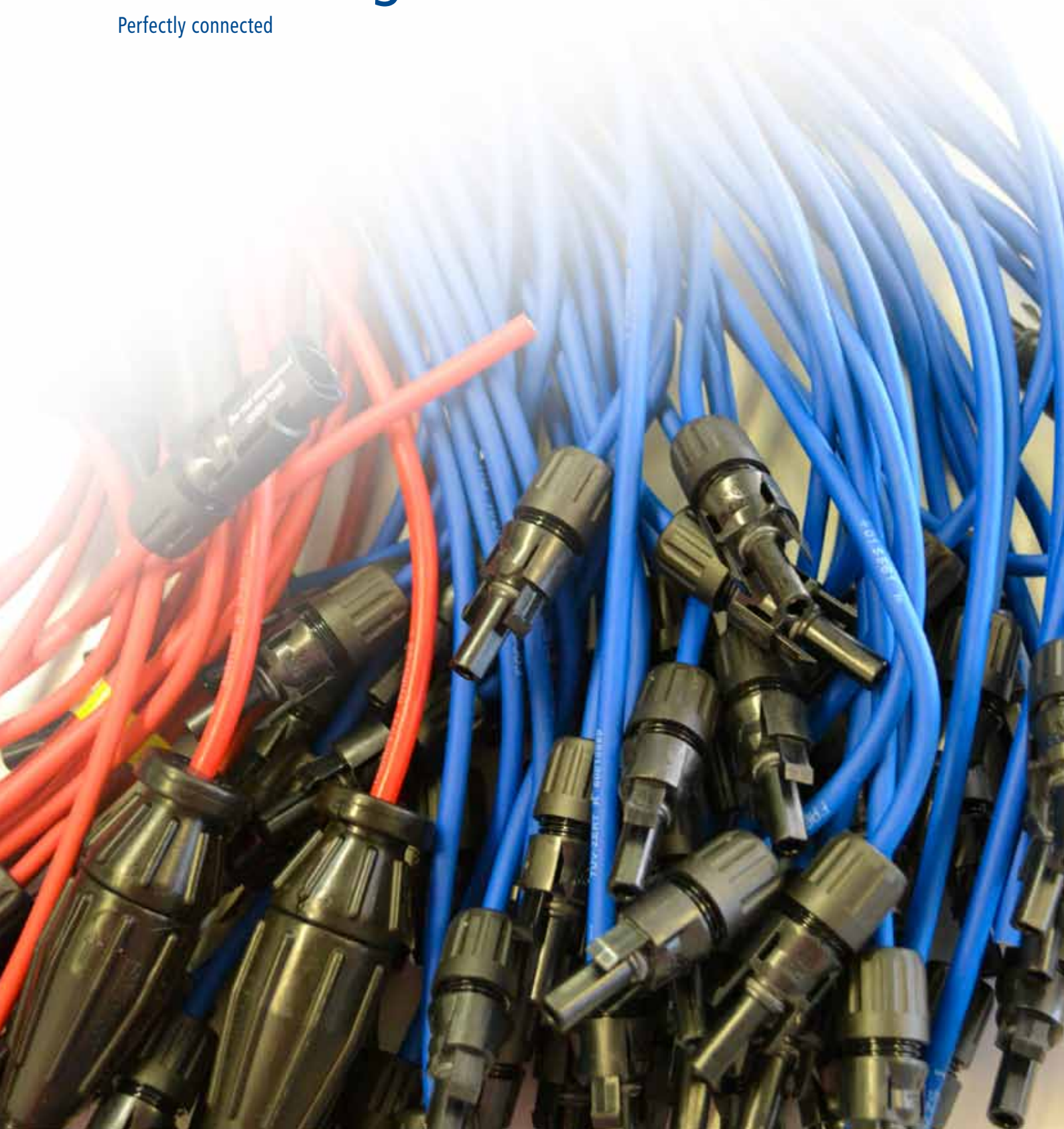


# DC Cabling

Perfectly connected



Welcome  
to the world of clever solutions



# Safe & yield-optimized with Sykonec cabling



## Experience and expertise

Our products have been used for cabling photovoltaic systems since 2005 - up to the present day they have yielded power of more than 1,5 GWp.

We support our partners and customers right from the design and planning phase and develop the perfect connection solution for them. We ensure problem free production and delivery on schedule of the required components to your building-site.

We are specialized in developing long-lasting and reliable cabling components for photovoltaic systems.

