**Minimal bending radius:**  
During installation: 15D  
After installation: 12D  
D is outer diameter of cable.

#### Construction

**Conductor:** Class 2, plain or tinned annealed circular copper IEC 60228/ AS/NZS 1125.  
**Insulation:** XLPE.  
**Bedding:** Low smoke halogen free thermoset compound material LSZH according to IEC 60502-1/ HF-110-R according to AS/NZS 3808.  
**Armor:** For a.c. cables, Stainless steel tape.  
For d.c. cables, Galvanize steel tape.  
**Outer Sheath:** Low smoke halogen free thermoset compound material LSZH according to IEC 60502-1/ HFS-90-TP according to AS/NZS 3808.  
**Insulation Colour:** Natural.  
**Sheath Colour:** Black.

#### Application

The low voltage d.c. power cable is applied to the connection of the collecting box in the photovoltaic system to the d.c. lightning protection distribution cabinet and the d.c. lightning protection distribution cabinet to the grid connected inverter. Low voltage a.c. power cable is applied to connect d.c. lightning protection switchboard and step-up transformer in photovoltaic system. Used for direct burial, underground duct, and where exposed to sunlight.

#### Secondary transmission parameter

No. of cores & Cross-section area	Nominal thickness of insulation of conductor	Nominal thickness of outer sheath	Max. diameter of cable	Approx. mass of cable	Max. DC resistance of phase conductor at 20°C	Max. allowable pulling force of conductor
	mm	mm	mm	kg/km	Ω/km	kN
1x1.5	0.7	1.4	11.1	135	12.1	0.10
1x2.5	0.7	1.4	11.6	154	7.41	0.17
1x4	0.7	1.4	12.1	178	4.61	0.27
1x6	0.7	1.4	12.7	207	3.08	0.41
1x10	0.7	1.4	13.4	261	1.83	0.68
1x16	0.7	1.4	14.4	333	1.15	1.09
1x25	0.9	1.4	16.0	451	0.727	1.70
1x35	0.9	1.4	17.0	559	0.524	2.38
1x50	1.0	1.4	18.3	698	0.387	3.40
1x70	1.1	1.5	20.5	939	0.268	4.76
1x95	1.1	1.5	22.1	1204	0.193	6.46
1x120	1.2	1.6	23.9	1472	0.153	8.16
1x150	1.4	1.6	25.8	1770	0.124	10.20
1x185	1.6	1.7	28.1	2167	0.0991	12.58
1x240	1.7	1.8	30.8	2756	0.0754	16.32
1x300	1.8	1.9	33.4	3380	0.0601	20.40
1x400	2.0	2.0	36.8	4237	0.0470	27.20
1x500	2.2	2.1	42.0	5709	0.0366	34.00
1x630	2.4	2.3	46.8	7231	0.0283	42.84
1x800	2.6	2.4	51.7	9041	0.0221	54.40









## Photovoltaic Cable Plug Connector



### Technical data

**Max system voltage:** DC 1000V or 1500V  
**Rated Current:** 30A  
**Test voltage:** 6kV (50Hz, 1min)  
**Power Range:** >350W  
**Protection Class:** Class II  
**Protection Degree:** IP67  
**Insulation material:** PC/PA  
**Ambient Temperature:** -40°C~+90°C  
**Upper limiting temperature:** 105°C  
**Rated Connection Capacity:** 4mm<sup>2</sup>~6mm<sup>2</sup>

### Main specialty

Case adopts high temperature resistant material,  
 has strong anti-aging UV resistant ability.  
 Corresponds to the normal use of outdoor environment condition.  
 Interlock device for the nut, avoid loose.

### Application

The connector is part of a circuit that connects several solar cell components to a system.

### Secondary transmission parameter

Cross-section $\phi$ mm <sup>2</sup>	Outer sheath $\phi$ mm	Model
4.0 - 6.0	3.0 - 6.0	Plug Connector 4-6mm



# GLOBAL SERVICE NETWORK

## International Representative Offices

### Contact Information

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#### Africa Region

DR Congo  
Ethiopia  
Kenya  
Republic of the Congo  
Uganda  
Zambia

#### America Region

Argentina  
Bolivia  
Chile  
Colombia  
Ecuador  
Mexico  
Peru

#### Asia Pacific Region

Australia  
Bangladesh  
Cambodia  
India  
Indonesia  
Malaysia  
Myanmar  
Nepal  
Pakistan  
Philippines  
Singapore  
Sri Lanka  
Taiwan, China  
Thailand  
Vietnam

#### Brazil Hengtong

Brazil

#### Middle East and North Africa Region

Algeria  
Dubai (Bay sea area)  
Egypt  
Jordan  
Lebanon  
Morocco (West Africa&North Africa Region)

#### Europe Region

Baltic  
Georgia  
Italy  
Poland  
Serbia  
Turkey  
Ukraine

#### Russia Region

Russia

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