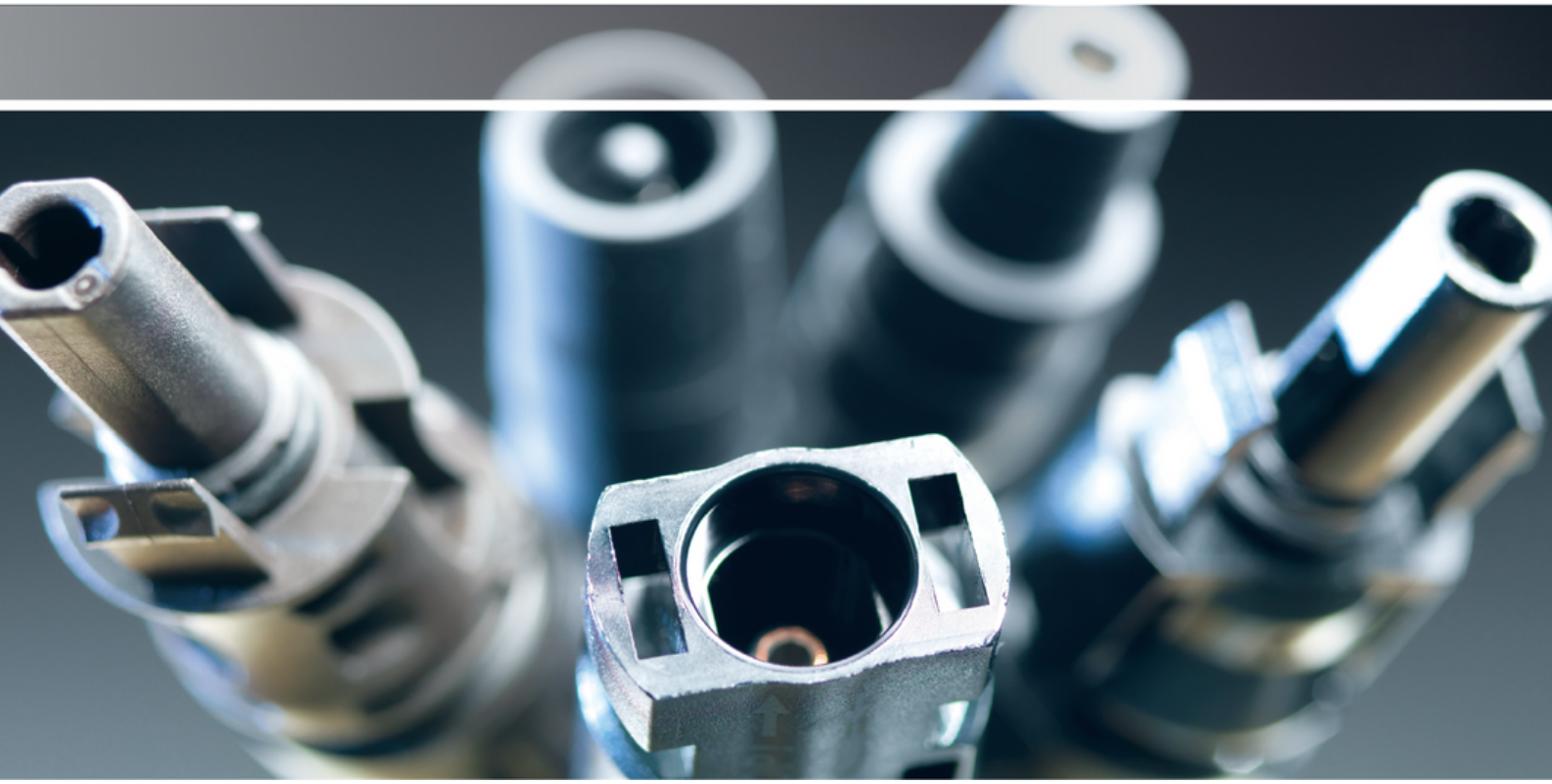
Business Unit

INDUSTRY

SOLUTIONS FOR RENEWABLE ENERGY



I-POWERS CABLES & ELECTRICAL TAIWAN

MAY 2022

SMALL COMPONENTS ... BIG IMPACT

SMALL COMPONENTS ... BIG IMPACT

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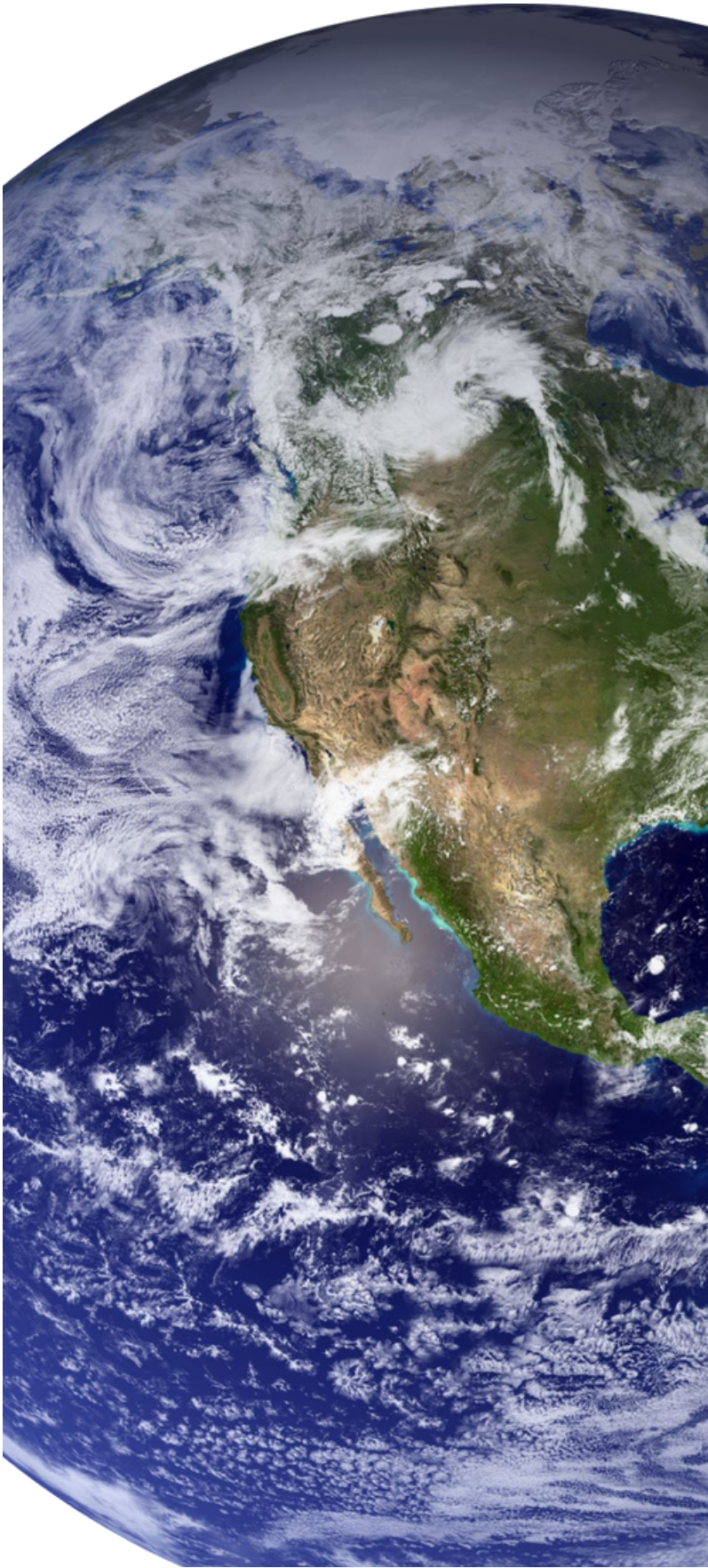
ENERGY STORAGE

High Voltace DC Contactors
Modular energy system



OUR COMMITMENT TO INDUSTRY

Since 1997 i-Powers has been serving the Taiwan renewable energy industry with innovative and quality Balance of System (BoS) solutions and valueadd services.

i-Powers is the exclusive Taiwan distributor for a diverse range of products from reputable manufacturers who are leaders in their field and have long, stable corporate backgrounds.

We continually strive to offer products with the highest standards of quality, on-time delivery and cost-effectiveness - all important factors our customers need to succeed.

Our solutions are considered in the industry as “best-in-class” and we are privileged to have supported over 1,800 MW of solar projects in Taiwan across the residential, commercial and large scale segments.

OUR PARTNERS

STÄUBLI

AKATSUKI

RENNSTEIG

TE connectivity

RC

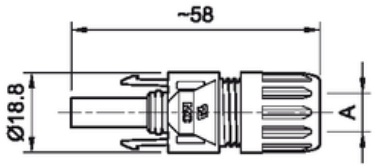
Weidmüller

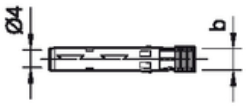
PLUG CONNECTORS

Female and male cable coupler MC4

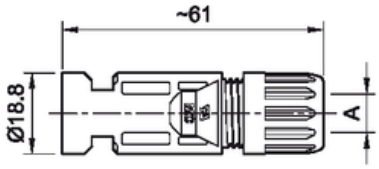
Female and male cable coupler as individual part with open crimp contact (including insulating part)

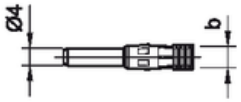
PV-KBT4...





PV-KST4...





MA
Assembly instructions MA231
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CONNECTOR

In accordance with NEC 2020, requires a tool to open. Proven MULTILAM technology with high long-term stability, which ensures consistently low performance loss throughout the entire service life of the plug connector. Tried and tested plug connectors, over 15 years of experience in the field. Available for assembly with cross-sections up to 10 mm^2. Also available as ready made leads. Mating compatibility with MC4 and MC4-Evo 2 connector families. Leads made to customer's specifications.

Technical data	
Connector system	MC4
Ambient temperature range	-40 °C...+85 °C (TÜV/UL)
Upper limiting temperature	105 °C
Degree of protection	IP68 (1 m, 1 h)/IP65
Degree of protection, unmated	IP2X
Category	CAT III
Degree of pollution	3
Max. contact resistance of the connector	0.25 mΩ
Rated Impulse Voltage	16 kV
Contact system	MULTILAM
Type of connection	Crimping
Contact material	Copper, tin plated
Insulation material	PC/PA
Locking system	Locking Type
Fire protection class	UL94:V-0
Ammonia resistance (acc. to DLG)	yes
Salt mist spray test, degree of severity 6	yes
TÜV Rheinland certifications number TÜV Rheinland 2 PfG 2330 UL-File number CSA number of certificate CQC number of certificate JET number of certificate	R 60127190 R 60087448 E343181 250725 CQC16024138286 B19T0013

Female and male cable coupler MC4

Female and male cable coupler as individual part with open crimp contact (including insulating part)

Order No.	Type	Socket	Plug	Outer diameter of cable	Width of crimp opening	IEC 62852			UL 6703			Approvals				
				A (mm)	b (mm)	mm²	DC V	A	AWG	DC V	A	TÜV	UR	CSA	CQC	JET
32.0010P0001-UR	PV-KBT4/2,5I-UR	x		5.0-6.0	4.0	2.5	1000	22.5				x	x	x		x
									14	1500	30					
32.0011P0001-UR	PV-KST4/2,5I-UR		x	5.0-6.0	4.0	2.5	1000	22.5				x	x	x		x
									14	1500	30					
32.0140P0001-UR	PV-KBT4/2,5X-UR	x		5.5-7.4	4.0	2.5	1000	22.5				x	x			x
									14	1500	30					
32.0141P0001-UR	PV-KST4/2,5X-UR		x	5.5-7.4	4.0	2.5	1000	22.5				x	x			x
									14	1500	30					
32.0012P0001-UR	PV-KBT4/2,5II-UR	x		5.9-8.8	4.0	2.5	1000	22.5				x	x	x	x	x
									14	1500	30					
32.0013P0001-UR	PV-KST4/2,5II-UR		x	5.9-8.8	4.0	2.5	1000	22.5				x	x	x	x	x
									14	1500	30					
32.0014P0001-UR	PV-KBT4/6I-UR	x		5.0-6.0	5.8	4	1000	39				x	x	x		x
						6	1000	39								
									12	1500	35					
									10	1500	50					
32.0015P0001-UR	PV-KST4/6I-UR		x	5.0-6.0	5.8	4	1000	39				x	x	x		x
						6	1000	39								
									12	1500	35					
									10	1500	50					
32.0142P0001-UR	PV-KBT4/6X-UR	x		5.5-7.4	5.8	4	1000	39				x	x			x
						6	1000	39								
									12	1500	35					
									10	1500	50					
32.0143P0001-UR	PV-KST4/6X-UR		x	5.5-7.4	5.8	4	1000	39				x	x			x
						6	1000	39								
									12	1500	35					
									10	1500	50					
32.0016P0001-UR	PV-KBT4/6II-UR	x		5.9-8.8	5.8	4	1000	39				x	x	x	x	x
						6	1000	39								
									12	1500	35					
									10	1500	50					

Note:

For more detailed information concerning the suitable cable gland range, please consult MA231.

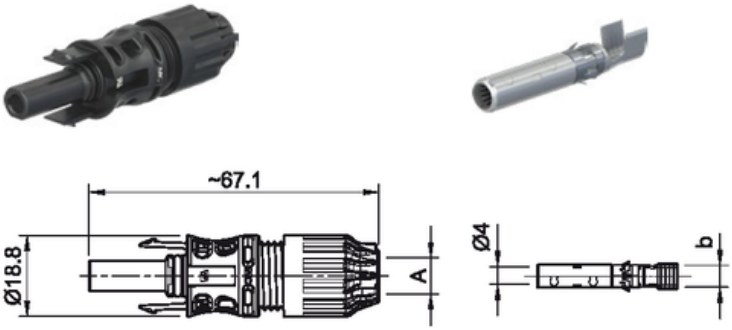
CONNECTOR

Order No.	Type	Socket	Plug	Outer diameter of cable	Width of crimp opening	IEC 62852			UL 6703			Approvals				
				A (mm)	b (mm)	mm²	DC V	A	AWG	DC V	A	TÜV	UR	CSA	CQC	JET
32.0017P0001-UR	PV-KST4/6II-UR		x	5.9-8.8	5.8	4	1000	39				x	x	x	x	x
						6	1000	39								
									12	1500	35					
									10	1500	50					
32.0034P0001	PV-KBT4/10II	x		5.9-8.8	6.5	10	1000	45				x				x
32.0035P0001	PV-KST4/10II		x	5.9-8.8	6.5	10	1000	45				x				x

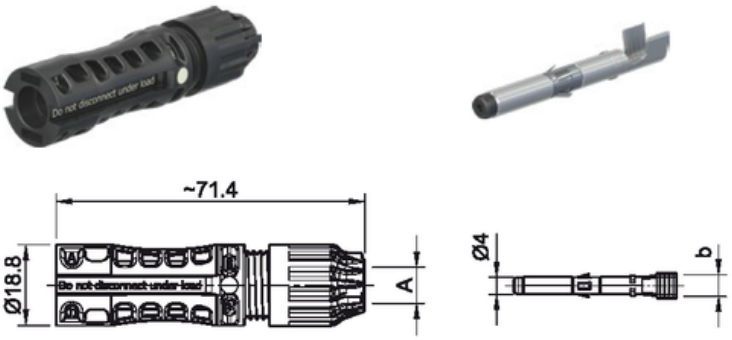
Female and male cable coupler MC4-Evo 2

Female and male cable coupler as individual part (including insulating part)

PV-KBT4-EVO 2/...-UR



PV-KST4-EVO 2/...-UR



MA

Assembly instructions MA273

www.staubli.com/electrical

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CONNECTOR

STÄUBLI

Internationally certified with IEC, UL, JET, cTÜVus. Approved for DC 1500 V (IEC, JET), DC 1500 V (UL) unrestricted access. MULTILAM Technology, has proven the quality and durability several 100 million times since 2004. Suited for all climatic environments thanks to resistance to UV, ammonia, and high IP class (IP68). Available as a field and preassembled connector, standard crimping tools can be used. Mating compatibility with MC4 connector family.