## Individually designed and of the highest quality

Each PV system is unique. Therefore, each system requires specific connections. In order to facilitate your planning process as much as possible, you can view several cable configurations on our website. Use them to simply enter your requirements via computer and send them to us. We will immediately draw up an individual offer.

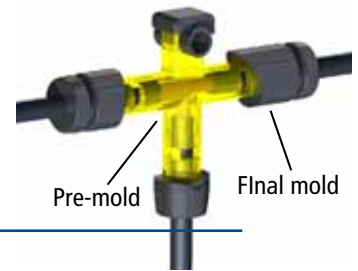




Jurchen Technology

- UL and TÜV verification applied
- Fast service and support
- Assembly according to customer requirements
- Cable lengths, quantity and spacing can be produced on short notice at site in Helmstadt

# Harness cable SK-III



Applied for UL tests and TÜV certification

Our harness cables (array harness) are produced in a unique dual molding procedure. This guarantees a long product life-time.

Through pre-molding maximum impermeability is achieved. Then, final molding guarantees outstanding mechanical properties and high temperature resistance.

The cables are pre-assembled according to customer requirements so that you can connect them quickly and easily. Variable diameters between 2,5 mm<sup>2</sup>, 4 mm<sup>2</sup>, 6 mm<sup>2</sup> and 10 mm<sup>2</sup> allow you to minimize possible line losses.

1. Temperature range	
Ambient temperature range	-40°C... +90°C
Max. temperature at the conductor	120°C
2. Material	
Pre-molding material	PA RoHS - compliant
Final molding material	TPE RoHS - compliant, UV-resistant V0 according to UL 94 5VA
PV-Connector	Multi Contact - MC3 (tested according to EN 50521:2008) Multi Contact - MC4 (tested according to EN 50521:2008) Phoenix Contact SUNCLIX (tested according to EN 50521:2008) Prysmian TECPLUG (tested according to EN 50521:2008) Amphenol H4 (tested according to EN 50521:2008) On request all available connectors can be tailored to requirements
PV-Conductor (PV1-F & PV Wire)	Diameter 2,5 mm <sup>2</sup> , 4 mm <sup>2</sup> , 6 mm <sup>2</sup> and 10mm <sup>2</sup> Color Black Tinned stranded copper wire class 5 IEC 60228
3. Mechanical data	
IP Code	IP68 (10 days/1m)
Protection class	Fullfills the requirements of protection class II
4. Electrical data	
Rated voltage	up to 1500 V DC (depends on the used PV conductor and connector)
Rated current	Depends on the used PV conductor and connector
DC voltage proof (according to TÜV 2 PFG 1913/04.11)	1,5 kV DC / 240 h (NaCl - solution)
Contact resistance (measured acc. to TÜV 2 PFG 1913/04.11: directly at the output of the cables of the moulding of connection splice)	$R \leq 0,5 \text{ m } \Omega$

## Key data

- Minimum assembling of connectors at site
- Prevent system weak spots
- Proven resistance to weathering
- Extensive quality testing
- Life expectancy 25 years
- Quick and easy installation
- Increased feed in
- Less junctions
- Fewer string-cable
- Simple and reliable system

Technical data	
Rated voltage	1.000 V DC
Insulation material	EVA-Compound, 120°C acc. to DIN VDE 0282-2, HD22.1
Ambient temperature	- 40 °C to + 90 °C
Max. operating temperature	- 40 °C to + 120 °C
Resistance against	Ozone acc. to DIN EN 50396, Method B
	UV acc. to UL 1581, ISO 4892-2, Method A
	Damp-Heat test: 1.000 h, 90 °C and 85 % humidity acc. to DIN EN 60068-2-78
	Long-term-resistance of insulation to DC: 0,9 kV DC, 240 h in saltwater at 85°C acc. to DIN EN 50395
	Ammonia, 30 days in saturated NH <sub>3</sub> -atmosphere (internal test)
Flammability (internal tests)	Single cable acc. to DIN EN 60332-1-2
	Multiple cable acc. to DIN EN 50305-9
	Lower smoke emission acc. to DIN EN 50268-2
	Absence of Halogens acc. to DIN EN 50264-1
	Lower toxicity acc. to DIN EN 50305
Degree of protection	IP 68 (10 days, 1 m)
Spark test	15 kV AC
Dielectric strength acc. to 2 PFG 1913/04.11	Voltage test 1 h in water, 6,5 kV AC (5 minutes)
Contact resistance (measured acc. to TÜV 2 PFG 1913/04.11: directly at the output of the cables of the moulding of connection splice)	≤ 0,5 mΩ
Tensile test	acc. to TÜV 2 PFG 1913/04.11

