Multi-Contact

STÄUBLI

Photovoltaic main catalog

Solarline | Connectors for renewable energy

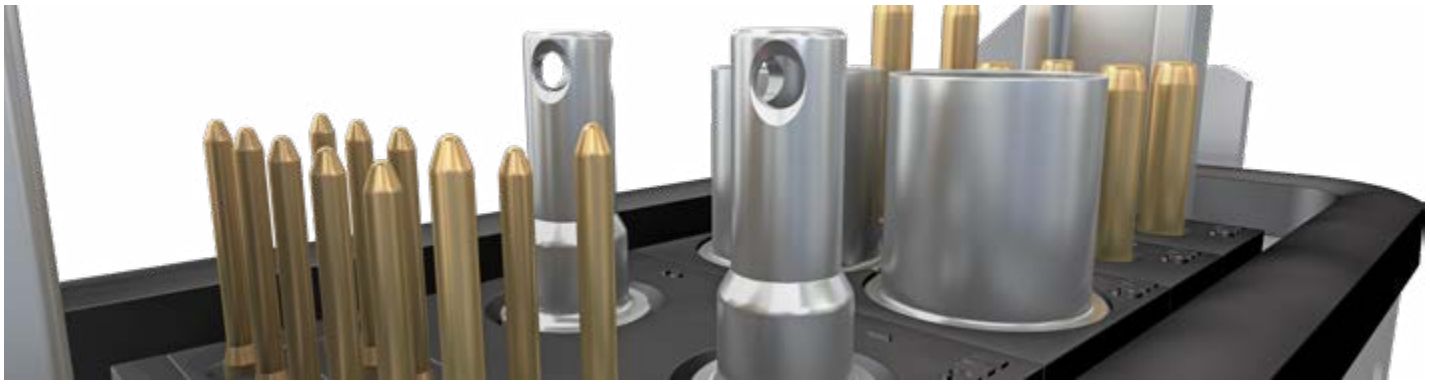
STÄUBLI ELECTRICAL CONNECTORS

Long-term solutions – Expert connections

Stäubli Electrical Connectors is a leading international manufacturer of high-quality electrical connector systems. We are part of the Stäubli Group which offers mechatronics solutions for electrical connectors, liquid and gas couplings, robots and textile machinery.

Stäubli develops, produces, sells and maintains products for markets with high productivity standards. As recognized specialists, our focus is always on solutions and customers. Many new developments got their start here and have begun to make their way around the world.

Businesses and customers count on our commitment and our active support when dealing with unusual problems. With us, you are entering into a long-term partnership built on reliability, dynamism, and exceptional quality in both products and services.



Applications and benefits

Offering a wide range of connection systems and accessories for photovoltaics, plug connectors, junction boxes and cables, we have been connecting any type of PV installation to the sun for more than 20 years. As a pioneer and global market leader for PV connectors, Stäubli has been setting the industry standard since the introduction of the original MC4 connector. In 2017, over 1 billion original MC4 connectors were installed to connect more than 150 GW which comes up to almost 50 % of the PV power worldwide.

Thanks to the tried and tested MULTILAM advanced contact technology, our connectors keep your PV installation up and running efficiently and safely.

These apparently minor components can have a massive impact. Outstanding reliability and consistently low contact resistance guarantee:

- Low service cost and reduced downtime
- Elimination of risks for hotspots and fire
- Low power losses

Stäubli PV connectors guarantee proper operation over their whole lifetime (>25 years). By minimizing risk and maximizing the return in the long term, our components influence LCOE positively and have a decisive impact on the bankability of photovoltaic projects.

www.staubli-alternative-energies.com

Content

Safety note

Plug connectors not manufactured by Stäubli are sometimes described by their manufacturers as being “Stäubli compatible” due to their ability to mate with Stäubli connectors. This, however, is not true: by doing so, they do not conform to the requirements for a safe electrical connection with long-term stability. For that reason, we accept no liability if these non-approved connectors are mated with Stäubli original connectors.

Stäubli has not recognized any products from third-party suppliers as being plug-compatible with the MC4 family and does not intend to do so in the future. Using unsuitable components or combining plugs from different manufacturers poses significant risks (high failure rates, fire, etc.) and is not permitted under any circumstances.