Technical data	
Connector system	MC4-Evo 2
Ambient temperature range	-40 °C...+85 °C (TÜV/UL)
Upper limiting temperature	115 °C
Degree of protection	IP68 (1 m, 1 h)/IP65
Degree of protection, unmated	IP2X
Category	CAT III
Degree of pollution	3
Max. contact resistance of the connector	0.2 mΩ
Rated Impulse Voltage	16 kV
Contact system	MULTILAM
Type of connection	Crimping
Contact material	Copper, tin plated
Insulation material	PA
Locking system	Locking Type
Fire protection class	UL94:V-0
Ammonia resistance (acc. to TÜV)	yes
Salt mist spray test, degree of severity 6	yes
TÜV Rheinland certifications number UL-File number JET number of certificate	R 60127169 E343181 B18T0049

Female and male cable coupler MC4-Evo 2

Female and male cable coupler as individual part (including insulating part)

Order No.	Type	Socket	Plug	Outer diameter of cable	Width of crimp opening	IEC 62852			UL 6703			Approvals		
				A (mm)	b (mm)	mm²	DC V	A	AWG	DC V	A	TÜV	UR	JET
32.0082P0001-UR	PV-KBT4-EVO 2/2,5I-UR	x		4.7-6.4	4.0	2.5	1500	39				x	x	x
									14	1500	30			
32.0083P0001-UR	PV-KST4-EVO 2/2,5I-UR		x	4.7-6.4	4.0	2.5	1500	39				x	x	x
									14	1500	30			
32.0098P0001-UR	PV-KBT4-EVO 2/2,5X-UR	x		6.1-7.3	4.0	2.5	1500	39				x	x	
									14	1500	30			
32.0099P0001-UR	PV-KST4-EVO 2/2,5X-UR		x	6.1-7.3	4.0	2.5	1500	39				x	x	
									14	1500	30			
32.0084P0001-UR	PV-KBT4-EVO 2/2,5II-UR	x		6.4-8.4	4.0	2.5	1500	39				x	x	x
									14	1500	30			
32.0085P0001-UR	PV-KST4-EVO 2/2,5II-UR		x	6.4-8.4	4.0	2.5	1500	39				x	x	x
									14	1500	30			
32.0086P0001-UR	PV-KBT4-EVO 2/6I-UR	x		4.7-6.4	5.8	4	1500	45				x	x	x
						6	1500	53						
									12	1500	35			
									10	1500	50			
32.0087P0001-UR	PV-KST4-EVO 2/6I-UR		x	4.7-6.4	5.8	4	1500	45				x	x	x
						6	1500	53						
									12	1500	35			
									10	1500	50			
32.0124P0001-UR	PV-KBT4-EVO 2/6X-UR	x		6.1-7.3	5.8	4	1500	45				x	x	
						6	1500	53						
									12	1500	35			
									10	1500	50			
32.0125P0001-UR	PV-KST4-EVO 2/6X-UR		x	6.1-7.3	5.8	4	1500	45				x	x	
						6	1500	53						
									12	1500	35			
									10	1500	50			

Note:

For more detailed information concerning the suitable cable gland range, please consult MA273.

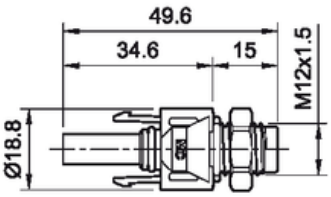
CONNECTOR

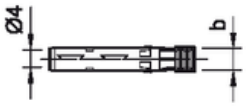
Order No.	Type	Socket	Plug	Outer diameter of cable	Width of crimp opening	IEC 62852			UL 6703			Approvals		
				A (mm)	b (mm)	mm²	DC V	A	AWG	DC V	A	TÜV	UR	JET
32.0088P0001-UR	PV-KBT4-EVO 2/6II-UR	x		6.4-8.4	5.8	4	1500	45				x	x	x
						6	1500	53						
									12	1500	35			
									10	1500	50			
32.0089P0001-UR	PV-KST4-EVO 2/6II-UR		x	6.4-8.4	5.8	4	1500	45				x	x	x
						6	1500	53						
									12	1500	35			
									10	1500	50			
32.0102P0001-UR	PV-KBT4-EVO 2/10X-UR	x		6.1-7.3	6.5	10	1500	69				x	x	
									8	1500	70			
32.0103P0001-UR	PV-KST4-EVO 2/10X-UR		x	6.1-7.3	6.5	10	1500	69				x	x	
									8	1500	70			
32.0092P0001-UR	PV-KBT4-EVO 2/10II-UR	x		6.4-8.4	6.5	10	1500	69				x	x	
									8	1500	70			
32.0093P0001-UR	PV-KST4-EVO 2/10II-UR		x	6.4-8.4	6.5	10	1500	69				x	x	
									8	1500	70			

Female and male panel receptacle MC4

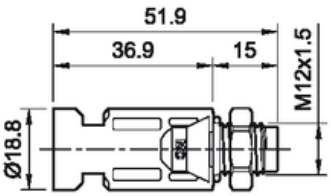
Female and male panel receptacles as individual part (including insulating part)

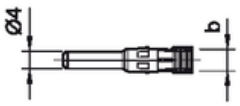
PV-ADBP4-S2...





PV-ADSP4-S2...





Technical data	
Connector system	MC4
Ambient temperature range	-40 °C...+85 °C (TÜV/UL); -40 °C...+85 °C (TÜV)
Upper limiting temperature	105 °C
Degree of protection	IP68 (1 m, 1 h)/IP65
Degree of protection, unmated	IP2X
Category	CAT III
Degree of pollution	3
Max. contact resistance of the connector	0.25 mΩ
Rated Impulse Voltage	16 kV
Contact system	MULTILAM
Type of connection	Crimping
Contact material	Copper, tin plated
Insulation material	PC/PA
Locking system	Locking Type
Fire protection class	UL94:V-0
TÜV Rheinland certifications number UL-File number CSA number of certificat	R 60127181 E343181 250725

MC4 panel-receptacle connectors are the interface between an inverter or junction box or junction and a branch cable. Mounting directly by means of screw thread or in perforated plate with plastic nut (included in delivery). Rapid, precise plugging. Protection class IP68 (1 m/1 h) guarantees the highest connection safety. Mating compatibility with MC4 connector family. Includes sealing element for enclosure.

Order No.	Type	Socket	Plug	Width of crimp opening	IEC 62852			UL 6703			Approvals		
				b (mm)	mm²	DC V	A	AWG	DC V	A	TÜV	UR	CSA
32.0076P0001-UR	PV-ADBP4-S2-UR/2,5	x		4.0	1.5	1250	17.5				x	x	x
					2.5	1250	22.5						
								14	1500	30			
32.0077P0001-UR	PV-ADSP4-S2-UR/2,5		x	4.0	1.5	1250	17.5				x	x	x
					2.5	1250	22.5						
								14	1500	30			
32.0078P0001-UR	PV-ADBP4-S2-UR/6	x		5.8	4	1250	39				x	x	x
					6	1250	45						
								12	1500	35			
								10	1500	50			
32.0079P0001-UR	PV-ADSP4-S2-UR/6		x	5.8	4	1250	39				x	x	x
					6	1250	45						
								12	1500	35			
								10	1500	50			
32.0150P0001	PV-ADBP4-S2/10	x		6.5	10	1250	51				x		
32.0151P0001	PV-ADSP4-S2/10		x	6.5	10	1250	51				x		

Note:
For more detailed information concerning the suitable cable gland range, please consult MA275.

MA
Assembly instructions MA275
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Special socket wrench insert page 53
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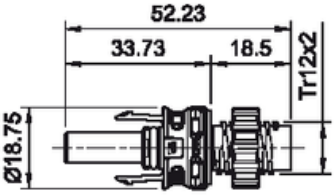
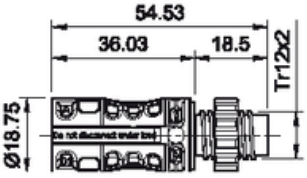
Female and male panel receptacle MC4-Evo 2

Female and male panel receptacles as individual part (including insulating part)

PV-ADB4-EVO 2



PV-ADS4-EVO 2



Technical data	
Connector system	MC4-Evo 2
Ambient temperature range	-40 °C...+85 °C (TÜV/UL)
Upper limiting temperature	115 °C
Degree of protection	IP68 (1 m, 1 h)/IP65
Degree of protection, unmated	IP2X
Category	CAT III
Degree of pollution	3
Max. contact resistance of the connector	0.2 mΩ
Rated Impulse Voltage	16 kV
Contact system	MULTILAM
Type of connection	Crimping
Contact material	Copper, tin plated
Insulation material	PA
Locking system	Locking Type
Fire protection class	UL94:V-0
TÜV Rheinland certifications number	R 60127171
UL-File number	E343181

MC4-Evo 2 panel-receptacle connectors are the interface between the inverter or the distributor housing and string. Assembly directly via the threads or in the perforated plate with the plastic nut (contained in scope of delivery). Thanks to the D shape, the threaded connection is secured against turning. For 1500 DC V(IEC), 1500 DC V (UL) approved unobstructed. Degree of protection IP68 (1m/1h) guarantees highest connection safety. Fast and clean connection. Plug compatible with the original MC4 plug connector family. With preassembled flat seal

Order No.	Type	Socket	Plug	Width of crimp opening	IEC 62852			UL 6703			Approvals	
				b (mm)	mm²	DC V	A	AWG	DC V	A	TÜV	UR
32.0020P0001-UR	PV-ADB4-EVO 2/2,5-UR	x		4.0	2.5	1500	32				x	x
								14	1500	30		
32.0021P0001-UR	PV-ADS4-EVO 2/2,5-UR		x	4.0	2.5	1500	32				x	x
								14	1500	30		
32.0022P0001-UR	PV-ADB4-EVO 2/6-UR	x		5.8	4	1500	42				x	x
					6	1500	47					
								12	1500	35		
								10	1500	50		
32.0023P0001-UR	PV-ADS4-EVO 2/6-UR		x	5.8	4	1500	42				x	x
					6	1500	47					
								12	1500	35		
								10	1500	50		

Note:
For more detailed information concerning the suitable cable gland range, please consult MA285.

Assembly instructions MA285
www.staubli.com/electrical

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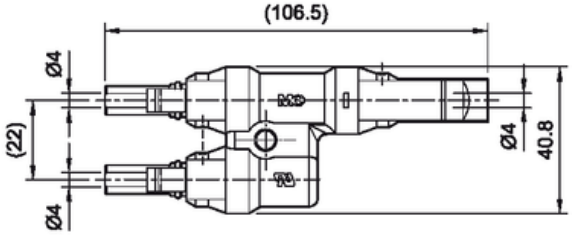
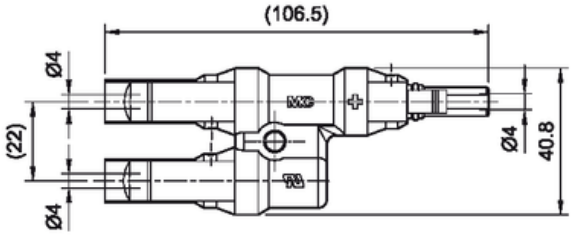
Branch socket, branch plug MC4

PV-AZB4



PV-AZS4



Technical data	
Connector system	MC4
Rated voltage	DC 1500 V (UL)
Rated current	50 A
Ambient temperature range	-40 °C...+85 °C (UL)
Upper limiting temperature	105 °C
Degree of protection	IP67
Degree of protection, unmated	IP2X
Category	CAT III
Degree of pollution	2
Max. contact resistance of the connector	0.5 mΩ
Rated Impulse Voltage	12 kV
Contact system	MULTILAM
Contact material	Copper, tin plated
Insulation material	PC
Locking system	Locking Type
Fire protection class	UL94:V-0
UL-File number	E343181

For a safe and simple parallel or serial parallel connection of PV-modules. Pluggable with single-pole Stäubli PV-cable coupler MC4 and MC4-Evo 2.