Nominal cross-sectional area	Current rating at kind of laying		
	single cable free in air	single cable on a surface	two loaded cables touching on a surface
mm <sup>2</sup>	A	A	A
2,5	41	39	33
4	55	52	44
6	70	67	57

Conversion factors for different ambient temperature	
Ambient temperature °C	Conversion factor
up to 60	1,00
70	0,91
80	0,82
90	0,71

# Technical data

## ArCon - the Networked Connection

For covering the cables Sykonec ArCon uses the identical materials as for the sheath of the solar cable.

The process of vulcanization between sheathing and ArCon leads to irreversible, chemical cross linking between the materials. This molecular bonding guarantees maximum and long lasting tightness against outdoor weathering and best resistance against mechanical stresses.



## Customized Connections

The design of our ArCon system is extremely flexible and adapts individually to the most different applications. We are defining the ideal lay-out together with our customer according to the panel configuration and the size of the inverters and choose the appropriate conductor cross sections. The applied PV-connectors can be chosen according to customer's requirements.

The ArCon system is offered in single-string and double-string design. The distance between each ArCon-junction may vary according to placement and dimensions of the used panels. The length of the branch cable can be chosen between 0,3m and 10m.

**ArCon Y-Plug**



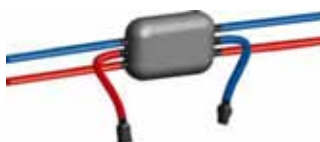
**ArCon ES-2**



**ArCon ES-5**



**ArCon DS-2**



**ArCon ES-3**



**ArCon ES-6**



**ArCon DS-4**



**ArCon ES-4**



*Jurchen Technology*



· K a b e l k o n f e k t i o n



**Haupthaus**

[www.MAWGmb](http://www.MAWGmb)



# Harness cable JT-SK-III for crystalline modules



## Key data

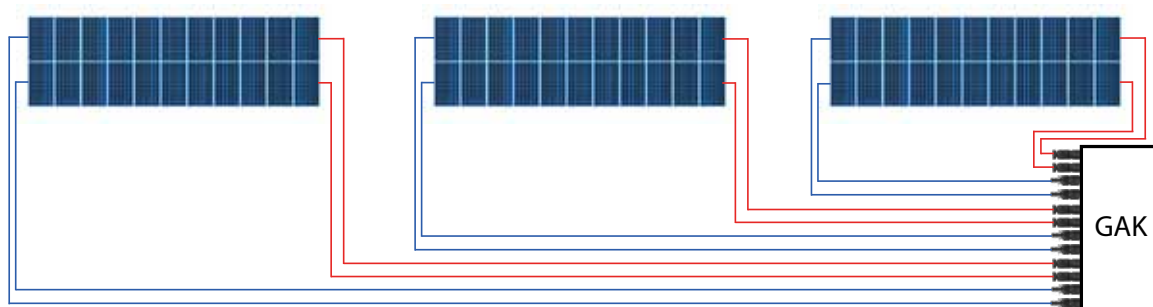
- Project specific solutions
- 50% reduction of cable
- 50% reduction of installation time
- Smaller PV array junction box possible
- Needed fuses can directly be integrated in the cable (f.ex. ArCon SF or BiBBus)

## Comparison between the conventional solution and the SK-III T-Connector

SK-III T-Connector

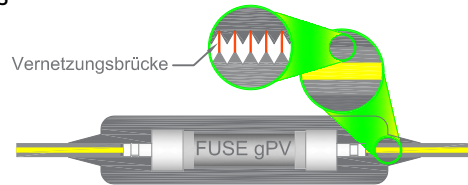


Conventional solution



# Fuse ArCon SF

**Coverd with cross-linked material** - pluggable with pre-harnessed connectors or fitted in the PV-String-harness. For covering the cables Sykonec fuse uses the identical materials as for the sheath of the solar cable. The process of vulcanization leads to irreversible, chemical cross linking between the materials.



