



**Caledonian**

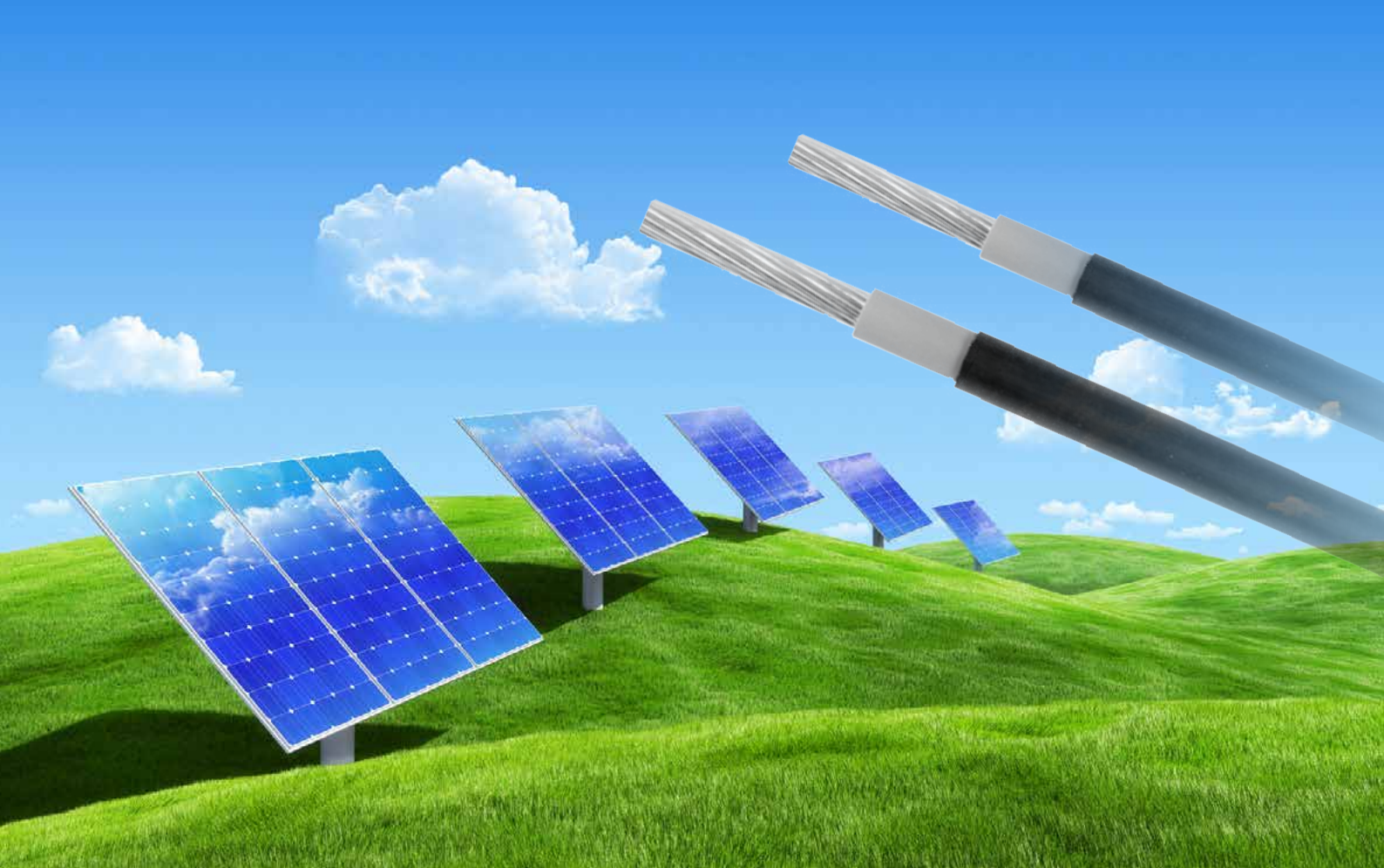
# Photovoltaic Cables

**EN 50618 H1Z2Z2-K**



 **ADDISON**

[www.caledonian-cables.co.uk](http://www.caledonian-cables.co.uk)  
[www.addison-cables.com](http://www.addison-cables.com)



## COMPANY PROFILE

Caledonian, established in 1978, offers one of the most complete lines of fiber and copper cabling system solutions with over hundreds of different cabling system products. Our superior products provide leading edge within every cable series and for every application.

Among the national and international standards with which our cables could comply are: BS - British Standard; LPCB Fire Performance Standard, ISO Standard etc. Caledonian Cables offers a comprehensive stock of cables and cabling products through its nationwide network of resellers and distributors. Caledonian Cables has continually expanded its global presence in Europe and Asia.