Order No.	Type	Designation	Approvals
			UR
32.0018	PV-AZB4	Branch socket MC4	x
32.0019	PV-AZS4	Branch plug MC4	x

Assembly instructions MA250

www.staubli.com/electrical

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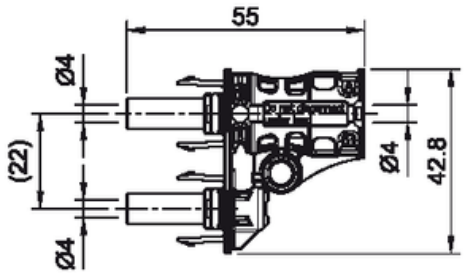
Branch connector MC4-Evo 2

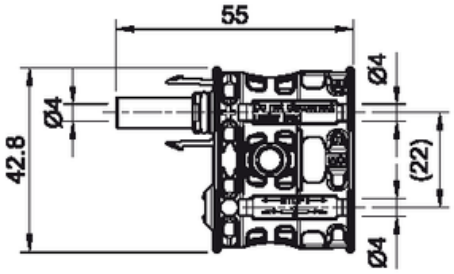
World's first dual certified DC 1500 V branch connector

- Plug-and-play: no crimping or torquing necessary
- Versatility and compact dimensions
- Mating compatibility with original MC4 connector and MC4-Evo 2
- DC 1500 V according to IEC 62852 and UL 6703
- Resistance to salt mist spray
- Proven MULTILAM Technology with high long-term stability which ensures consistently low performance loss throughout the entire service life of the connector

PV-AZB-EVO 2-UR



PV-AZS-EVO 2-UR



Order No.	Type	Description
32.0188	PV-AZB4-EVO 2-UR	Branch socket MC4-Evo 2
32.0189	PV-AZS4-EVO 2-UR	Branch plug MC4-Evo 2

Accessories

32.0716	PV-BVK4	Sealing cap, suitable for socket side
32.0717	PV-SVK4	Sealing cap, suitable for plug side
32.6066	PV-MS-MC4-EVO	Unlocking tool

MA

Assembly Instructions MA292

www.staubli.com/electrical

CONNECTOR

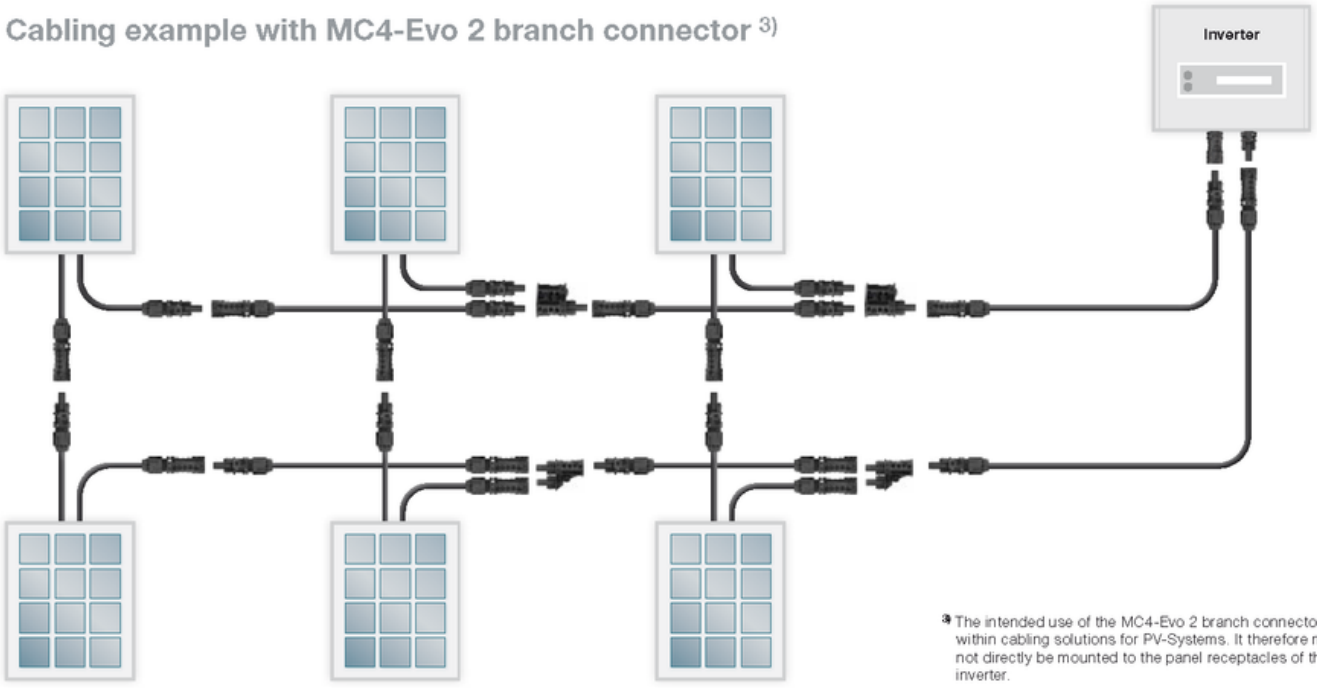
STÄUBLI

Technical data	
Rated voltage	DC 1500 V (according to IEC 62852: 2017) DC 1500 V (according to UL 6703)
Test voltage	8 kV [2]
Rated impulse voltage	16 kV
Rated current IEC	60 A [1]
Rated current UL	50 A [1]
Ambient temperature range (IEC) Ambient temperature range (UL)	-40 °C + 85 °C -40 °C + 90 °C
Upper limiting temperature IEC	115 °C [1]
Degree of protection, mated unmated	IP65/IP68 (1 m/1 h) IP2X
Pollution degree	3
Contact resistance of plug connectors	< 0,5 mΩ
Safety class	II
Contact system	MULTILAM
Contact material	Copper, tin plated
Insulation material	PA
Locking system	Locking type
Flame class (UL94)	V-0
Salt mist spray test, degree of severity 6, according to IEC 60068-2-52	Yes
Ammonia resistance (according to DLG)	Pending
UV resistance (according to ISO 4892-2/3)	Yes
TÜV Rheinland certified according IEC 62852:2014	R60145807
UL certified according UL6703	E343181
Compatible with connector type	Original MC4 Original MC4-Evo 2

[1] The current and voltage rating, as well as the upper limiting temperature is limited to the corresponding mating connector from Stäubli. For detailed specification refer to MA292.

[2] Rated voltage 1000 V and test voltage 6 kV with MC4 connector connected;
1500 V and test voltage 8 kV with MC4-Evo 2 connector connected.

Cabling example with MC4-Evo 2 branch connector [3]



[3] The intended use of the MC4-Evo 2 branch connector is within cabling solutions for PV-Systems. It therefore must not directly be mounted to the panel receptacles of the inverter.

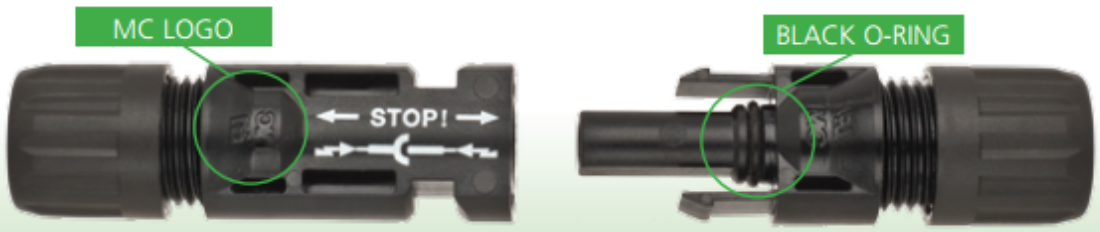
IF IT'S NOT STAÜBLI
IT'S NOT MC4

STÄUBLI

Why would you risk it for the cost of just a few cents more?

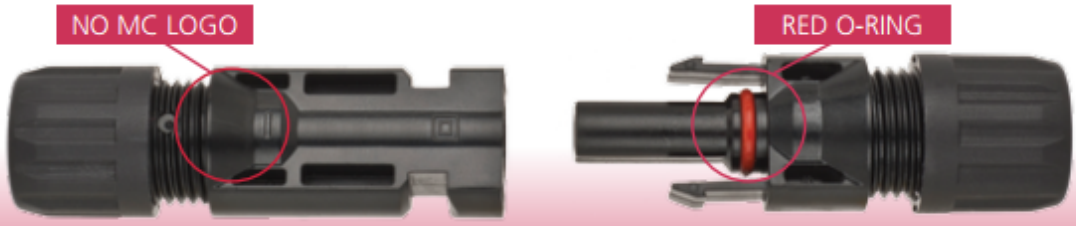
Ask for the name you can trust, demand genuine MC4 connectors.

ORIGINAL MC4
MADE IN SWITZERLAND



✓GENUINE MC ✓ PROVEN QUALITY ✓ FULLY TESTED ✓ RELIABLE

COPY
MADE WHERE?



✗ INFERIOR COPY ✗ INFERIOR QUALITY ✗ CAN BE DISASTROUS ✗ RISK TO WARRANTIES

A growing number of suspect copies of Staübli's MC4 Solar components have recently appeared on the market. Stringent testing* has revealed substantial deficiencies in quality resulting in compromised safety and impaired system performance.

*A temperature increase test by the TÜV Rheinland with copied PV connectors from various manufacturers showed significant differences in higher temperature.
This was in stark contrast to the excellent results of the MC4 -PV connectors.

Multi-Contact MC
STÄUBLI GROUP

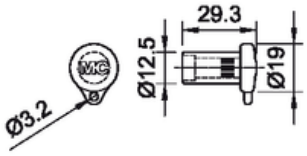
STÄUBLI

Sealing caps

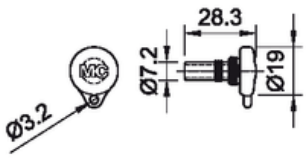
Sealing caps MC4, MC4-Evo 2 and MC4-Evo AC

Sealing caps for protective purpose of unplugged PV connectors.

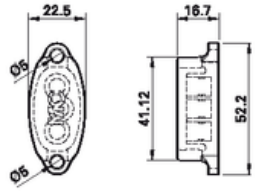
PV-BVK4



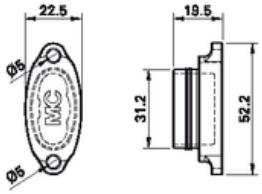
PV-SVK4



PV-BVK-EVO AC



PV-SVK-EVO AC



Order No.	Type	Suitable for socket side	Suitable for plug side	Material	Connector system	MA Assembly instruction
32.0716	PV-BVK4	x		TPE	MC4/MC4-Evo 2	MA258
32.0717	PV-SVK4		x	TPE	MC4/MC4-Evo 2	MA258
32.0748	PV-BVK-EVO AC	x		TPE	MC4-Evo AC	MA284
32.0749	PV-SVK-EVO AC		x	TPE	MC4-Evo AC	MA284

Crimping pliers for industrial use PV-CZ...

These tools are to be used for the assembly of UL- and TÜV-approved products. These are suited for the processing of high numbers of pieces and can be adjusted to the product to be processed with the help of changeable locators and crimp inserts.

PV-CZM...

Order No.	Type	Designation	Pliers cross sections		Connector system	Crimping pliers type	MA Assembly instruction
			mm²	AWG			
32.6020-16100A	PV-CZM-16100A	Crimping pliers incl. Locator and crimping die	2.5; 4; 6	14; 12; 10	MC4 AU	For closed crimp contacts (O-Crimp)	MA260
32.6020-18100	PV-CZM-18100		2.5; 4	14; 12	MC4	For open crimp contacts (B-Crimp)	MA251
32.6020-19100	PV-CZM-19100		2.5; 4; 6	14; 12; 10	MC4	For open crimp contacts (B-Crimp)	MA251
32.6020-20100	PV-CZM-20100		4; 10		MC4	For open crimp contacts (B-Crimp)	MA251
32.6020-21100	PV-CZM-21100		6; 10		MC4	For open crimp contacts (B-Crimp)	MA251
32.6020-22100	PV-CZM-22100			12; 10; 8	MC4	mixed	MA251
32.6020-23100	PV-CZM-23100			14; 12; 10; 8	MC4	For closed crimp contacts (O-Crimp)	MA251
32.6020-40100	PV-CZM-40100		2.5; 4	14; 12	MC4-Evo 2	For open crimp contacts (B-Crimp)	MA251
32.6020-41100	PV-CZM-41100		2.5; 4; 6	14; 12; 10	MC4-Evo 2	For open crimp contacts (B-Crimp)	MA251
32.6020-42100	PV-CZM-42100		4; 10	12; 8	MC4-Evo 2	For open crimp contacts (B-Crimp)	MA251
32.6021-16100	PV-ES-CZM-16100	Crimping die	2.5; 4; 6	14; 12; 10	MC4	For open crimp contacts (B-Crimp)	MA260
32.6021-18100	PV-ES-CZM-18100		2.5; 4	14; 12	MC4	For closed crimp contacts (O-Crimp)	MA251
32.6021-19100	PV-ES-CZM-19100		2.5; 4; 6	14; 12; 10	MC4	For open crimp contacts (B-Crimp)	MA251
32.6021-20100	PV-ES-CZM-20100		4; 10		MC4	For open crimp contacts (B-Crimp)	MA251
32.6021-21100	PV-ES-CZM-21100		6; 10		MC4	For open crimp contacts (B-Crimp)	MA251
32.6021-22100	PV-ES-CZM-22100			12; 10; 8	MC4	mixed	MA251
32.6021-23100	PV-ES-CZM-23100			14; 12; 10; 8	MC4	For closed crimp contacts (O-Crimp)	MA251
32.6021-40100	PV-ES-CZM 40100		2.5; 4	14; 12	MC4-Evo 2	mixed	MA251
32.6021-41100	PV-ES-CZM 41100		2.5; 4; 6	14; 12; 10	MC4-Evo 2	For open crimp contacts (B-Crimp)	MA251
32.6021-42100	PV-ES-CZM 42100		4; 10	12; 8	MC4-Evo 2	For open crimp contacts (B-Crimp)	MA251
32.6040	PV-LOC	Locator	2.5; 4; 6; 10	14; 12; 10	MC4	For open crimp contacts (B-Crimp)	MA251
32.6055	PV-LOC-B			12; 10; 8	MC4	mixed	MA251
32.6056	PV-LOC-C		2.5; 4; 6; 10	14; 12; 10	MC4-Evo 2	For open crimp contacts (B-Crimp)	MA251
32.6074	PV-LOC-D			14; 12; 10; 8	MC4	For closed crimp contacts (O-Crimp)	MA251

Crimping pliers for private use PV-CZM-BS

Suitable for the assembly of products approved by TÜV in small amounts. Complete tool for the assembly of the original MC4.

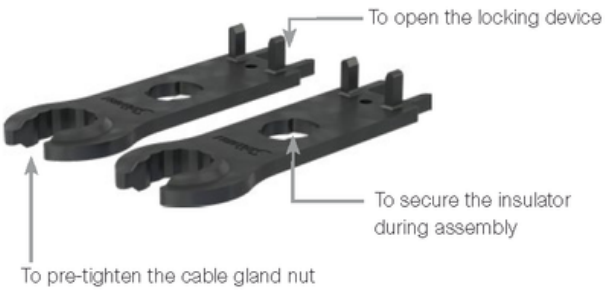
PV-CZM-BS

Order No.	Type	Designation	Pliers cross sections		Connector system	MA Assembly instruction
			mm²	AWG		
32.6025	PV-CZM-BS	Crimping pliers, complete	2.5; 4; 6		MC4	MA289

Open-end spanner and unlocking tool MC4, MC4-Evo 2 and MC4-Evo AC

To tighten and unscrew the cable gland and to open the locking device of the connection.

PV-MS



PV-MS-PLS

PV-MS-MC4-EVO 2

PV-MS-EVO AC

Order No.	Type	Designation	Connector system	MA Assembly instruction
32.6024	PV-MS	Open-end spanner set (2 pcs.), plastic	MC4	MA231, MA260, MA275
32.6058	PV-MS-PLS	Open-end spanner set (2 pcs.), metal	MC4/MC4-Evo 2	MA273
32.6066	PV-MS-MC4-Evo 2	Unlocking tool, plastic	MC4-Evo 2	MA270
32.6075	PV-MS-EVO AC	Unlocking tool, plastic	MC4-Evo AC	MA284

TORQUE TOOL SET

Application: Manual assembly of original MC4 and MC4-Evo 2 cable coupler

	Torque Tool	Adapter	Wrench
Type:	PV-WZ-AD-SW6.35/SQ12.7	PV-WZ-DS/W	PV-WZ-AD/GWD
Article No.:	UZ1045	UZ1043	32.6006

Set Article No.: 32.0065

TORQUE TOOL [UZ1045]

Special design

Rapid-in, rapid-out, rapid-spin, chuck-all and single-hand technology

Range

3,0-6,0 Nm

Accuracy

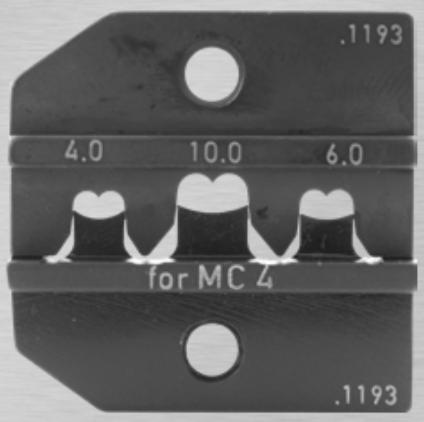
±6 % (EN ISO 6789). Numerical torque value scale. Audible excess-load signal.