Please note that all certifications are voided when such a plug combination is used.

Statements made by TÜV and UL confirm this: TÜV Rheinland LGA Products GmbH, based in Cologne, stresses that compatibility can be confirmed “only for products of the same type family from the same manufacturer” and that the current certificate for the MC4 connector family is based “on positive results of tests on products with corresponding mating parts of the MC4 family.” As there is uncertainty in the case of warranty claims involving combined PV connector pairs from different manufacturers, “the PV installation inspectors are obliged to criticize the use of such combinations.” It is also stated in UL file QIJQ2.E343181 that only “connectors within a product family are approved by UL.” UL clearly distances itself from declaring compatibility of components from different manufacturers due to uncertainty over long-term behavior.

General information

Colour code

For those items available in various colours, replace the asterisk “*” with the appropriate colour code.

21	black	22	red
23	blue	29	white

Changes / Provisos

All data, illustrations and drawings in the catalogue have been carefully checked. They are in accordance with our experience to date, but no responsibility can be accepted for errors. We also reserve the right to make modifications for design and safety reasons. When designing equipment incorporating our components, it is therefore advisable not to rely solely on the data in the catalogue but to consult us to make sure this information is up to date. We shall be pleased to advise you.

Copyright

RoHS ready

Directive 2011 / 65 / EC on the restriction of the use of certain hazardous substances in electrical and electronic equipment.

Symbols

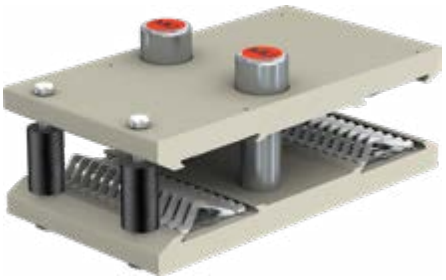
Accessories or special tools exist for this product

The assembly instruction MA000 is available for this product

Check out the interactive content for this product

UNLIMITED POSSIBILITIES FOR CONTACT SOLUTIONS

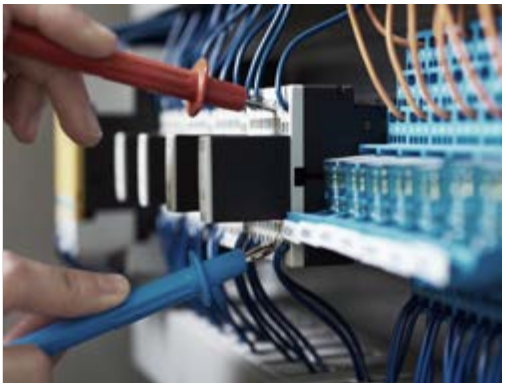
MULTILAM Technology



MULTILAM are specially formed and resilient contact elements. All Stäubli Electrical Connectors products benefit from the unique and outstanding performance of the MULTILAM Technology.
Thanks to their constant spring pressure, MULTILAM louvers ensure continuous contact with the contact surface, resulting in a constantly low contact resistance.
MULTILAM Technology allows to find solutions for connectors within the severest constraints and in certain products for up to 1 million mating cycles.

This makes the MULTILAM Technology the best choice for applications with demanding requirements:

- Reliable and longlife operation due to constantly high performance
- Safe operation under highest environmental demands on temperature, vibration and shock
- Suitable for data and signal contacts as well as high-current connectors
- Automated solutions with a high number of mating cycles