Caledonian & Addison, produces a wide range of cables for communication, power and electronics in its primary plants in UK, Italy and Spain. To stay in front, we continually keep expanding our manufacturing capabilities in more low cost region such as Romania, Taiwan, Malaysia etc. This low-cost manufacturing facilities enable us provide a flexible, scalable global system that delivers superior operational performance and optimal results for our customers.

Our extensive global network of manufacturing facilities gives us significant scale and the flexibility to fulfill our customer requirements. This global presence provides design and consultancy solutions that are combined with core cable manufacturing, logistic services, and vertically integrated with our E commerce technologies, to optimize customer operations by lowering costs and reducing time to market.

Caledonian & Addison has been respected for its high standards of quality, excellent service level, competitive pricing and a unique and innovative spirit. With our latest technologies, we are both inspired and well-positioned to meet the changing needs of our customers. We have the resources to diversify and to enhance our product lines and services. We understand the need for change and with our accurate planning, we are ready for the future and the promise of new marketing opportunities. Our tradition of growth through excellence is assured.

Our Design Centers work closely with customers to constantly improve its standard range of products and technologies and to develop customized, country and industry-specific solutions. Caledonian & Addison has established an extensive network of design, manufacturing, and logistics facilities in the world's major markets to serve the growing outsourcing needs of both multinational and regional customers.

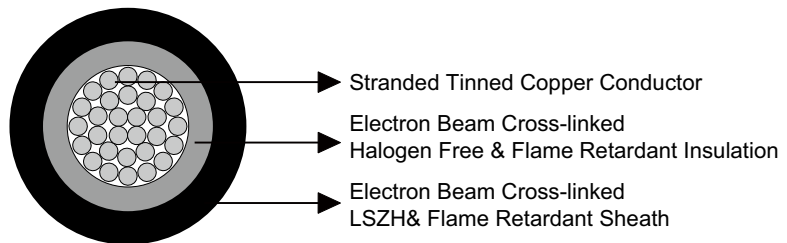




### PHOTOFLEX Photovoltaic Cable

#### » Applications

These cables are designed for connecting photovoltaic system components inside and outside of buildings and equipment with high mechanical requirements and extreme weather conditions.



#### » Standards

DIN EN 50618 (H1Z2Z2-K) (formerly PV-1F according to 2PfG 1169/08.2007)



#### Approvals:

TUV Certification (B 18 01 98200 015)

#### » Construction

Conductor: Stranded tinned copper conductor per DIN VDE 0295 and IEC 60228 Class 5.

Insulation: Electron beam cross-linked, halogen free and flame retardant compound.

Sheath: Electron beam cross-linked, LSZH and flame retardant compound, Black.

#### » Electrical Properties

- » Rated Voltage  $U_0/U$ : 1/1 kV AC; 1.5/1.5 kV DC
- » Maximum Permitted DC Voltage: 1.8 kV DC (conductor/conductor, non earthed system, circuit not



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under load)

- » Insulation Resistance: 1000 MΩ-km
- » Spark Test: 6000 Vac (8400 Vdc)
- » Voltage Withstand: 6500 Vac for 5 min

### » Thermal Properties

- » Maximum Voltage: 1.2KV (AC), 1.8KV (DC)
- » Ambient Temperature: -40°C ~ +90°C
- » Maximum Temperature At Conductor: 120°C (20000h) according to IEC/EN 60216-1
- » Short Circuit Temperature: 250°C/5 sec
- » Thermal Endurance Test: According to EN 60216-2 (temperature index +120° C)
- » Damp-Heat Resistance: According to EN 50618, Table 2 with 85% humidity (test acc. to EN 60068-2-78)

### » Mechanical Properties

- » Minimum Bending Radius: 4×OD (fixed), 5×OD (flexing)
- » Dynamic Penetration: According to Acc. to EN 50618, Annex D, Meets requirements of EN 50618.
- » Tensile Strength And Elongation Of Insulation And Jacket: 250°C
- » Anticipated Period Of Use: 25 years
- » Ovality: ≤15%

### » Chemical Properties

- » Ozone Resistance: According to EN 60811-403(25°C, 24h, (250 to 300) × 10–4%) ; Method B: EN 50396(40°C, 72h, 55%RH, (200 × 10–6%)
- » Weathering- UV Resistance( Resistance on sheath): tensile strength and elongation at break after 720h (360 Cycles) of exposure to UV lights (acc. to EN 50289-4-17, Method A According to HD 605/A1)
- » Ammoniac resistant
- » Very good resistance to oils and chemicals
- » High wear and robust, abrasion resistant