Handle

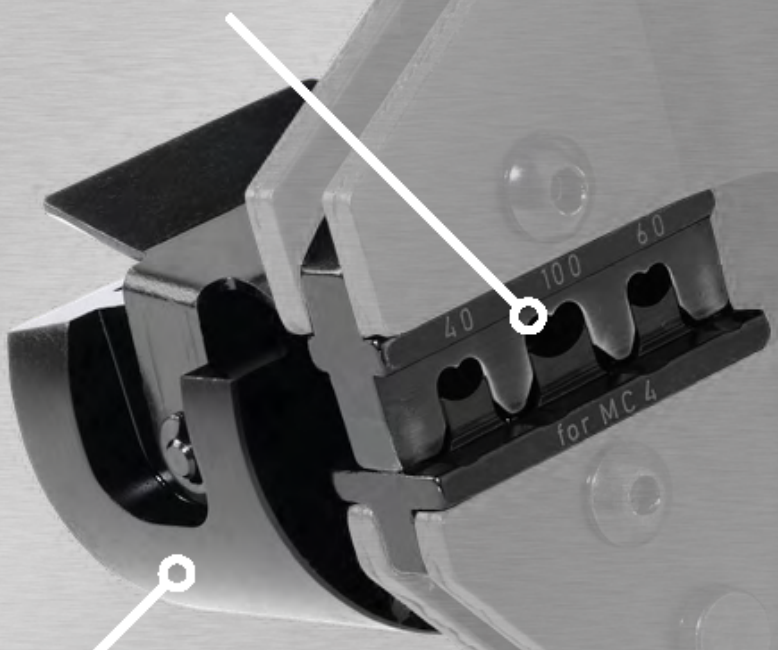
Kraftform pistol grip, multi-component

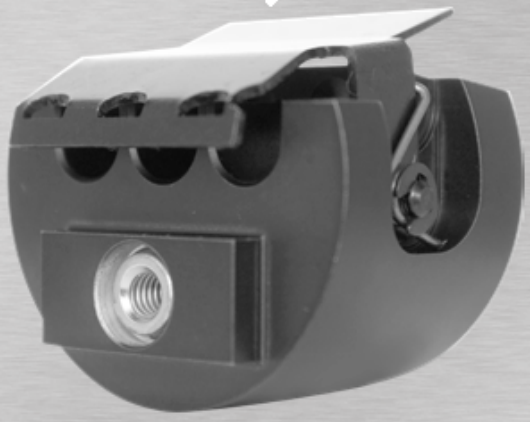
RENNSTEIG

All of our Crimping Die Sets & Locators will fit into our Crimp System Tools



Interchangeable Crimping Die Sets:
Each type and size of terminal needs its own crimp. Just squeezing isn't enough - you have to get exactly the right dimension crimp, if you want a good connection that provides good conductivity year after year under all conditions.





Interchangeable Locator:
The Locator holds the terminal in the tool so that you don't need 3 hands to make a crimp. But it also does more. It positions the terminal so that you always crimp it in the right place for a high-quality connection every time.

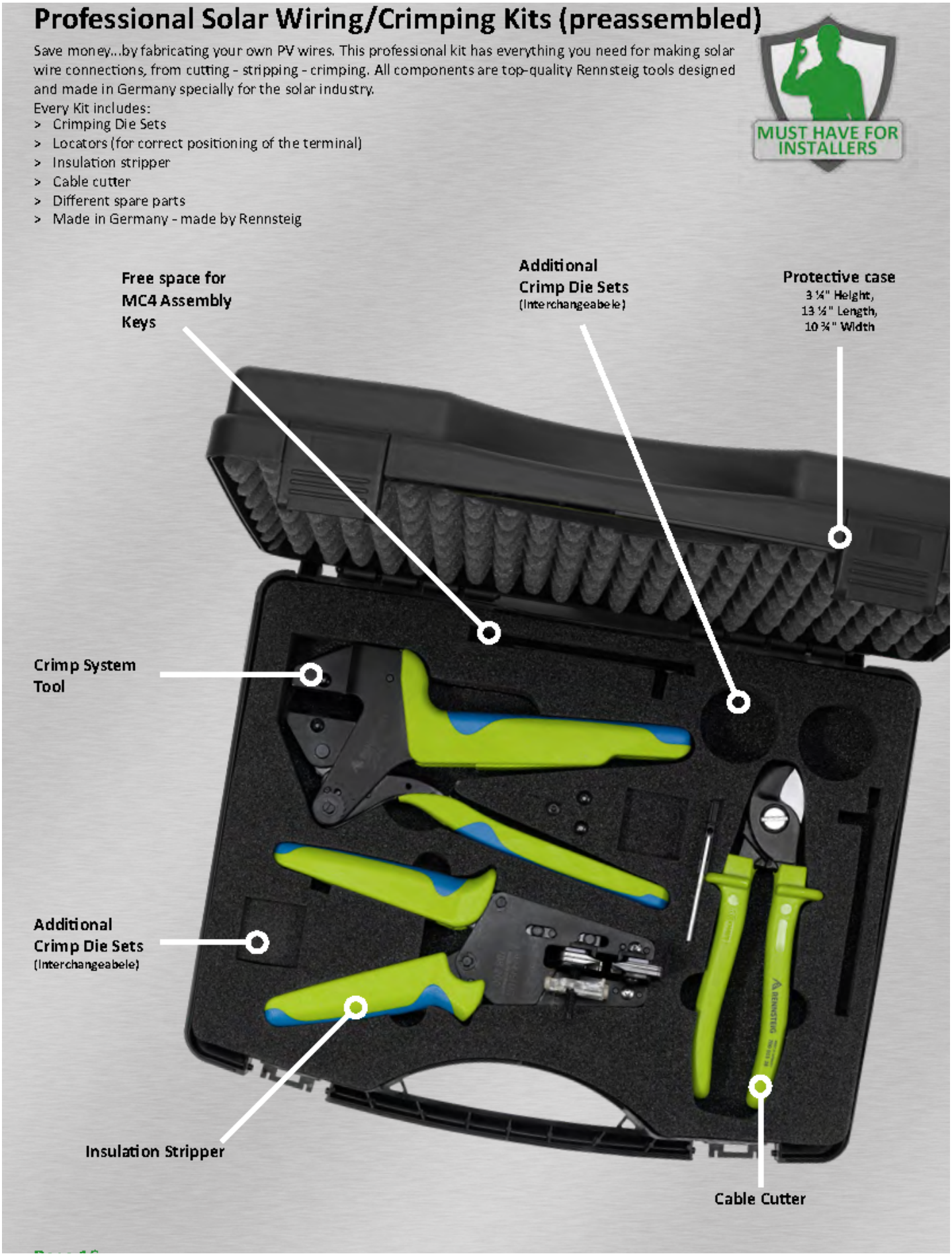
Professional Solar Wiring/Crimping Kits (preassembled)

Save money...by fabricating your own PV wires. This professional kit has everything you need for making solar wire connections, from cutting - stripping - crimping. All components are top-quality Rennsteig tools designed and made in Germany specially for the solar industry.

Every Kit includes:

- Crimping Die Sets
- Locators (for correct positioning of the terminal)
- Insulation stripper
- Cable cutter
- Different spare parts
- Made in Germany - made by Rennsteig

MUST HAVE FOR INSTALLERS



eForce® Battery Powered Crimping Tool

Part#	6370 0300 1 RT	6370 0300 1-2 RT
Content:	> 1x *eForce®* Battery Powered Crimping Tool > 1x Battery Charger (CLi 12) > **One** Li-Ion Batteries (Milwaukee M12) included > Space for Die Sets* and Locators provided	> 1x *eForce®* Battery Powered Crimping Tool > 1x Battery Charger (CLi 12) > **Two** Li-Ion Batteries (Milwaukee M12) included > Space for Die Sets* and Locators provided

1. Takes all existing interchangeable crimp Die Sets and Locators (more than 1000) from Rennsteig's Crimp System Tool (P/N 624 000 3)
2. Ergonomically designed handle with soft grip, provides comfort and increases control
3. Removable battery (12v Li-Ion) eliminates downtime due to recharging
4. Drop protection ring
5. Reset button, Emergency release
6. Convenient to use and has a level, steady base for bench top production
7. Compact work area

Tool comes in portable plastic case with storage space.

Ergonomic working height when used for bench top production.

Powerful electromechanical drive mechanism. No accident-sensitive hydraulic components.

Start Button with integrated multifunction LED-Display for indication of:
- Function standby
- Remaining battery capacity
- Overloading

STÄUBLI

CABLES

PV Cable Flex-Sol-Evo-DX...

FLEX-SOL-EVO-DX...

Technical data	
Test voltage acc. to EN 50395-6	AC 7.5 kV/DC 15 kV
Ambient temperature range	-40 °C...+90 °C
Upper limiting temperature	120 °C
Insulation resistance	>= 1000 MΩkm
Insulation, acccording to IEC 60332-1-2	Flame retardant
Inner insulation (white)	XLPE
Sheath insulation (black)	Polyolefin
Bending radius dynamic/static	> 5x OD, >4x OD mm
Resistant to...	UV, Ozone, Hydrolysis
Resistance to ... tested according to IEC 60811-2-1	Acids, alcalis, oil
Sheath colour	Black
TÜV Rheinland certifications number UL-File number	R 50408868, R50359551 E470857

DC SOLAR CABLE

Halogen free cross-linked polyolefin double layers photovoltaic cables for use at the photovoltaic power systems.

Order No.	Type	Conductor cross section		Conductor diameter	Outer diameter	Strand design	Conductor resistance / 20°C	IEC 62930		UL 4703		Approvals		
		mm²	AWG	mm	mm	n x Ø mm	mΩ	A	DC V	A	DC V	TÜV	UR	UL
62.7434-91021	FLEX-SOL-EVO-DX 2,5	2.5	14	2	5.94	47 x 0.25	8.21	41	1500	41	2000	x	x	x
62.7435-91021	FLEX-SOL-EVO-DX 4,0	4	12	2.4	6.35	52 x 0.30	5.09	55	1500	55	2000	x	x	x
62.7436-91021	FLEX-SOL-EVO-DX 6,0	6	10	3	6.97	78 x 0.30	3.39	70	1500	70	2000	x	x	x
62.7437-91021	FLEX-SOL-EVO-DX 10,0	10	8	4.1	8.57	77 x 0.40	1.95	98	1500	98	2000	x	x	x

DC SOLAR CABLE

DESCRIPTION

Non-Halogen Cable for 1000V Photovoltaic Power System Class 5 TC Stranding Low Smoke Density and Direct Burial Applied, Cable also designed for Floating PV System.

STANDARDS

IEC 60228, IEC 60332-1-2, IEC 60754, IEC 60811, IEC 61034, IEC 62930
UL 44, UL 854, UL 1581, UL 2556, UL 4703
EN 50618, TUV 2 PfG 2750/09.20
ROHS 2011/65/EU

CABLE CONSTRUCTION

Conductor	Stranded tinned copper
Size	4mm²/12AWG
Stranding	52/0.30
Diameter	2.4mm
Inner Layer	XLPO
Minimum Average Thickness	1.14mm
Color	White
Outer Layer	XLPO
Minimum Average Thickness	0.8mm
Color	Black
Diameter	6.35±0.2mm

ELECTRICAL CHARACTERISTICS (at +20°C)

Voltage Rating	
UL 4703	1000V
EN 50618	1000V
IEC 62930	1000V
TÜV 2PfG 2750	1000V
Insulation Resistance	≥ 1000 MΩ.km
Voltage Withstand	6500 VAC
Conductor DC Resistance	≤ 5.09 Ω/km

OTHER CHARACTERISTICS

Bending Radius	
Dynamic	≥ 5 X OD
Static	≥ 4 X OD
Flammability	VW, IEC 60332-1-2
Working Temperature	105°C Dry, 90°C Wet
Cable Light Transmittance	≥ 60%

PRINT LEGEND

AKATSUKI E497908 (UL) 12AWG PV WIRE 105℃ DRY 90℃ WET 1000V SUN RES -40℃ DIR BUR AKATSUKI H1Z2Z2-K 4mm² R 50385976 WPV WATERPROOF AKATSUKI 62930 IEC 131 4mm² HALOGEN FREE LOW SMOKE R 50406787 ——— AKATSUKI E497908 (UL) 12AWG PV WIRE 105℃ DRY 90℃ WET 1000V SUN RES -40℃ DIR BUR ——— AKATSUKI H1Z2Z2-K 4mm² R 50385976 WPV WATERPROOF ——— AKATSUKI 62930 IEC 131 4mm² HALOGEN FREE LOW SMOKE R 50406787 ———

Notes: With or without line on whole length above will be required.
Both marking will be required according to the purchase order.

HISTORY

Jan 17, 2018	First issue	Draft
May 8, 2018	Add IEC marking according to IEC 62930 standard requirement	V0
Dec 30, 2021	Add 2PfG 2750 standard requirement and marking	V1
May 30, 2022	Adjust marking according requirement	V2

DC SOLAR CABLE

DESCRIPTION

Non-Halogen Cable for 1000V Photovoltaic Power System Class 5 TC Stranding Low Smoke Density and Direct Burial Applied, Cable also designed for Floating PV System.

STANDARDS

IEC 60228, IEC 60332-1-2, IEC 60754, IEC 60811, IEC 61034, IEC 62930
UL 44, UL 854, UL 1581, UL 2556, UL 4703
EN 50618, TUV 2 PfG 2750/09.20
ROHS 2011/65/EU

CABLE CONSTRUCTION

Conductor	Stranded tinned copper
Size	4mm²/12AWG
Stranding	56/0.30
Diameter	2.4mm
Inner Layer	XLPO
Minimum Average Thickness	1.14mm
Color	White
Outer Layer	XLPO
Minimum Average Thickness	0.8mm
Color	Black
Diameter	6.35±0.2mm

ELECTRICAL CHARACTERISTICS (at +20°C)

Voltage Rating	
UL 4703	1000V
EN 50618	1000V
IEC 62930	1000V
TÜV 2PfG 2750	1000V
Insulation Resistance	≥ 1000 MΩ.km
Voltage Withstand	6500 VAC
Conductor DC Resistance	≤ 5.09 Ω/km

OTHER CHARACTERISTICS

Bending Radius	
Dynamic	≥ 5 X OD
Static	≥ 4 X OD
Flammability	VW, IEC 60332-1-2
Working Temperature	105°C Dry, 90°C Wet
Cable Light Transmittance	≥ 60%

PRINT LEGEND

AKATSUKI E497908 (UL) 12AWG PV WIRE 105℃ DRY 90℃ WET 1000V SUN RES -40℃ DIR BUR AKATSUKI H1Z2Z2-K 4mm² R 50385976 WPV WATERPROOF AKATSUKI 62930 IEC 131 4mm² HALOGEN FREE LOW SMOKE R 50406787 ——— AKATSUKI E497908 (UL) 12AWG PV WIRE 105℃ DRY 90℃ WET 1000V SUN RES -40℃ DIR BUR ——— AKATSUKI H1Z2Z2-K 4mm² R 50385976 WPV WATERPROOF ——— AKATSUKI 62930 IEC 131 4mm² HALOGEN FREE LOW SMOKE R 50406787 ———

Notes: With or without line on whole length above will be required.
Both marking will be required according to the purchase order.