## Key data

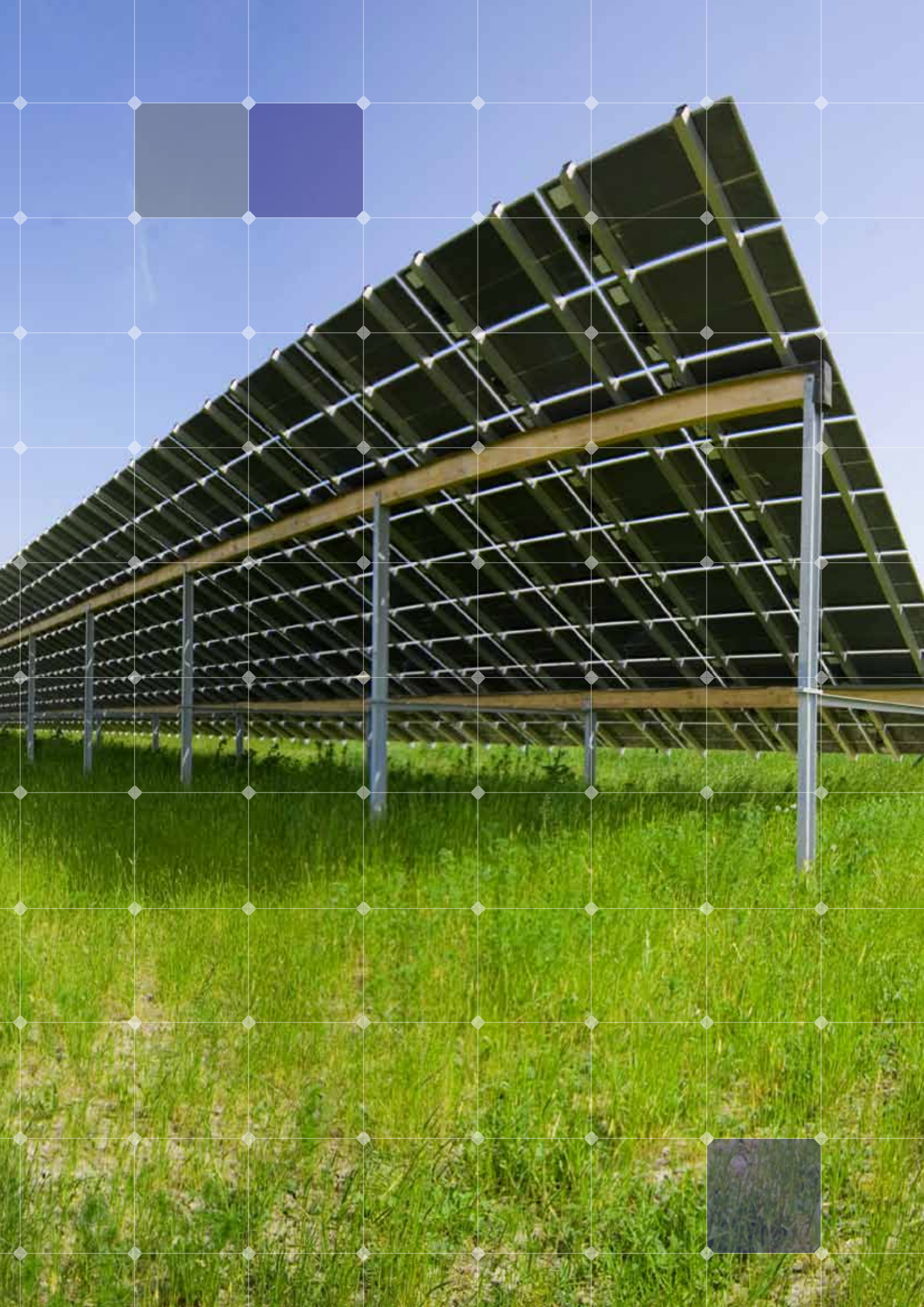
- Overcurrent protection
- Protects strings from reverse current overload caused by earth faults, short circuits or incorrect installation
- Premium quality directly from the manufacturer
- Tailor-made solutions
- Assembly according to customer's specifications
- Released by Jurchen Technology in combination with all components listed on the data sheet