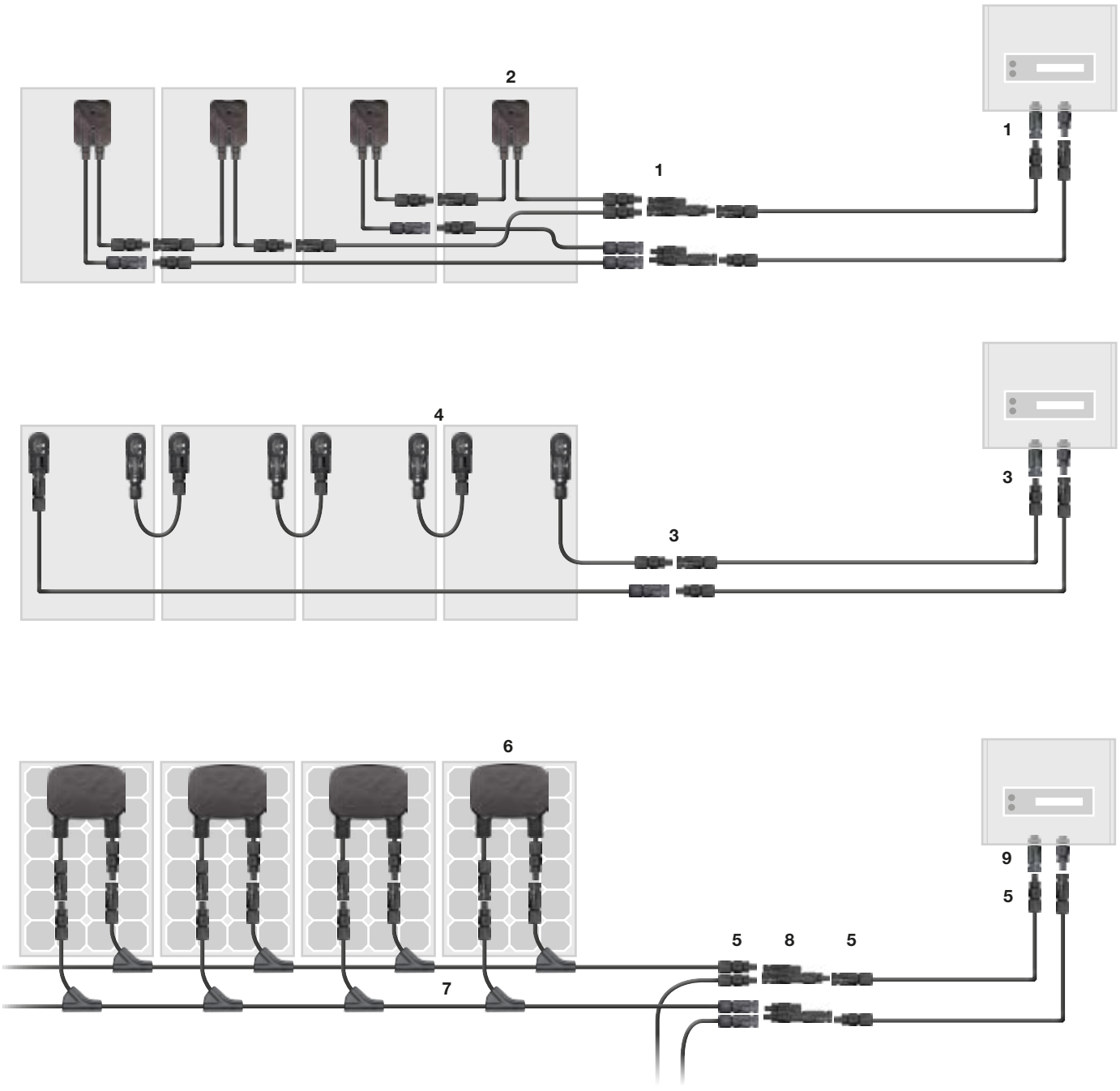
INTRODUCTION

Application possibilities of the Stäubli product portfolio

Examples of a PV field installation
The upper example shows the MC4 plug connector system (1) and a customized, two-pole junction box (2).

The illustration in the middle shows the MC4 connector system (3) and the single-pole PV-JB/TB (4).

At the bottom an example of a PV roof installation with MC4 plug connector system (5), PV-JB/WL-... junction box (6) branch cable (7), branch socket/plug (8) and MC4 panel receptacles (9).