HISTORY

Dec 22, 2017	First issue	Draft
May 8, 2018	Add IEC marking according to IEC 62930 standard requirement	V0
Dec 28, 2021	Add 2PfG 2750 standard requirement and marking	V1
May 30, 2022	Adjust marking according requirement	V2

DC SOLAR CABLE

DESCRIPTION

Non-Halogen Cable for 1000V Photovoltaic Power System Class 5 TC Stranding Low Smoke Density and Direct Burial Applied, Cable also designed for Floating PV System.

STANDARDS

IEC 60228, IEC 60332-1-2, IEC 60754, IEC 60811, IEC 61034, IEC 62930
UL 44, UL 854, UL 1581, UL 2556, UL 4703
EN 50618, TUV 2 PfG 2750/09.20
ROHS 2011/65/EU

CABLE CONSTRUCTION

Conductor	Stranded tinned copper
Size	4mm²/12AWG
Stranding	56/0.30
Diameter	2.4mm
Inner Layer	XLPO
Minimum Average Thickness	1.14mm
Color	White
Outer Layer	XLPO
Minimum Average Thickness	0.8mm
Color	Red
Diameter	6.35±0.2mm

ELECTRICAL CHARACTERISTICS (at +20°C)

Voltage Rating	
UL 4703	1000V
EN 50618	1000V
IEC 62930	1000V
TÜV 2PfG 2750	1000V
Insulation Resistance	≥ 1000 MΩ.km
Voltage Withstand	6500 VAC
Conductor DC Resistance	≤ 5.09 Ω/km

OTHER CHARACTERISTICS

Bending Radius	
Dynamic	≥ 5 X OD
Static	≥ 4 X OD
Flammability	VW, IEC 60332-1-2
Working Temperature	105°C Dry, 90°C Wet
Cable Light Transmittance	≥ 60%

PRINT LEGEND

AKATSUKI E497908 (UL) 12AWG PV WIRE 105℃ DRY 90℃ WET 1000V SUN RES -40℃ DIR BUR AKATSUKI H1Z2Z2-K 4mm²
R 50385976 WPV WATERPROOF AKATSUKI 62930 IEC 131 4mm² HALOGEN FREE LOW SMOKE R 50406787

HISTORY

Jun 13, 2018 First issue	Draft
Dec 28, 2021 Add 2PfG 2750 standard requirement and marking	V0
May 30, 2022 Adjust marking according requirement	V1

DC SOLAR CABLE

DESCRIPTION

Non-Halogen Cable for 1000V Photovoltaic Power System Class 5 TC Stranding Low Smoke Density and Direct Burial Applied, Cable also designed for Floating PV System.

STANDARDS

IEC 60228, IEC 60332-1-2, IEC 60754, IEC 60811, IEC 61034, IEC 62930
UL 44, UL 854, UL 1581, UL 2556, UL 4703
EN 50618, TUV 2 PfG 2750/09.20
ROHS 2011/65/EU

CABLE CONSTRUCTION

Conductor	Stranded tinned copper
Size	6mm²/10AWG
Stranding	78/0.30
Diameter	3.0mm
Inner Layer	XLPO
Minimum Average Thickness	1.14mm
Color	White
Outer Layer	XLPO
Minimum Average Thickness	0.8mm
Color	Black
Diameter	6.97±0.2mm

ELECTRICAL CHARACTERISTICS (at +20°C)

Voltage Rating	
UL 4703	1000V
EN 50618	1000V
IEC 62930	1000V
TÜV 2PfG 2750	1000V
Insulation Resistance	≥ 1000 MΩ.km
Voltage Withstand	6500 VAC
Conductor DC Resistance	≤ 3.39 Ω/km

OTHER CHARACTERISTICS

Bending Radius	
Dynamic	≥ 5 X OD
Static	≥ 4 X OD
Flammability	VW, IEC 60332-1-2
Working Temperature	105°C Dry, 90°C Wet
Cable Light Transmittance	≥ 60%

PRINT LEGEND

AKATSUKI E497908 (UL) 10AWG PV WIRE 105℃ DRY 90℃ WET 1000V SUN RES -40℃ DIR BUR AKATSUKI H1Z2Z2-K 6mm² R 50385976 WPV WATERPROOF AKATSUKI 62930 IEC 131 6mm² HALOGEN FREE LOW SMOKE R 50406787 ——— AKATSUKI E497908 (UL) 10AWG PV WIRE 105℃ DRY 90℃ WET 1000V SUN RES -40℃ DIR BUR ——— AKATSUKI H1Z2Z2-K 6mm² R 50385976 WPV WATERPROOF ——— AKATSUKI 62930 IEC 131 6mm² HALOGEN FREE LOW SMOKE R 50406787 ———

Notes: With or without line on whole length above will be required.
Both marking will be required according to the purchase order.

HISTORY

Dec 22, 2017	First issue	Draft
May 8, 2018	Add IEC marking according to IEC 62930 standard requirement	V0
Dec 28, 2021	Add 2PfG 2750 standard requirement and marking	V1
May 30, 2022	Adjust marking according requirement	V2

DC SOLAR CABLE

DESCRIPTION

Non-Halogen Cable for 1000V Photovoltaic Power System Class 5 TC Stranding Low Smoke Density and Direct Burial Applied, Cable also designed for Floating PV System.

STANDARDS

IEC 60228, IEC 60332-1-2, IEC 60754, IEC 60811, IEC 61034, IEC 62930
EN 50618, TUV 2 PfG 2750/09.20
ROHS 2011/65/EU

CABLE CONSTRUCTION

Conductor	Stranded Tinned Copper
Size	4mm²
Stranding	52/0.30
Diameter	2.4mm
Insulation	XLPO
Minimum Average Thickness	0.7mm
Color	White
Jacket	XLPO
Minimum Average Thickness	0.8mm
Color	Black
Diameter	5.4±0.1mm

ELECTRICAL CHARACTERISTICS (at +20°C)

Voltage Rating	
EN 50618	1000V
IEC 62930	1000V
TÜV 2PfG 2750	1000V
Insulation Resistance	≥ 1000 MΩ.km
Voltage Withstand	6500 VAC
Conductor DC Resistance	≤ 5.09 Ω/km

OTHER CHARACTERISTICS

Bending Radius	
Dynamic	≥ 5 X OD
Static	≥ 4 X OD
Flammability	IEC 60332-1-2
Working Temperature	-40°C~+90°C
Cable Light Transmittance	≥ 60%

PRINT LEGEND

AKATSUKI H1Z2Z2-K 4mm² R 50385976 WPV WATERPROOF AKATSUKI 62930 IEC 131 4mm² HALOGEN FREE LOW SMOKE R 50406787

——— AKATSUKI H1Z2Z2-K 4mm² R 50385976 WPV WATERPROOF ——— AKATSUKI 62930 IEC 131 4mm² HALOGEN FREE LOW SMOKE R 50406787 ———

Notes: With or without line on whole length above will be required.
Both marking will be required according to the purchase order.

HISTORY

Dec 29, 2017	First issue	Draft
May 7, 2018	Add IEC marking according to IEC 62930 standard requirement	V0
May 30, 2022	Adjust marking according requirement	V1

DC SOLAR CABLE

DESCRIPTION

Non-Halogen Cable for 1000V Photovoltaic Power System Class 5 TC Stranding Low Smoke Density and Direct Burial Applied, Cable also designed for Floating PV System.

STANDARDS

IEC 60228, IEC 60332-1-2, IEC 60754, IEC 60811, IEC 61034, IEC 62930
EN 50618, TUV 2 PfG 2750/09.20
ROHS 2011/65/EU

CABLE CONSTRUCTION

Conductor	Stranded Tinned Copper
Size	6mm²
Stranding	78/0.30
Diameter	3.0mm
Insulation	XLPO
Minimum Average Thickness	0.7mm
Color	White
Jacket	XLPO
Minimum Average Thickness	0.8mm
Color	Black
Diameter	6.0±0.2mm

ELECTRICAL CHARACTERISTICS (at +20°C)

Voltage Rating	
EN 50618	1000V
IEC 62930	1000V
TÜV 2PfG 2750	1000V
Insulation Resistance	≥ 1000 MΩ.km
Voltage Withstand	6500 VAC
Conductor DC Resistance	≤ 3.39 Ω/km

OTHER CHARACTERISTICS

Bending Radius	
Dynamic	≥ 5 X OD
Static	≥ 4 X OD
Flammability	IEC 60332-1-2
Working Temperature	-40°C~+90°C
Cable Light Transmittance	≥ 60%

PRINT LEGEND

AKATSUKI H1Z2Z2-K 6mm² R 50385976 WPV WATERPROOF AKATSUKI 62930 IEC 131 6mm² HALOGEN FREE LOW SMOKE R 50406787

——— AKATSUKI H1Z2Z2-K 6mm² R 50385976 WPV WATERPROOF ——— AKATSUKI 62930 IEC 131 6mm² HALOGEN FREE LOW SMOKE R 50406787 ———

Notes: With or without line on whole length above will be required.
Both marking will be required according to the purchase order.

HISTORY

Dec 29, 2017	First issue	Draft
May 7, 2018	Add IEC marking according to IEC 62930 standard requirement	V0
May 30, 2022	Adjust marking according requirement	V1

DC SOLAR CABLE

DESCRIPTION

Non-Halogen Cable for 1000V Photovoltaic Power System Class 5 TC Stranding Low Smoke Density and Direct Burial Applied, Cable also designed for Floating PV System.

STANDARDS

IEC 60228, IEC 60332-1-2, IEC 60754, IEC 60811, IEC 61034, IEC 62930
EN 50618, TUV 2 PfG 2750/09.20
ROHS 2011/65/EU

CABLE CONSTRUCTION

Conductor	Stranded Tinned Copper
Size	10mm²
Stranding	77/0.40
Diameter	4.1mm
Insulation	XLPO
Minimum Average Thickness	0.7mm
Color	White
Jacket	XLPO
Minimum Average Thickness	0.8mm
Color	Black
Diameter	7.2±0.3mm

ELECTRICAL CHARACTERISTICS (at +20°C)

Voltage Rating	
EN 50618	1000V
IEC 62930	1000V
TÜV 2PfG 2750	1000V
Insulation Resistance	≥ 1000 MΩ.km
Voltage Withstand	6500 VAC
Conductor DC Resistance	≤ 1.95 Ω/km

OTHER CHARACTERISTICS

Bending Radius	
Dynamic	≥ 5 X OD
Static	≥ 4 X OD
Flammability	IEC 60332-1-2
Working Temperature	-40°C~+90°C
Cable Light Transmittance	≥ 60%

PRINT LEGEND

AKATSUKI H1Z2Z2-K 10mm² R 50385976 WPV WATERPROOF AKATSUKI 62930 IEC 131 10mm² HALOGEN FREE LOW SMOKE R 50406787

——— AKATSUKI H1Z2Z2-K 10mm² R 50385976 WPV WATERPROOF ——— AKATSUKI 62930 IEC 131 10mm² HALOGEN FREE LOW SMOKE R 50406787 ———

Notes: With or without line on whole length above will be required.
Both marking will be required according to the purchase order.

HISTORY

Dec 29, 2017	First issue	Draft
May 7, 2018	Add IEC marking according to IEC 62930 standard requirement	V0
May 30, 2022	Adjust marking according requirement	V1

DC SOLAR CABLE

DESCRIPTION

Non-Halogen Cable for 1000V Photovoltaic Power System Class 5 TC Stranding Low Smoke Density and Direct Burial Applied, Cable also designed for Floating PV System.

STANDARDS

IEC 60228, IEC 60332-1-2, IEC 60754, IEC 60811, IEC 61034, IEC 62930
EN 50618, TUV 2 PfG 2750/09.20
ROHS 2011/65/EU

CABLE CONSTRUCTION

Conductor	Stranded Tinned Copper
Size	35mm²
Stranding	266/0.40
Diameter	7.6mm
Insulation	XLPO
Minimum Average Thickness	0.9mm
Color	White
Jacket	XLPO
Minimum Average Thickness	1.1mm
Color	Black
Diameter	12.1±0.5mm

ELECTRICAL CHARACTERISTICS (at +20°C)

Voltage Rating	
EN 50618	1000V
IEC 62930	1000V
TÜV 2PfG 2750	1000V
Insulation Resistance	≥ 1000 MΩ.km
Voltage Withstand	6500 VAC
Conductor DC Resistance	≤ 0.565 Ω/km

OTHER CHARACTERISTICS

Bending Radius	
Dynamic	≥ 5 X OD
Static	≥ 4 X OD
Flammability	IEC 60332-1-2
Working Temperature	-40 ~ +90 °C
Cable Light Transmittance	≥ 60%

PRINT LEGEND

AKATSUKI H1Z2Z2-K 35mm² R 50385976 WPV WATERPROOF AKATSUKI 62930 IEC 131 35mm² HALOGEN FREE LOW SMOKE R 50406787

——— AKATSUKI H1Z2Z2-K 35mm² R 50385976 WPV WATERPROOF ——— AKATSUKI 62930 IEC 131 35mm² HALOGEN FREE LOW SMOKE R 50406787 ———

Notes: With or without line on whole length above will be required.
Both marking will be required according to the purchase order.

HISTORY

Nov 23, 2020	First issue	Draft
May 30, 2022	Adjust marking according requirement	V0

IN-LINE FUSE ASSEMBLY

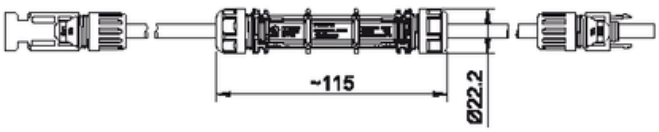
STÄUBLI

IN-LINE-FUSES

In-Line-Fuse PV-K/ILF

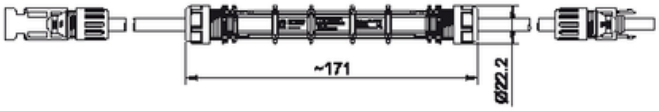
PV-K/...ILF.../6N...UL

PV-K/ILF.../6N...UL



PV-K/1500ILF.../6N...UL

PV-K/1500ILF.../6N...UL



Technical data	
Connector system	MC4
Voltage rating	DC 1000 V or DC 1500 V
Test voltage	DC 1000 V Model: 6 kV (50 Hz, 1 min.) DC 1500 V Model: 9 kV (50 Hz, 1 min.)
Safety class	II
Overvoltage category Pollution degree	CATIII/3
Mating connectors Only genuine Stäubli connectors shall be used!	PV-KST4/... or PV-KBT4/... ("MC4"), PV-KBT4-EVO 2... or PV-KST4-EVO 2... ("MC4-Evo 2")
Rated current gPV	Various ampacity ratings available: DC 1000 V: 1 – 30 A DC 1500 V: 1 – 20 A; 25 A; 30 A Please refer to the information on the product or packaging for details regarding the variant/model.
Ambient temperature range	-40 °C to +50 °C
Transportation/storage temperature range	-30 °C to +60 °C
Transportation/storage relative humidity	< 70 %
Degree of Protection (IP)	Mated: IP65/IP68 (1 m, 1 h) Unmated: IP2X
Maximum altitude above sea level for operation	5000 m
Fire protection class	UL94:V-0
UL File numbers	E510009: models PV-K/1500ILF25/6N0055UL and PV-K/1500ILF30/6N0055UL E474445: all others
Insulation material	PC/glass-filled PA
Contact material	Copper, tin plated
Max. contact resistance of the connector	< 0,25 mΩ

IN-LINE FUSE ASSEMBLY

The In-line-Fuse PV-K/ILF with a crimping connection guarantees a long-lasting, stable connection in comparison to conventional omega-style clips: Minimal energy loss, low heat generation. Robust housing, safety class IP68. Cable cross-section 10 AWG/ 6 mm². Other fuse ratings and configurations are available upon request (for example with a single connector, or no connectors).