Electrical data	
Fuse characteristic	gPV (PV-Fuse)
Rated current	Up to 30 A (depending on the fuse being used)
Rated voltage	Up to 1500 V <sub>DC</sub> (depending on the fuse being used)
Contact resistance at termination <sup>1</sup>	≤ 10 mΩ
Insulation resistance	> 10 <sup>9</sup> Ω
PV-Fuse manufacturer	Siba, Jean Müller, COOPER Bussmann
	Other manufacturer on request
Tests	Spark test in accordance with EN 50395 section 10 with 15kV <sub>AC</sub>
	High voltage test in water in accordance with TÜV 2 PFG 1913/04.11 section 7.3.8 b) with 6,5 kV <sub>AC</sub>
	Contact resistance at termination acc. to test 2b of EN 60512
	Insulation resistance in accordance with EN 50395 section 8.1
	Long term resistance of insulation to d.c. according to TÜV 2 PFG 1913/04.11 section 7.3.13 240 h at 1.5 kV in salt water at 85 °C
Thermal data	
Ambient temperature range	From -40 °C to +90 °C (from -40 °F to +194 °F)
Thermal cycle test	According to IEC 60068-2-14 test Nb
Damp heat test	According to IEC 60068-2-78 1000 h at 90 °C and 85 % relative humidity
Resistance to cold	Cold impact test acc. to TÜV 2 PFG 1913/04.11 section 7.3.9

# Fuse ArCon SF

Mechanical data	
Degree of protection (IP-Code)	IP68 (10 days, 1 m) in accordance with IEC 60529
Termination and connection method	Crimping Visual and tensile strength test according to IEC 60352-2
Chemical data	
Moulding material	EVA compound 120 °C based on DIN EN 50363-2-1 Moulding material and cable sheath are crosslinked
Weather resistance	Ozone resistance according to DIN EN 50396 test type B
	UV-resistance according to ISO 4892-2 (Method A)
Behaviour in case of fire	Flame class V0 acc. to UL94
	Single cable burning test acc. to IEC 60332-1-2
	Multiple cable burning test acc. to DIN EN 50305-9
	Low smoke emission acc. to DIN VDE 0482 part 268-2, IEC 61034
	Halogen free acc. to DIN EN 50264-1
	Low toxicity acc. to DIN EN 50305
PV-Conductor	
Manufacturer	Prysmian Kabel und Systeme GmbH
Trademark	TECSUN (PV)
Type designation	PV1-F
Approvals	Requirements for cables for PV systems, DKE/VDE AK 411.2.3 - VDE-Reg.No. 7985 TÜV 2 Pfg 1169/08.2007 - Cert.-No. R 60013989
Conductor	Electrolytic copper, tinned, Class 5 according to IEC 60228 (DIN VDE 0295)
Cross section	2,5 mm <sup>2</sup> , 4 mm <sup>2</sup> and 6 mm <sup>2</sup>
Tensile strength	15 N/mm <sup>2</sup> during operation, 50 N/mm <sup>2</sup> during installation
Bending radius	Min. 3 x D (D = outer diameter maximum value) D = 5,1 mm for 2,5 mm <sup>2</sup> wire cross section D = 5,6 mm for 4 mm <sup>2</sup> wire cross section D = 6,1 mm for 6 mm <sup>2</sup> wire cross section
Sheath colours	Black (red and blue on request)
Both-sided connectivity	
PV-Connectors	Multi Contact - MC3 TÜV certified acc. to standard EN 50521:2008 / R 60026534
	Multi Contact - MC4 TÜV certified acc. to standard EN 50521:2008 / R 60028286
	Amphenol - Helios H4 TÜV certified acc. to standard EN 50521:2008 / R 50157783
IPC-Connectivity	8x60 mm
Open end	
Other connectivity on request	



## Key data

- Produced of high-quality, cross-linked material
- Resistance against UV and Ozone
- Protection class IP67
- Ambient temperature -40° up to +90°C
- Resistance to abrasion
- Halogen free



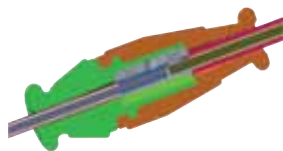
BiBBus is an electrically safe possibility to connect cables and wires easily and fast without any intricate auxiliary materials.

It replaces ordinary applications such as heatshrinkable tube. Furthermore additional electrical parts can be integrated. In the case of a failure accessibility enables changes to be made with ease and at a low cost.

BiBBus is available fitted in the PV-Stringsystems or as an assembly kit and repair kit respectively.

Extensive routine tests regarding both electrical safety and resistance to weathering account for the absolute reliability.

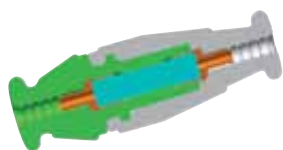
Electrical data	
Rated current	up to 30 A
Rated voltage	up to 1000 V



### Flexible cable to underground cable

Overall diameter of cable 4,2 mm up to 10,4 mm.