PLUG CONNECTORS

Advantages of the MC4 connector range

Protected

UV

IP68

Safety class II

Proven MULTILAM technology with high long-term stability

More than 50 years of experience and core competence

Range of cable cross-sections

10 mm²	◯	◯	8 AWG
6 mm²	◯	◯	10 AWG
4 mm²	○	○	12 AWG
2.5 mm²	○	○	14 AWG
1.5 mm²	○		

Locking system

Voltage level

TÜV 1000 V/1500 V
UL 1000 V/1500 V

Compatibility

MC4 MC4-Evo2

MC4 MC4-Evo2

Certificates

TÜV These products are certified by TÜV Rheinland LGA GmbH

cTÜVus

UL recognized

EAC

CSA

JET

CQC

Safety locking device

NEC 2014

Overview of plug connectors

	Approvals [1]
Plug connectors	
MC4 	TÜV EAC UL CSA CQC
MC4-Evo2 	TÜV UL JET
MC4-EvoAC 	TÜV UL
Panel receptacles	
MC4 	TÜV EAC UL CSA
MC4-Evo2 	TÜV UL
Branch connectors	
MC4 	EAC UL

Legend

Assembly with tool

Available as ready-assembled product

For assembly on site

	Features	Salt mist spray test	Rated curren	Rated voltage (max.)				Locking system (UL)	Degree of protection		Safety class	Ambient temperature range	Sealing caps	Page
		Category	A	TÜV (V DC)	UL/CSA (V DC)	TÜV (V AC)	UL (V AC)		mated	unmated		°C		
		VI	22.5/30/45/50	1500	1500	–	–	Locking	IP65 IP68	IP2X	II	-40 ... +85 (TÜV)	×	12 14
		VI	22/39/45/53/69	1500	1500	–	–	Locking	IP65 IP68	IP2X	II	-40...+85 (TÜV)	×	16 18
		–	16/20/26/32/43	–	–	250	600	Locking	IP65 IP67	IP2X	II	-40...+85	×	20
		–	22.5/39/45/51	1250	1500	–	–	Locking	IP65 IP68	IP2X	II	-40...+85	×	22 24
		–	32/42/47	1500	1500	–	–	Locking	IP65 IP68	IP2X	II	-40...+90 (UL)	×	26 28
		–	50	–	1500	–	–	Locking	IP67	IP2X	II	-40...+85 (UL)	×	30

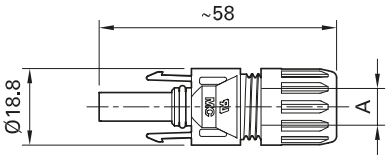
Suitable for customer-specific assembly

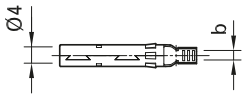
[1] Certifications are in some cases limited to specific types or still pending. Details are given on the relevant product pages.

Female and male cable coupler MC4

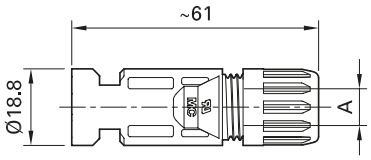
Female and male cable coupler as individual part (including insulating part)

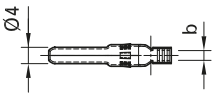
PV-KBT4...





PV-KST4...





Order No.	Type	Female cable coupler	Male cable coupler	Ø range of cable gland	Conductor cross section			Approvals			
				A (mm)	mm²	AWG	b (mm)	TÜV			
32.0010P0001-UR	PV-KBT4/2,5I-UR	×		5-6	2.5	14	3				
32.0011P0001-UR	PV-KST4/2,5I-UR		×	5-6	2.5	14	3				
32.0140P0001-UR	PV-KBT4/2,5X-UR	×		5.5-7.4	2.5	14	3				
32.0141P0001-UR	PV-KST4/2,5X-UR		×	5.5-7.4	2.5	14	3				
32.0012P0001-UR	PV-KBT4/2,5II-UR	×		5.9-8.8	2.5	14	3				
32.0013P0001-UR	PV-KST4/2,5II-UR		×	5.9-8.8	2.5	14	3				
32.0014P0001-UR	PV-KBT4/6I-UR	×		5-6	4; 6	12; 10	5	×	×	×	×
32.0015P0001-UR	PV-KST4/6I-UR		×	5-6	4; 6	12; 10	5				
32.0142P0001-UR	PV-KBT4/6X-UR	×		5.5-7.4	4; 6	12; 10	5				
32.0143P0001-UR	PV-KST4/6X-UR		×	5.5-7.4	4; 6	12; 10	5				
32.0016P0001-UR	PV-KBT4/6II-UR	×		5.9-8.8	4; 6	12; 10	5				
32.0017P0001-UR	PV-KST4/6II-UR		×	5.9-8.8	4; 6	12; 10	5				
32.0080-UR	PV-KBT4/8II-UR	×		6.05-8.56	–	8	4.4				
32.0081-UR	PV-KST4/8II-UR		×	6.05-8.56	–	8	4.4		×	×	
32.0034P0001	PV-KBT4/10II	×		5.9-8.8	10	–	7.2	×			×
32.0035P0001	PV-KST4/10II		×	5.9-8.8	10	–	7.2				