Order No.	Type	UL 9703		UL4248-1 UL4248-19		Lead length	Connector system	Approvals
		DC V	A	DC V	A	cm		UL
55000127-0050UL	PV-K/ILF10/6N0050UL	1000	10			50	MC4	×
55000128-0050UL	PV-K/ILF15/6N0050UL	1000	15			50	MC4	×
55000129-0050UL	PV-K/ILF20/6N0050UL	1000	20			50	MC4	×
55000130-0050UL	PV-K/ILF30/6N0050UL	1000	30			50	MC4	×
55000189-0052UL	PV-K/1500ILF4/6N0052UL	1500	4			52	MC4	×
55000334-0055UL	PV-K/1500ILF5/6N0055UL	1500	5			55	MC4	×
55000254-0055UL	PV-K/1500ILF6/6N0055UL	1500	6			55	MC4	×
55000190-0055UL	PV-K/1500ILF10/6N0055UL	1500	10			55	MC4	×
55000191-0055UL	PV-K/1500ILF15/6N0055UL	1500	15			55	MC4	×
55000192-0055UL	PV-K/1500ILF20/6N0055UL	1500	20			55	MC4	×
55000295-0055UL	PV-K/1500ILF25/6N0055UL[1)]			1500	25	55	MC4	×
55000285-0055UL	PV-K/1500ILF30/6N0055UL[1)]			1500	30	55	MC4	×

[1)] For PV-K/1500ILF25/6N0055UL and PV-K/1500ILF30/6N0055UL it is necessary to affix spacer ring PV-ILF-SR (included). Please see MA701 for more information.

MA

Assembly instructions MA701

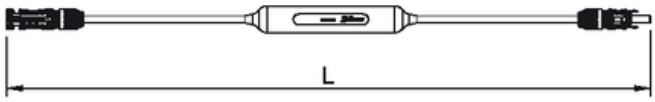
www.staubli.com/electrical

IN-LINE FUSE ASSEMBLY

IN-LINE-FUSE

MC4-Evo 2 In-Line-Fuse (PV-K/ILF3)

PV-K/ILF3...



Technical data	
Connector system	MC4-Evo 2
Voltage rating	DC 1500 V
Test voltage	8 kV
Safety class	II
Overvoltage category Pollution degree	CATIII/3
Mating connectors, only genuine Stäubli connectors shall be used!	Original MC4 cable coupler and panel receptacle Original MC4-Evo 2 cable coupler and panel receptacle
Rated current gPV	4 A 5 A 6 A 15 A 20 A
Ambient temperature range	-40 °C ... +50 °C
Transportation/storage temperature range	-30 °C ... +50 °C
Transportation/storage relative humidity	< 70 %
Degree of Protection (IP), mated unmated	IP65/IP68 (1 m, 1 h) IP2X
Insulation material	PA, EVA, XLPE
Contact material	Copper, tin plated
Max. contact resistance of the connector	< 0,25 mΩ
Certified according to TÜV Rheinland 2PfG 2380	pending

IN-LINE FUSE ASSEMBLY

The MC4-Evo 2 In-Line-Fuse (PV-K/ILF3) with a crimping connection guarantees a long-lasting, stable connection in comparison to conventional omega-style clips: Minimal energy loss, low heat generation. Robust housing, safety class IP68 (1 m, 1 h). Cable cross-section 6 mm².

Order No.	Type	TÜV (2PfG 2380)		Lead length	Connector system	Approvals
		DC V	A	L (cm)		TÜV
32.0326	PV-K/1500ILF3-4/6E-0059	1500	4	59	MC4-Evo 2	×
32.0327	PV-K/1500ILF3-5/6E-0059	1500	5	59	MC4-Evo 2	×
32.0328	PV-K/1500ILF3-6/6E-0059	1500	6	59	MC4-Evo 2	×
32.0329	PV-K/1500ILF3-15/6E-0059	1500	15	59	MC4-Evo 2	×
32.0330	PV-K/1500ILF3-20/6E-0059	1500	20	59	MC4-Evo 2	×

MA

Assembly instructions MA707

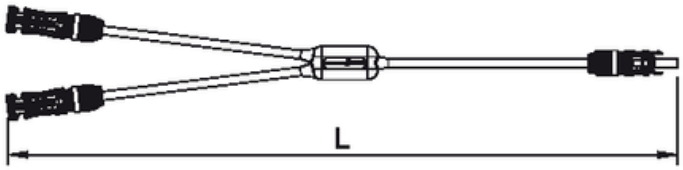
www.staubli.com/electrical

MC4-EVO 2 Y-SPLITTER

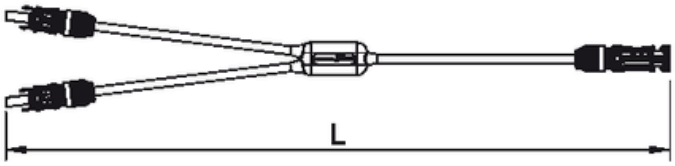
Y-SPLITTER

MC4-Evo 2 Y-Splitter (PV-K/SPL-Y)

PV-K/SPL-Y...ES...



PV-K/SPL-Y...EP...



Technical data	
Connector system	MC4-Evo 2
Voltage rating	DC 1500 V
Test voltage	8 kV
Safety class	II
Overvoltage category Pollution degree	CATIII/3
Mating connectors, only genuine Stäubli connectors shall be used!	Original MC4 cable coupler and panel receptacle Original MC4-Evo 2 cable coupler and panel receptacle
Ambient temperature range	-40 °C ... +85 °C
Transportation/storage temperature range	-30 °C ... +60 °C
Transportation/storage relative humidity	< 70 %
Degree of Protection (IP), mated unmated	IP65/IP68 (1 m, 1 h) IP2X
Insulation material	PA, EVA, XLPE
Contact material	Copper, tin plated
Max. contact resistance of the connector	< 0,25 mΩ
Certified according to TUV Rheinland 2PfG 1911	pending

MC4-EVO 2 Y-SPLITTER

The MC4-Evo 2 Y-Splitter is TÜV Rheinland certified and guarantees a long-lasting, stable connection within a PV DC string: Minimal energy loss, low heat generation. Robust housing, safety class IP68 (1 m, 1 h). Cable cross-section 6 mm².

Order No.	Type	TÜV (2PfG 1911)		Lead length	Connector system	Input Connector	Output Connector	Approvals
		DC V	A	L (cm)				TÜV
32.0333	PV-K/SPL-Y-6-15/15-15EPP/ES-0050	1500	53	50	MC4-Evo 2	Plug (2 ×)	Socket (1 ×)	×
32.0334	PV-K/SPL-Y-6-15/15-15ESS/EP-0050	1500	53	50	MC4-Evo 2	Socket (2 ×)	Plug (1 ×)	×

MA

Assembly instructions MA706

www.staubli.com/electrical

MC4-EVO 2 Y-SPLITTER

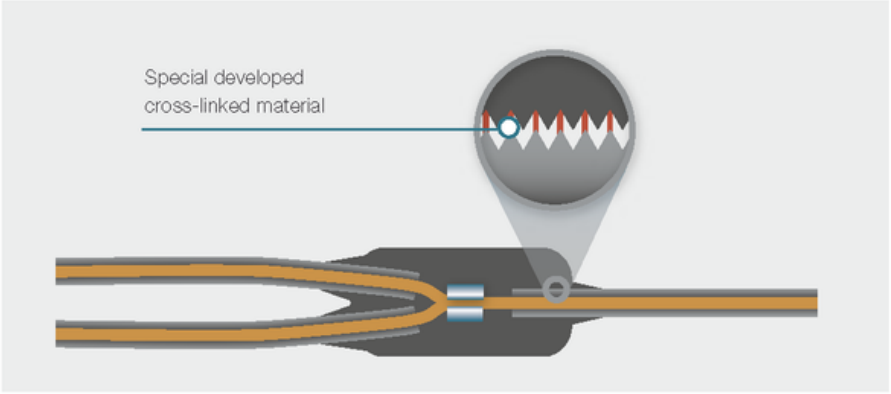
STÄUBLI

DC INTERCONNECTION SOLUTIONS

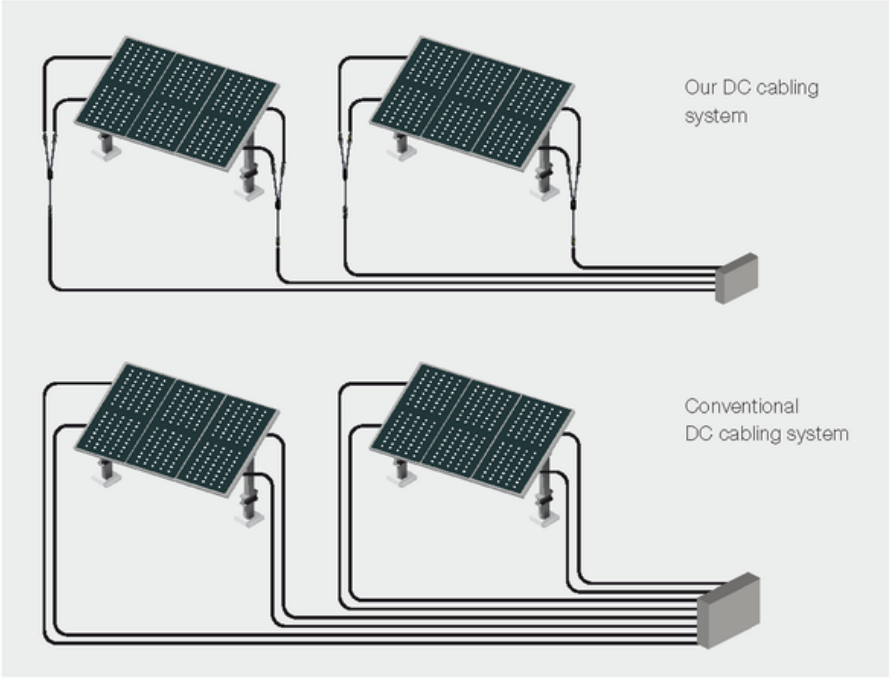
Best-in-class eBoS components for your PV system

Our DC cabling system offers first-class quality and outstanding functionalities. The unique manufacturing process through vulcanization ensures permanent highest protection against ingress and will provide best-in-class performance even under harsh climatic conditions.

Worldwide unique vulcanization process



Less material use and short assembly time



MC4-EVO 2 Y-SPLITTER

Product features and your benefits

Product features and advantages	Customer benefits
Enclosure concept and design (Vulcanization Process)	Best-in-class **product reliability** • Product lifetime expectancy • Insulation performance • Harsh environment compliant
Certified product safety	Product trust in **safety and reliability** • Meeting relevant industry standards (2PfG 1911, 2PfG 2380) • Verified by independent third party
Track record	**Proven long-term reliability** • Installed base (>4 GW) • Systems operating in harsh environment and conditions
Original MC4-Evo 2 connectors	Best-in-class **connector technology** • More reliable and durable operation • Less downtimes and performence losses

Solution features and advantages	Customer benefits
Lower total cost of ownership	**Cost savings** compared to conventional DC cabling design • Less material and components used (optimized CAPEX) • Insensitivity due to fewer components and maintenance (optimized OPEX)
Plug and play	**Time and cost savings** compared to field assembly • Ready-to-use product design with connector assembly • Reducing potential failure risks due to incorrect installation
Stäubli Excellence	Well acknowledged **Stäubli quality** • Trustworthy product and solution source • Controlled supply chain with state-of-the-art quality components
Engineered in Europe and sustainable manufactured	Meeting state-of-the-art ESG requirements • Hightest **product quality** • Sustainable supply chain and **low carbon footprint**

Definition of cable lengths

Cable lengths of cable assemblies

For ordering ready made leads, the cable length L is defined as in the examples shown below.

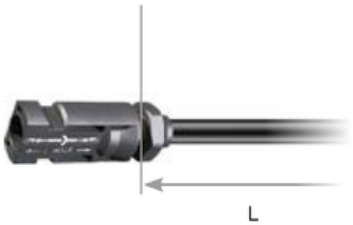
Female cable coupler

Male cable coupler

Cable lug

Female panel receptacle

Male panel receptacle



Complete or partial stripping

GENUINE MC4 CONNECTOR SYSTEM

EN50618 / UL9703 COMPLIANT
IP68, 1500V DC

Custom lengths also available

Preassembled leads	4mm² leads	6mm² leads
1 metre	MC4.0FXL/PV-KBT/KST/4/6II-UR/EN/UL/100	MC6.0FXL/PV-KBT/KST/4/6II-UR/EN/UL/100
2 metre	MC4.0FXL/PV-KBT/KST/4/6II-UR/EN/UL/200	MC6.0FXL/PV-KBT/KST/4/6II-UR/EN/UL/200
3 metre	MC4.0FXL/PV-KBT/KST/4/6II-UR/EN/UL/300	MC6.0FXL/PV-KBT/KST/4/6II-UR/EN/UL/300
5 metre	MC4.0FXL/PV-KBT/KST/4/6II-UR/EN/UL/500	MC6.0FXL/PV-KBT/KST/4/6II-UR/EN/UL/500
8 metre	MC4.0FXL/PV-KBT/KST/4/6II-UR/EN/UL/800	MC6.0FXL/PV-KBT/KST/4/6II-UR/EN/UL/800
10 metre	MC4.0FXL/PV-KBT/KST/4/6II-UR/EN/UL/1000	MC6.0FXL/PV-KBT/KST/4/6II-UR/EN/UL/1000
12 metre	MC4.0FXL/PV-KBT/KST/4/6II-UR/EN/UL/1200	MC6.0FXL/PV-KBT/KST/4/6II-UR/EN/UL/1200
15 metre	MC4.0FXL/PV-KBT/KST/4/6II-UR/EN/UL/1500	MC6.0FXL/PV-KBT/KST/4/6II-UR/EN/UL/1500

Genuine MC4 Connector System

Our preassembled leads are made with TUV certiȧed DC solar cable and ȧtted with genuine male and female Multi-Contact connectors. Custom lengths and variations on plug options can be manufactured upon request

CABLE MANAGEMENT

CABLE CLIPS

RG-WFD-04
2*4/6MM2
2-WIRE
CABLE CLIP

RG-WFD-05
2*4/6MM2
2-WIRE CABLE
CLIP

RG-WFD-11
2*4/6MM2
2-WIRE CABLE
CLIP

RG-WFD-12
2*4/6MM2
2-WIRE CABLE
CLIP

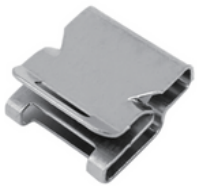
RG-WFD-13
4*4/6MM2
4-WIRE CABLE
CLIP

RG-WFD-15
2*4/6MM2
2-WIRE CABLE
CLIP

RG-WFD-21
2*4/6MM2
90˚CABLE
CLIP

RG-WFD-22
4*4/6MM2
4-WIRE CABLE
CLIP

RG-WFD-23
4*4/6MM2
90˚CABLE
CLIP



RG-WFD-24D
CABLE TIE WIDTH
4.6~7.6MM

COMBINER BOXES

Weidmüller

More efficiency for string inverters
PV Next – combiner boxes of a new generation
Let's connect.