Accessories: 1 x screw-type terminal



### Fuse – removable

Overall diameter of cable 4,2 mm up to 7,8 mm.

Accessories: 2 x fuse holder

1 x fuse



### End-cap for sealing

E.g. for repairs overall diameter of cable  
4,2 mm up to 10,4 mm.



# Diode ArCon SD

## The ArCon-Diode is available in two options:

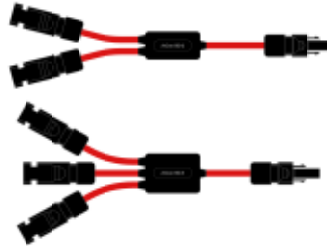
### ■ Pluggable -

with pre-harnessed connectors



### ■ Fully integrated -

with 1, 2 or 3 branches



For covering the cables Sykonec diode uses the identical materials as for the sheath of the solar cable. The process of vulcanization between sheathing and diode leads to irreversible, chemical cross linking between the materials.

Technical data	
Nominal current	up to 10 A
Repetitive peak reverse voltage	up to 1200 V







# Connector

## Multi-contact PV-KST 4/6 II coupler plug and coupler socket

- Snap-in interlocking system
- Rated voltage 1000 V
- Rated current
  - 17 A (1,5 mm<sup>2</sup>)
  - 22,5 A (2,5 mm<sup>2</sup>, 14 AWG)
  - 30 A (4,6 mm<sup>2</sup>, 10 AWG)
  - 43 A (10 mm<sup>2</sup>)
- Contact material: Tin-plated copper
- Special assembly and disassembly tool available



## Multi-Contact PV-KST 3 II coupler plug and coupler socket

- Rated voltage 1000 V
- High-end plug connector
- Rated current
  - 20 A (2,5 mm<sup>2</sup>, 4 mm<sup>2</sup>m 14 AWG, 12 AWG)
  - 30 A (6 mm<sup>2</sup>, 10 AWG)
  - 43 A (10 mm<sup>2</sup>)
- Contact material: Tin-plated copper
- Connecting system: MC Multilam plugs



## Amphenol Helios H4 coupler plug and coupler socket

- Compatible with MC4
- Rated voltage 1000V
- Snap-lock interlocking system
- Contact material: Tin-plated copper
- 52A 2,5 - 6 mm<sup>2</sup> conductor cross section
- Special assembly and disassembly tool available



On request we can deliver you every customary plugs and sockets.

# Accessories well attuned

Solar quality cable 2,5 mm<sup>2</sup> - 4 mm<sup>2</sup> - 6 mm<sup>2</sup> - 10 mm<sup>2</sup>

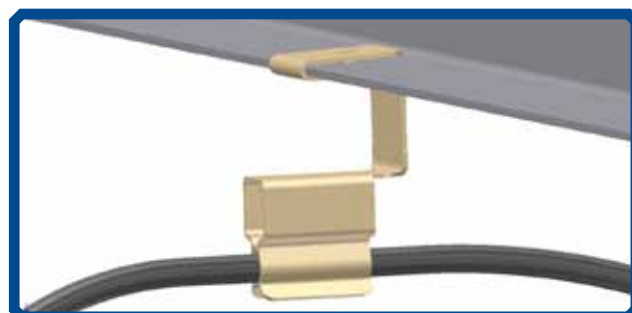
- UL certified conductions
- TÜV certified conductions
- UL and TÜV certified conductions

## Cable clip KBF I D – St

- No tools needed for mounting
- Targeted installation possible
- Can be used for various cable diameters
- Can be clipped to plates with several thicknesses
- Material: Tempered steel



Technical data	
For cables Ø	5 mm
	6 mm
	7 mm
Dimensions	20 x 40 x 0,8 mm
Material	Tempered steel



# Accessories well-thought-out

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**With these components you will manage a clear, fast and cost-effective positioning of your cables!**

## JT Pin clamp

- Fastening with nails
- Provides for a clear positioning of the cable



## Cable clamp for big cable cross-sections

- Fastening with screws
- Provides for a clear positioning of the cable



## Cable channel

- Stable construction
- Variable dimensions possible
- Quick and easy assembly
- Avoids accumulations of water
- Horizontal and vertical installation possible
- Reliable weather protection
- Material: Aluminum



Together we generate clever solutions  
for your corporate success

Feel free to contact us!

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