Note:

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

MA

Assembly Instructions MA231

www.staubli.com/electrical

Sealing caps page 53

Assembly tools page 58

- Snap-in lock
- In accordance with NEC 2014, 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 of 10 mm²
- Also available as ready made leads
- Mating compatibility with MC4 connector family
- Leads made to customer's specifications, see page 60

Technical data	
Connector system	Ø 4 mm
Rated voltage	1000 V DC (IEC 62852) 1500 V DC (2Pfg2330)[1)] 1500 V DC (UL)[2)]
Rated current TÜV (85°C)	22.5 A (2.5 mm²) 39 A (4 mm²/6 mm²) 45 A (10 mm²)
Rated current UL	30 A (14 AWG) 30 A (12 AWG/10 AWG) 50 A (8 AWG)
Rated impulse voltage	12 kV (1000 V DC (TÜV)) 16 kV (1500 V DC (TÜV))
Ambient temperature range	-40°C...+85°C (TÜV) -40°C...+75°C (UL)
Upper limiting temperature	105°C (TÜV)
Degree of protection, mated unmated	IP65, IP68 (1 h/1 m) IP2X
Overvoltage category/Pollution degree	CATIII/3
Contact resistance of plug connectors	≤0.25 mΩ
Safety class	1000 V DC: II 1500 V DC: 0
Contact system	MULTILAM
Type of termination	Crimping
Contact material	Copper, tin plated
Insulation material	PC/PA
Locking system (UL)	Locking type
Flame class	UL94-V0
Ammonia resistance (acc. to DLG)	1500 h, 70°C/70% RH, 750 ppm
Salt mist spray test, degree of severity 6	IEC 60068-2-52
TÜV-Rheinland certified, in accordance with IEC 62852 TÜV-Rheinland certified, in accordance with 2PfG2330 UL recognized component, in accordance with UL 6703 CSA certified, in accordance with UL 6703 CQC certified according CNCA/CTS0002-2012	R60127190[3)] R60087448 E343181 250725 CQC16024138286

[1)] 2Pfg2330: only approved for locations with restricted access

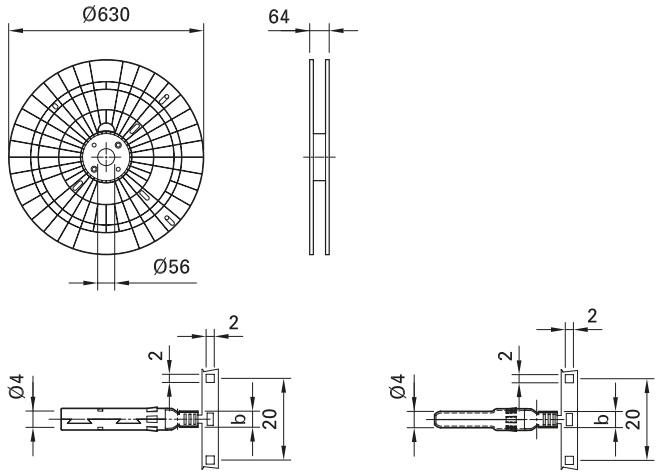
[2)] for selected configurations; see assembly instructions MA231 for details

[3)] For PV junction boxes in accordance with IEC62790, lines in accordance with EN50618 must be used

Female and male cable coupler MC4

Contacts on carrier band (including insulating part)

PV-KBT4...
PV-KST4...