Rely on longevity and resilience

Our laboratory ensures the highest product quality

Our laboratory is accredited according to international standards. It operates independently and is recognised by institutions, registration services ,and other institutions and authorities. As a member of the CTDP program, Weidmüller is regularly audited by UL, especially about test methods, quality management and documentation.

PV Next combiner boxes are tested according to IEC 61439-1/2. The following tests are carried out:

- Testing of transition resistances before and after vibrations to detect weak points
- High-voltage test for dielectric strength of the overall structure
- Vibration and shock testing to simulate transports and bad handling
- Checking the self-heating to identify the maximum permissible power dissipation – essential for the selection of fuses
- IP65 test for protection against dust and moisture

Approved quality

3 IN / 3 OUT fused

Type	Arrester	Connection	Switch	Fuses	MPPT	Dimension	Order No.
PVN1M1I3CXF3V101TXPX10	1R	WM4C	-	FH	1	302x302x175 mm	2683070000
PVN1M2I6CXF3V101TXPX10	1R	WM4C	-	FH	2	558x302x210 mm	2683080000
PVN1M1I3C0F3V101TXPX10	1R	WM4C	SW	FH	1	302x302x175 mm	2683090000
PVN1M2I6C0F3V101TXPX10	1R	WM4C	SW	FH	2	558x302x210 mm	2683100000

3 IN / 3 OUT non-fused

Type	Arrester	Connection	Switch	Fuses	MPPT	Dimension	Order No.
PVN1M1I3CXFXV100TXPX10	1R	CG	-	-	1	186x302x175 mm	2683110000
PVN1M2I6CXFXV100TXPX10	1R	CG	-	-	2	372x302x175 mm	2683120000
PVN1M3I9CXFXV100TXPX10	1R	CG	-	-	3	558x302x210 mm	2683130000
PVN1M1I3C0FXV100TXPX10	1R	CG	SW	-	1	186x302x175 mm	2683140000
PVN1M2I6C0FXV100TXPX10	1R	CG	SW	-	2	372x302x175 mm	2683160000
PVN1M3I9C0FXV100TXPX10	1R	CG	SW	-	3	558x302x210 mm	2683160000
PVN1M1I3CXFXV101TXPX10	1R	WM4C	-	-	1	558x302x210 mm	2683170000
PVN1M2I6CXFXV101TXPX10	1R	WM4C	-	-	2	372x302x175 mm	2683180000
PVN1M3I9CXFXV101TXPX10	1R	WM4C	-	-	3	558x302x210 mm	2683190000
PVN1M1I3C0FXV101TXPX10	1R	WM4C	SW	-	1	186x302x175 mm	2683200000
PVN1M2I6C0FXV101TXPX10	1R	WM4C	SW	-	2	372x302x175 mm	2683210000
PVN1M3I9C0FXV101TXPX10	1R	WM4C	SW	-	3	558x302x210 mm	2683220000

Note: All items are available from stock.

Weidmüller

PV Protect

Protects PV systems optimally from overvoltages

Ready to connect all-in-one solution for your photovoltaic system

PV systems are directly affected by environmental influences because they are installed in exposed locations. This also increases the risk of lightning strikes. According to EN 51643-32, PV systems must be protected against overvoltages to avoid high repair costs and loss of revenue due to system failure.

PV Protect is the solution for optimum protection of the inverter against overvoltages. The ready-to-connect boxes are available for different system voltages and can be supplied with various arrester types and MPP trackers. Depending on requirements, connection is made via cable glands or WM4C connectors with convenient and reliable PUSH IN connection technology.

Your special advantages:

- **Wide range of product variants**
  PV Protect is available with different arrester classes (Type I/II and Type II) and rated voltages (1,000 V/ 1,500 V).
  The connection is made either via photovoltaic plug connectors or cable glands – for high flexibility.
- **Designed to meet various requirements**
  PV Protect is compact, robust, and extremely weatherproof.
  The housing complies with protection class IP67 and protects the sensitive electronics inside, even from harsh environmental influences.
- **Mount the box, connect the cable, ready**
  Thanks to the pre-assembled arresters, the product can be connected quickly and with little effort. The protection of the PV system is ensured immediately.
  The clear marking of the ports eliminates the possibility of incorrect wiring.

COMBINER BOXES

Weidmüller

Compact, space-saving design

Reliable and maintenance-free PUSH IN connection technology

Cable Gland PG9

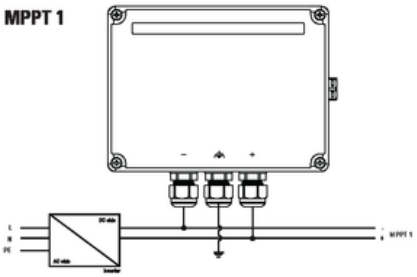
Available in product variants suitable for different applications

WM4 C Connector

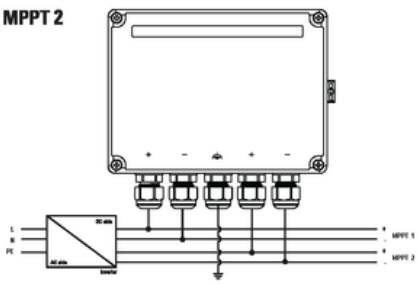
Ready to connect solution in protection class IP67

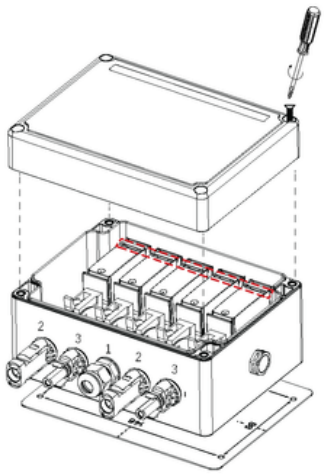
Description	Product description	Type	Voltage	MPPT	Connection	Order No.
VPUM1I1SXFXV100TXPX10	VPU PV BOX CG I+II 3 1000 1M	I+II	1000 V	1	Cable Glands	2755970000
VPUM2I2SXFXV100TXPX10	VPU PV BOX CG I+II 5 1000 2M	I+II	1000 V	2	Cable Glands	2755980000
VPUM1I1SXFXV101TXPX10	VPU PV BOX WM4 I+II 3 1000 1M	I+II	1000 V	1	WM4C	2764140000
VPUM2I2SXFXV101TXPX10	VPU PV BOX WM4 I+II 5 1000 2M	I+II	1000 V	2	WM4C	2764150000
VPUM1I1SXFXV200TXPX10	VPU PV BOX CG II 3 1000 1M	II	1000 V	1	Cable Glands	2755950000
VPUM2I2SXFXV200TXPX10	VPU PV BOX CG II 5 1000 2M	II	1000 V	2	Cable Glands	2755960000
VPUM1I1SXFXV201TXPX10	VPU PV BOX WM4 II 3 1000 1M	II	1000 V	1	WM4C	2764110000
VPUM2I2SXFXV201TXPX10	VPU PV BOX WM4 II 5 1000 2M	II	1000 V	2	WM4C	2764130000
VPUM1I1SXFXV200TXPX15	VPU PV BOX CG II 3 1500 1M	II	1500 V	1	Cable Glands	2755990000
VPUM2I2SXFXV200TXPX15	VPU PV BOX CG II 5 1500 2M	II	1500 V	2	Cable Glands	2756000000
VPUM1I1SXFXV201TXPX15	VPU PV BOX WM4 II 3 1500 1M	II	1500 V	1	WM4C	2764160000
VPUM2I2SXFXV201TXPX15	VPU PV BOX WM4 II 5 1500 2M	II	1500 V	2	WM4C	2764180000

MPPT 1



MPPT 2





Weidmüller Interface GmbH & Co. KG
Klingenbergstraße 26
32758 Detmold, Germany

Visit our website for more information

SURGE PROTECTION

Weidmüller

Advanced surge protection for photovoltaic energy generation
Improved plant performance with VARITECTOR surge protection
Let's connect.

Weidmüller

DC protection in 1,000 V applications

Type	Classification	Order No.
VPU PV I+II 3 R 1000	Type I/II	2530620000
VPU PV I+II 3 1000	Type I/II	2530610000
VPU PV I+II 0 1000	Type I/II	2530600000
VPU PV I+II 0M 1000	Type I/II	2534300000
VPU PV II 3 R 1000	Type II	2530180000
VPU PV II 3 1000	Type II	2530550000
VPU PV II 0 1000	Type II	2530660000

DC protection in 1,500 V applications

Type	Classification	Order No.
VPU PV I+II 3 R 1500	Type I/II	2530590000
VPU PV I+II 3 1500	Type I/II	2530580000
VPU PV I+II 0 1500	Type I/II	2530570000
VPU PV I+II 0M 1500	Type I/II	2534330000
VPU PV II 3 R 1500	Type II	2530650000
VPU PV II 3 1500	Type II	2530640000
VPU PV II 0 1500	Type II	2530630000

AC protection for 230 V grids

Type	Classification	Order No.
VPU I 3+1 R 280V/25KA	Type I	2063070000
VPU I 3+1 280V/25KA	Type I	2063080000
VPU I 0 280V/25KA	Type I	2067650000
VPU II 3+1 R 280V/40KA	Type II	1352670000
VPU II 3+1 280V/40KA	Type II	1352650000
VPU II 0 280V/40KA	Type II	1352570000

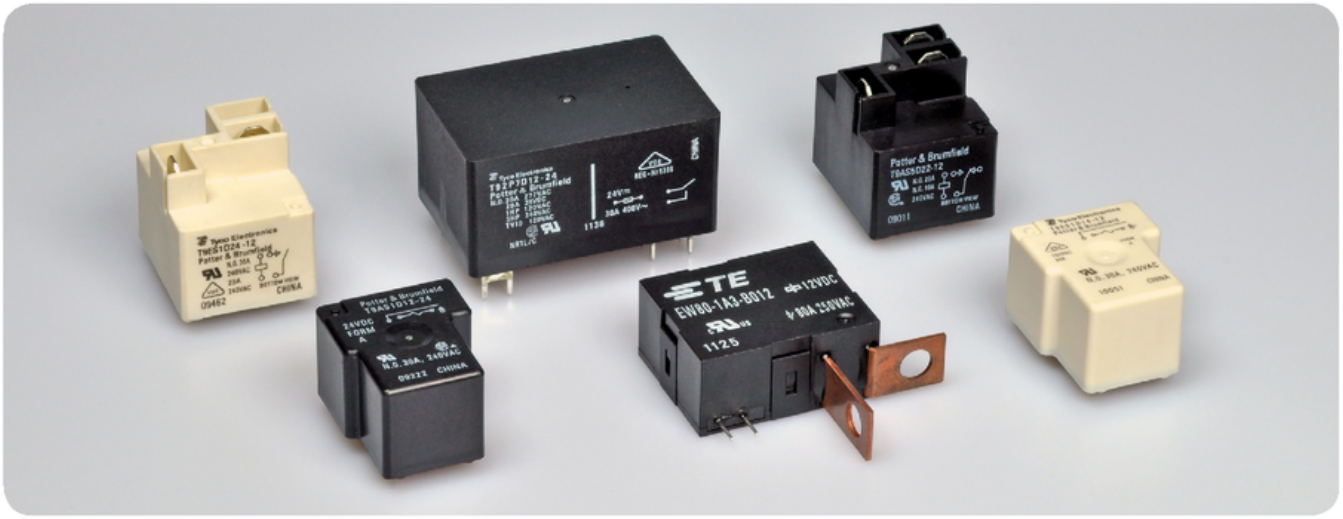
Find more information about our overvoltage protection here:
www.weidmueller.com/VPU

Let's connect.

Intelligent Buildings

Product Note

HIGH POWER PC BOARD, METERING AND SOLAR RELAYS



High power PC board relays, metering relays and solar relays are some of the workhorses of the general purpose relay family, switching loads up to 80A. A broad range of ratings for specific types of loads have been granted by testing agencies. Various enclosure, mounting and termination options permit design flexibility. Efficient magnetic designs help reduce coil power requirements.

FEATURES:

- Contact ratings to 80A
- 1 / 2 pole
- Latching / Non-latching
- AC / DC coils

APPLICATIONS:

- HVAC
- Smart Metering
- Lighting Controls / Building Management
- Solar

FEATURED PRODUCT FAMILIES

EW80	1 Form A (NO), 80A
	1W DC coil
	Optional shunt
	Latching (bistable) relay for metering & other power switching applications
T9A / T9E	1 Form A (NO), 30A; 1 form B (NC), 15-30A; 1 form C (CO), 20/10A
	900mW or 1W DC coil
	Optional quick connect terminals for load
T92	2 Form A (NO), 30A; 2 form C (CO), 30/3A
	4VA AC or 1.7W DC coil
	Optional quick connect terminals for load
T9S	1 form A (NO), 35A relay
	>1.5mm contact gap
	2.25W DC coil requires only 350mW hold power
	Designed for solar inverter applications
PCFN	1 form A (NO), 26A relay
	>1.5mm contact gap
	1.5W DC coil requires only 200mW hold power
	Designed for solar inverter applications

1-1773706-6 JG2 PDF 07/2013

USA: 1-800-522-6752
Canada: +1-905-475-6222
Mexico: +52 (0) 55-1106-0800
Latin/S. America: +54 (0) 11-4733-2200
Germany: +49 (0) 6251-133-1999
UK: +44 (0) 800-267666
France: +33 (0) 1-3420-8686
Netherlands: +31 (0) 73-6246-999
China: +86 (0) 400-820-6015

IHV200 SERIES CONTACTORS

- Designed to be the smallest, lightest weight, lowest cost sealed contactor in the industry with the high current rating (carrying 500A above, break 320VDC, 2000A)
- Built-in coil economizer — only 1.7W hold power @ 12VDC and it limits back EMF to 0V. Models requiring external economizer also available
- Optional auxiliary contact for easy monitoring of power contact position
- Hermetically sealed— intrinsically safe, operates in explosive/harsh environments with no oxidation or contamination of coil or contacts, during long periods of non-operation
- Designed according to AIAG QS9000
- RoHS and REACH compliance

Applications

- DC Charging, Solar Inverter, Energy Store Station, Test Equipment;
- Power Management System, Rail Transit,
- Motor Control Circuit Isolation, Circuit Protection and Safety in Industrial Machinery;

Approval

cULus E208033

Coil Operating Voltage (Valid Over Temperature Range)			
Voltage (Will Operate)	12-24VDC	48-72VDC	72-95VDC
Voltage (Max.)	36VDC	72VDC	95VDC
Pickup (Close) Voltage Max.	9VDC	32VDC	48VDC
Hold Voltage (Min.)	7.5VDC	22VDC	34VDC
Dropout (Open) Voltage (Min.)	6VDC	18VDC	27VDC
Inrush Current (Max.)	3.8A	1.3A	0.7A
Holding Current (Avg.)	0.13A@12V 0.07A@24V	0.03A@48V	0.02A@72V
Inrush Time (Max.)	130mS	130mS	130mS

Insulation Data	
Dielectric Withstand Voltage 2,200 Vrms @ sea level (leakage <1mA)	
Insulation Resistance, Terminal to Terminal / Terminals to Coil	
When New	100 megohms, min. @ 500Vdc
At End of Life	50 megohms, min. @ 500Vdc

High Voltage DC Contactors

Notes (Upper left) :

1) For resistive loads with 300uH maximum inductance. Consult factory for inductive loads.