### » EC directives

- » The cables are conform to the EC directives CE 2006/95/EC (Low voltage directive) and RoHS 2002/95/EC (Restriction of Hazardous Substances)



### » Fire Performance

- » Flame retardant according to EN 50265-2-1, IEC 60332-1, VDE 0482-332-1-2, DIN EN 60332-1-2
- » Low smoke emission according to EN 61034-2 (Light Transmittance  $\geq 60\%$ )
- » Halogen free according to EN 50525-1, Annex B
- » Low corrosivity of gases according to EN 50267-2-2, IEC 60754-2

### » Dimensions and Weight

No. of Cores × Nominal Cross Section	No. of Stranding	Nominal Conductor Diameter	Nominal Insulation Thickness	Nominal Sheath Thickness	Nominal Overall Diameter	Nominal Weight
No. × mm <sup>2</sup>	-	mm	mm	mm	mm	kg/km
1×1.5	30/0.25	1.58	0.70	0.80	5.4	40
1×2.5	50/0.25	2.04	0.70	0.80	5.9	50
1×4.0	56/0.30	2.59	0.70	0.80	6.6	70
1×6.0	84/0.30	3.17	0.70	0.80	7.4	80
1×10	78/0.40	4.07	0.70	0.80	8.8	130
1×16	128/0.40	5.22	0.70	0.90	10.1	200
1×25	199/0.40	6.51	0.90	1.00	12.5	290
1×35	279/0.40	7.71	0.90	1.10	14.0	400
1×50	396/0.40	9.00	1.00	1.20	16.3	550
1×70	360/0.50	10.8	1.10	1.20	18.7	750
1×95	475/0.50	12.6	1.10	1.30	20.8	970
1×120	608/0.50	14.2	1.20	1.30	22.8	1220
1×150	756/0.50	15.8	1.40	1.40	25.5	1510
1×185	925/0.50	17.4	1.60	1.60	28.5	1850
1×240	1221/0.50	20.4	1.70	1.70	32.1	2400

### » Current Carrying Capacity

Cross Section	AWG	Maximum Conductor Resistance at 20°C	Maximum insulation Resistance at 20°C	Maximum insulation Resistance at 90°C	Current Carrying Capacity		
					Single cable free in air	Single cable on surfaces	2 loaded cables adjacent on surfaces
mm <sup>2</sup>	-	Ω	MΩ.km	MΩ.km	A	A	A
1.5	16	13.7	859	0.859	30	29	24
2.5	14	8.21	691	0.691	41	39	33
4	12	5.09	579	0.579	55	52	44



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Cross Section	AWG	Maximum Conductor Resistance at 20°C	Maximum insulation Resistance at 20°C	Maximum insulation Resistance at 90°C	Current Carrying Capacity		
					Single cable free in air	Single cable on surfaces	2 loaded cables adjacent on surfaces
mm <sup>2</sup>	-	Ω	MΩ.km	MΩ.km	A	A	A
6	10	3.39	499	0.499	70	67	57
10	8	1.95	424	0.424	98	93	79
16	6	1.24	342	0.342	132	125	107
25	4	0.795	339	0.339	176	167	142
35	2	0.565	287	0.287	218	207	176
50	1/0	0.393	268	0.268	276	262	221
70	2/0	0.277	247	0.247	347	330	278
95	3/0	0.210	220	0.220	416	395	333
120	4/0	0.164	211	0.211	488	464	390
150	300 kcmil	0.132	206	0.206	566	538	453
185	350 kcmil	0.108	200	0.200	644	612	515
240	450 kcmil	0.082	198	0.198	775	736	620

### » Conversion Factor for Deviating Temperatures

Ambient Temperature °C	Conversion Factor
Up to 60	1.00
70	0.91
80	0.82
90	0.71
100	0.58
110	0.41

Reduction factor for accumulation according to IEC 60364-5-52, Table B.52-17



## **UNITED KINGDOM**

Marchants Industrial Centre,  
Mill Lane, Laughton, Lewes,  
East Sussex, BN8 6AJ, UK  
Tel: 44 (0) 207 419 5087  
Fax: 44 (0) 207 831 9489  
Email: [sales@caledonian-cables.co.uk](mailto:sales@caledonian-cables.co.uk)  
[www.caledonian-cables.co.uk](http://www.caledonian-cables.co.uk)

## **HONG KONG**

Unit B 22/F CMA Building,  
64-66 Connaught Road Central,  
Hong Kong  
Tel: 852 36527508  
Fax: 852 35834834  
Email: [hk@caledonian-cables.co.uk](mailto:hk@caledonian-cables.co.uk)  
[www.caledonian-cables.co.uk](http://www.caledonian-cables.co.uk)