Order No.	Type	Female cable coupler	Male cable coupler	Ø range of cable gland	Conductor cross section			Crimping tool	Contacts per reel[2]	Approvals			
				A (mm)	mm²	AWG	b (mm)			TÜV			
32.0010P2000-UR	PV-KBT4/2,5I-UR	×		5-6	2.5	14	3	[1]	2000	×	×	×	×
32.0011P2000-UR	PV-KST4/2,5I-UR		×	5-6	2.5	14	3	[1]	2000				
32.0140P2000-UR	PV-KBT4/2,5X-UR	×		5.5-7.4	2.5	14	3	[1]	2000				
32.0141P2000-UR	PV-KST4/2,5X-UR		×	5.5-7.4	2.5	14	3	[1]	2000				
32.0012P2000-UR	PV-KBT4/2,5II-UR	×		5.9-8.8	2.5	14	3	[1]	2000				
32.0013P2000-UR	PV-KST4/2,5II-UR		×	5.9-8.8	2.5	14	3	[1]	2000				
32.0014P2000-UR	PV-KBT4/6I-UR	×		5-6	4; 6	12; 10	5	[1]	2000				
32.0015P2000-UR	PV-KST4/6I-UR		×	5-6	4; 6	12; 10	5	[1]	2000				
32.0142P2000-UR	PV-KBT4/6X-UR	×		5.5-7.4	4; 6	12; 10	5	[1]	2000				
32.0143P2000-UR	PV-KST4/6X-UR		×	5.5-7.4	4; 6	12; 10	5	[1]	2000				
32.0016P2000-UR	PV-KBT4/6II-UR	×		5.9-8.8	4; 6	12; 10	5	[1]	2000				
32.0017P2000-UR	PV-KST4/6II-UR		×	5.9-8.8	4; 6	12; 10	5	[1]	2000				
32.0034P1700	PV-KBT4/10II	×		5.9-8.8	10	–	7.2	[1]	1700	×			×
32.0035P1700	PV-KST4/10II		×	5.9-8.8	10	–	7.2	[1]	1700				

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

MA

Assembly Instructions MA231
www.staubli.com/electrical

Sealing caps page 53
Assembly tools page 58

- Feeder bands for fully automatic assembly
- Tools specially designed for MC4 are available for automatic crimping
- Process reliability as result of specially developed supply reel
- Mating compatibility with MC4 connector family

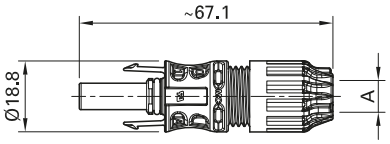
Technical data	
Connector system	Ø 4 mm
Rated voltage	1000 V DC (IEC 62852) 1500 V DC (2Pfg2330)[3)] 1500 V DC (UL)[4)]
Rated current TÜV (85°C)	22.5 A (2.5 mm^2) 39 A (4 mm^2/6 mm^2) 45 A (10 mm^2)
Rated current UL	30 A (14 AWG) 30 A (12 AWG/10 AWG) 50 A (8 AWG)
Rated impulse voltage	12 kV (1000 V DC (TÜV)) 16 kV (1500 V DC (TÜV))
Ambient temperature range	-40°C...+85°C (TÜV); -40°C...+75°C (UL)
Upper limiting temperature	105°C (TÜV)
Degree of protection, mated unmated	IP65, IP68 (1 h/1 m) IP2X
Overvoltage category/Pollution degree	CATIII/3
Contact resistance of plug connectors	≤0.25 mΩ
Safety class	1000 V DC: II 1500 V DC: 0
Contact system	MULTILAM
Type of termination	Crimping
Contact material	Copper, tin plated
Insulation material	PC/PA
Locking system (UL)	Locking type
Flame class	UL94-V0
Ammonia resistance (acc. to DLG)	1500 h, 70°C/70% RH, 750 ppm
Salt mist spray test, degree of severity 6	IEC 60068-2-52
TÜV-Rheinland certified, in accordance with IEC 62852 TÜV-Rheinland certified, in accordance with 2PfG2330 UL recognized component, in accordance with UL 6703 CSA certified, in accordance with UL 6703 CQC certified according CNCA/CTS0002-2012	R60127190[5)] R60087448 E343181 250725 CQC16024138286