2) Estimates based on extrapolated data. User is encouraged to confirm performance in application

3) End of life when dielectric strength between terminals falls below 50 MΩ @ 500VDC.

4) The maximum make current is 650A to avoid contact welding.

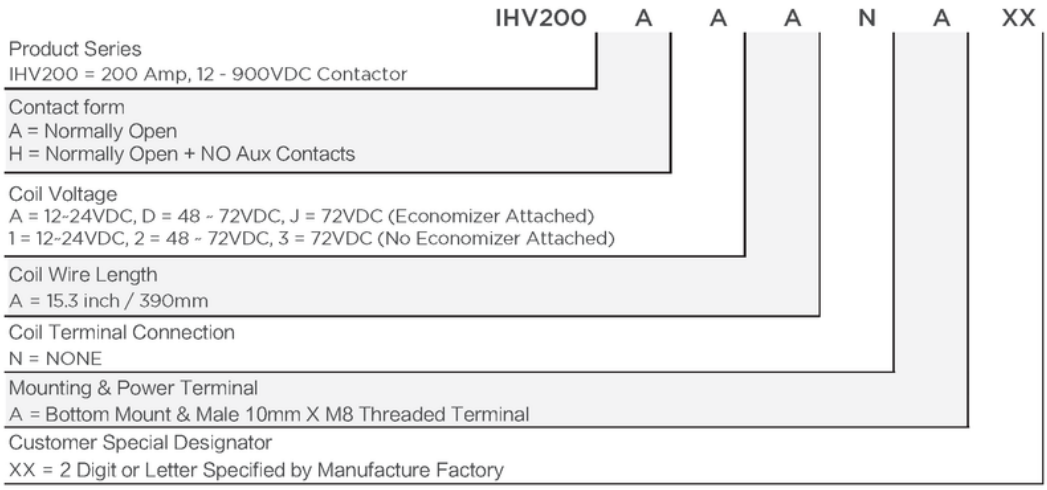
5) Please contact TE engineers for above 450VDC high voltage switching application.

Electrical Load Life for Rating for Typical EV Application (Upper right)

Make/Break Life Capacitive & Resistive Load at 320VDC (1)(2)		
@90% capacitive pre-charge (make only) see chart below	Cycles	50,000
@80% capacitive pre-charge (make only) see chart below	Cycles	50
@200A make/break(2 consecutive, reverse polarity) (1)	Cycles	12
2,000 (Break only) (1)	Cycles	1*
(1) Resistive load includes inductance L=25uH. Load @2500A tested @200uH.		
(2) Life based on projected Weibull Life with 95% reliability		

* Does not meet dielectric and IR after test.

Naming Rules for Product Number



IHVA 150/200 HIGH-VOLTAGE DC CONTACTOR SERIES

TE Connectivity (TE) introduces the IHVA high-voltage DC contactor series which is designed for control in new energy applications. The IHVA product line is an innovative, cost-effective, and reliable solution for EV charging stations, automated-guided vehicles (AGV), e-Forklifts, solar inverters, and energy storage systems. The IHVA series is a non-gas filled contactor making it safe and reliable with less worry about the environment. These contactors are non-polarized and offer an optional auxiliary contact that can be used to monitor the power/main contact.

BENEFITS

- No polarity for ease of connecting in applications
- Safer and more reliable, with no worry about gas leakage
- High insulation distance, high dielectric strength
- Optional auxiliary contact to easily monitor the power/main contact
- 600A inrush current capability protects the circuit in abnormal situation

IHVA 150/200 High-Voltage DC Contactor Series

APPLICATIONS

- DC charging
- Auto-guided vehicle
- e-Forklift
- Energy storage system

MECHANICAL

- Bottom mounted by flanged cover
- Main contact terminals connection is threaded
- Auxiliary contact terminal / coil terminal is a FASTON terminal which be can be connected with a connector

STANDARD

- UL 60947

MATERIALS

- Ag alloy

ELECTRICAL

- 150A/200A, 110VDC, 6,000 cycles
- 150A/200A, 1500VDC, carry only
- 150A/200A, 450VDC, 100 cycles
- 150A/200A, 750VDC, 30 cycles
- 5A, 1500VDC, 500 cycles
- 20A, 1000VDC, 100 cycles
- 600A, make only, 3,000 cycles
- 2000A, 400VDC, break only, 2 cycles

PART NUMBER LIST - IHVA 150

Product code	Arrangement	Mounting position	Main contact material	Coil	Part number
IHVA150-A3D12V-BF	Normally open	Bottom	Ag alloy	12VDC	2071547-1
IHVA150-A3D24V-BF				24VDC	2071547-2
IHVA150-A3D48V-BF				48VDC	2071547-3
IHVA150-H3D12V-BF	Normally open + NO aux contacts			12VDC	1-2071547-1
IHVA150-H3D24V-BF				24VDC	1-2071547-2
IHVA150-H3D48V-BF				48VDC	1-2071547-3

PART NUMBER LIST - IHVA 200

Product code	Arrangement	Mounting position	Main contact material	Coil	Part number
IHVA200-A3D12V-BF	Normally open	Bottom	Ag alloy	12VDC	2071499-1
IHVA200-A3D24V-BF				24VDC	2071499-2
IHVA200-A3D48V-BF				48VDC	2071499-3
IHVA200-H3D12V-BF	Normally open + NO aux contacts			12VDC	1-2071499-1
IHVA200-H3D24V-BF				24VDC	1-2071499-2
IHVA200-H3D48V-BF				48VDC	1-2071499-3

te.com

03/21 AK

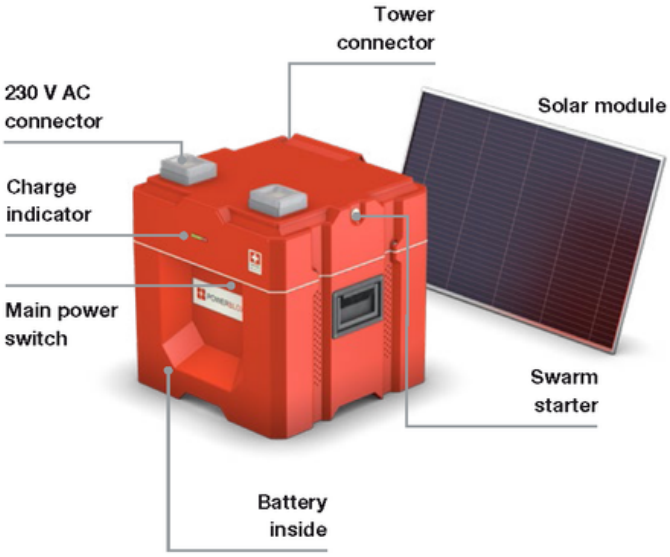
STÄUBLI

THE POWER-BLOX PBX200

Power wherever you are

The Power-Blox PBX200, the first product that was developed based on our swarm technology, is a revolutionary modular energy system producing alternating current from 200 W up to the Kilowatt range, which serves as a "portable socket" to off-grid energy demands. Its modularity allows it to produce and easily scale electricity.

The system is Plug & Power and requires no configuration, specific know-how or maintenance. It consists of intelligent energy cubes with an integrated battery (available as lead or lithium-ion version). Each cube provides 200 Watt of alternating current and can be powered by an solar unit or from any external source (such as solar, wind, hydrothermal, biomass, or a generator etc.) to supply a household or small commercial business with electricity. Power-Blox acts as universal energy interface and can be combined with various external energy sources or storage devices.

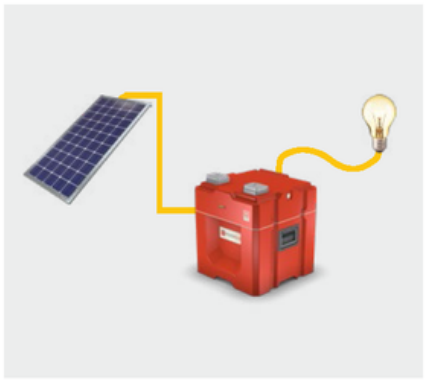


- 230 V AC/200 W true sinus inverter
- 100 Ah solar battery
- 200 W solar module + 10 m cable included
- MPP solar charger
- Swarm-/mini-grid enabled
- 4 x stacking sockets

- Integrated stacking cable
- Grid/generator connector
- 12 V DC/3 A (cigarette lighter socket)
- 2 x USB output

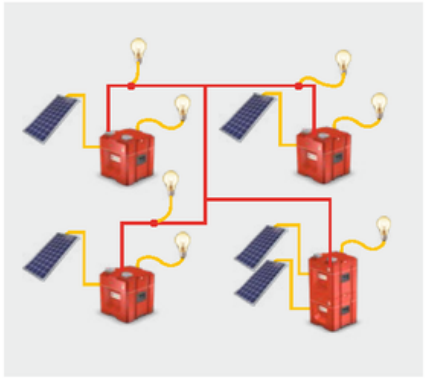
Nearly unlimited scalability

The nearly endless scalability of the Power-Blox system represents a breakthrough in energy technology. It allows scalable growth based on increasing energy requirements, without the need of modifying/replacing existing installations.



Standalone Power-Blox
Instant plug & power.
Directly supplies 230 V AC.

Stacking Power-Blox
Get more energy and power.
Expand by stacking units.



Build a swarm grid
More units increase the stability and power of the grid. Every consumer in the system can use the full power of all units.

Technical data

Inverter	PBX200 Pb	PBX200 Li
Rated grid voltage	230 V	
Rated frequency	50 Hz	
Harmonic distortion	< 4%	
Continuous power at 25	200 W	
Power for 5 sec. at 25	230 W	
Power for 3 sec. at 25	370 W	
Maximum load	Up to short-circuit	
Cos ϕ	0.1 to 1	
Grid/generator input		
Input voltage	230 V ± 15%	
Frequency range	47-64 Hz	
Grid charger current	5 A	
Charging characteristics	IUoU [1]	Li BMS [1]
Resettable fuse	10 A	
Transfer connectors		
Transfer voltage	230 V ± 15%	
Frequency range	47-64 Hz	
Resettable fuse	10 A	
Solar input		
Solar charger type	MPP [2]	
Input voltage range	30-45 V	
PV current	8 A	
Maximum PV power	250 W	
Recommended PV power	200 W	
Charging characteristics	IUoU [1], temperature regulated	Li BMS [1], temperature regulated
Battery		
Included batteries	2 x Hoppecke sun power VR M 12 V 58	2 x Li-Ion batteries 12 V 50 AH
Battery technology	Lead acid/AGM [3]	Lithium/LiFePo4 [4]
Internal battery voltage	24 V	
Cycle stability	2500 cycles	5000 cycles
Expected lifetime	3-5 years	> 10 years
DC output		
Cigarette lighter socket	12 V, 3 A	
USB socket	2 x 5 V, 2 A	
Connectors		
Solar	powerCON TRUE1 inlet/clamps	
Transfer/stacking	powerCON inlet/clamps	
Transfer cable	1.3 m cable with powerCON plug	
Grid/generator	Grid socket C14, 10 A/clamps	
Clamps	Tool-less Phoenix clamps, 0.2-6 mm^2	

Swarm connection		
Stacking possibility	Via attached cable	
Connecting towers	Via attached cable	
Maximum tower height	3 units	
Maximum stacking/transfer power	10 units/2 kW	
Maximum swarm-grid size	Infinte, tested up to 20 units	
Certificates		
EMC (Electro Magnetic Compatibility)	IEC/EN55022, IEC/EN61000	
Safety	EC/EN62109-1, IEC62109-2	
Environmental conditions		
Protection index	IP20	
Relative humidity in operation	95% without condensation	
Operating temperature range	-10 to 45°C [5]	-20 to 60°C
Ventilation	Passive, no active ventilator	
General data		
Weight	52 kg (114.6 lb)	27 kg (59.5 lb)
Dimensions (W/H/D)	400 mm/443 mm/400 mm	

[1] IUoU = Multiple charge process for optimal battery charging
BMS = Battery Management System
[2] MPP = Maximum PowerPoint Tracker for upto 30 % higher solar yield
[3] AGM = Absorbent Glass Mat, electrolyte is bonded in a nonwoven of glass fibers
[4] LiFePo4 = Lithium iron phosphate
[5] If the operating temperature is above 30 °C, the batteries age considerably faster

Order numbers

Country	AC socket	PBX200 Pb	PBX200 Li
Switzerland		32.0200-50010	32.0200-50020
Germany/Italy		32.0200-50011	32.0200-50021
France/Belgium		32.0200-50012	32.0200-50022
United Kingdom		32.0200-50013	32.0200-50023
South Africa/UK-Multi		32.0200-50014	32.0200-50024
Australia/New Zealand		32.0200-50015	32.0200-50025
Israel		32.0200-50016	32.0200-50026
Denmark		32.0200-50017	32.0200-50027
Asia/Thailand		32.0200-50018	32.0200-50028

CONTACT US

Taiwam
7F.-2, No. 12, Ln. 609, Sec. 5, Chongxin Rd ,
Sanchong Dist, New Taipei City ,
Taiwan (R.O.C.)
Phone (886)02-2995-6166
sales@i-powers.com.tw

Malaysia Office
Plot P.4, Bayan Lepas Free Trade Zone,
Phase IV, 11900 Bayan Lepas, Penang.
Malaysia
Phone (60)1248-98936
kenneth.yeap@i-powers.com.tw

Warehouse 2
No. 78-2, Ln. 8, Sec. 1, Youyuan Rd.,
Dadu Dist., Taichung City
Taiwan (R.O.C.)
Phone (04)2691-4999
ben.jean@i-powers.com.tw

China Suzhou Office
Room 304, Building 59, 2 Houtang Road,
Wuzhong District, Suzhou
China
Phone (86)13162305707
vincent@i-powers.com

Warehouse 1
7F.-2, No. 12, Ln. 609, Sec. 5, Chongxin Rd ,
Sanchong Dist, New Taipei City ,
Taiwan (R.O.C.)
Phone (02)2995-6166,
ben.jean@i-powers.com.tw