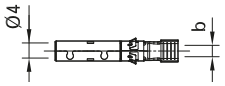
1) Information about a semi-automatic crimp device or assembly device on request
2) Reel type subject to alterations
3) 2Pfg2330: Only for use in PV-systems with restricted access locations
4) For selected configurations; see assembly instructions MA231 for details
5) For PV junction boxes in accordance with IEC62790, lines in accordance with EN50618 must be used

Female and male cable coupler MC4-Evo2

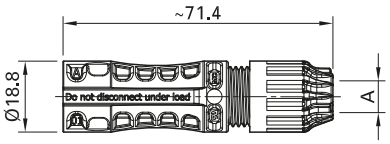
Female and male cable coupler as individual part (including insulating part)

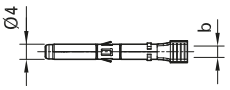
PV-KBT4-EVO 2/...-UR





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





Order No.	Type	Female cable coupler	Male cable coupler	Ø range of cable gland	Conductor cross section			Approvals
				A (mm)	mm²	AWG	b (mm)	
32.0082P0001-UR	PV-KBT4-EVO 2/2,5I-UR	x		4.7-6.4	2.5	14	3	TÜV, cULus, JET, TÜVNord
32.0083P0001-UR	PV-KST4-EVO 2/2,5I-UR		x					
32.0084P0001-UR	PV-KBT4-EVO 2/2,5II-UR	x		6.4-8.4				
32.0085P0001-UR	PV-KST4-EVO 2/2,5II-UR		x					
32.0086P0001-UR	PV-KBT4-EVO 2/6I-UR	x		4.7-6.4	4; 6	12; 10	5	
32.0087P0001-UR	PV-KST4-EVO 2/6I-UR		x					
32.0088P0001-UR	PV-KBT4-EVO 2/6II-UR	x		6.4-8.4				
32.0089P0001-UR	PV-KST4-EVO 2/6II-UR		x					
32.0092P0001-UR	PV-KBT4-EVO 2/10II-UR	x			10	8	7.2	
32.0093P0001-UR	PV-KST4-EVO 2/10II-UR		x					

Note:

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

Sealing caps page 53

Assembly tools page 58

MA

Assembly Instructions MA273

www.staubli.com/electrical

- Internationally certified with IEC, UL, JET, cTÜVus.
- Approved for 1500 V DC (IEC, JET), 1500 V DC (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	Ø 4 mm
Rated voltage	1500 V DC (TÜV) [1)] 1500 V DC (UL) [2)] 1500 V DC (JET) [3)]
Rated current TÜV (85°C)	39 A (2,5 mm^2 / 14 AWG) 45 A (4,0 mm^2 / 12 AWG) 53 A (6,0 mm^2 / 10 AWG) 69 A (10,0 mm^2 / 8 AWG)
Rated impulse voltage	16 kV (1500 V)
Ambient temperature range	-40°C ... +85°C (TÜV / UL)
Upper limiting temperature	115°C (TÜV)
Degree of protection, mated unmated	IP65 / IP68 (1h / 1m) IP2X
Overvoltage category / Pollution degree	CAT III / 3
Contact resistance of plug connectors	≤ 0.2 mΩ
Safety class	II
Contact system	MULTILAM
Type of termination	Crimping
Contact material	Copper, tin plated
Insulation material	PA
Locking system (UL)	Locking type
Flame class	UL94-V0
Ammonia resistance (acc. to TÜV)	Q60095359
Salt mist spray test, degree of severity 6	IEC 60068-2-52
TÜV-Rheinland certified, in accordance with IEC 62852 UL recognized component, in accordance with UL 6703 cTÜVus certified according UL 6703 JET certified according IEC 61730-1:2004	R60127169 E343181 CU 72141256 01 B13T0062

[1)] Please take the cable to be used from MA273

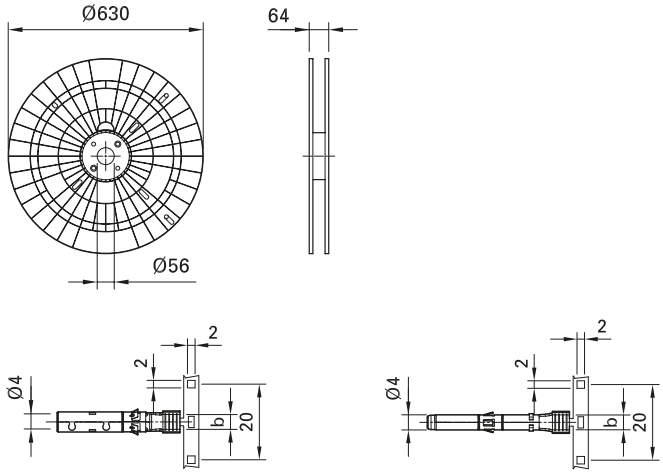
[2)] The connectors are to be used with USE2 or PV-Wire cables.

[3)] The connectors are to be used with cables with the "S-JET mark" label.

Female and male cable coupler MC4-Evo2

Contacts on carrier band (including insulating part)

PV-KBT4-EVO 2/...-UR
PV-KST4-EVO 2/...-UR



Order No.	Type	Female cable coupler	Male cable coupler	Ø range of cable gland	Conductor cross section			Crimping tool	Contacts per reel[2)]	Approvals
				A (mm)	mm²	AWG	b (mm)			
32.0082P2000-UR	PV-KBT4-EVO 2/2,5I-UR	x		4.7-6.4	2.5	14	3	1)	2000	
32.0083P2000-UR	PV-KST4-EVO 2/2,5I-UR		x					1)	2000	
32.0084P2000-UR	PV-KBT4-EVO 2/2,5II-UR	x		6.4-8.4				1)	2000	
32.0085P2000-UR	PV-KST4-EVO 2/2,5II-UR		x					1)	2000	
32.0086P2000-UR	PV-KBT4-EVO 2/6I-UR	x		4.7-6.4	4; 6	12; 10	5	1)	2000	
32.0087P2000-UR	PV-KST4-EVO 2/6I-UR		x					1)	2000	
32.0088P2000-UR	PV-KBT4-EVO 2/6II-UR	x		6.4-8.4				1)	2000	
32.0089P2000-UR	PV-KST4-EVO 2/6II-UR		x					1)	2000	
32.0092P1700-UR	PV-KBT4-EVO 2/10II-UR	x			10	8	7.2	1)	1700	
32.0093P1700-UR	PV-KST4-EVO 2/10II-UR		x					1)	1700	

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

Sealing caps page 53
Assembly tools page 58

MA

Assembly Instructions MA273
www.staubli.com/electrical

- Internationally certified with IEC, UL, JET, cTÜVus.
- Approved for 1500 V DC (IEC, JET), 1500 V DC (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).
- Mating compatibility with MC4 connector family

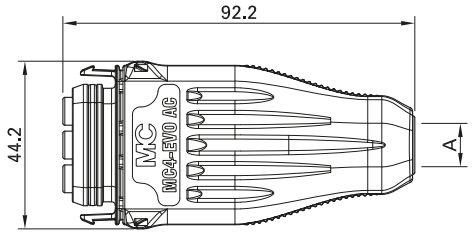
Technical data	
Connector system	Ø 4 mm
Rated voltage	1500 V DC (TÜV) [3] 1500 V DC (UL) [4] 1500 V DC (JET) [5]
Rated current TÜV (85°C)	39 A (2,5 mm^2 / 14 AWG) 45 A (4,0 mm^2 / 12 AWG) 53 A (6,0 mm^2 / 10 AWG) 69 A (10,0 mm^2 / 8 AWG)
Rated impulse voltage	16 kV (1500 V)
Ambient temperature range	-40°C ... +85°C (TÜV / UL)
Upper limiting temperature	115°C (TÜV)
Degree of protection, mated unmated	IP65 / IP68 (1h / 1m) IP2X
Overvoltage category / Pollution degree	CAT III / 3
Contact resistance of plug connectors	≤ 0.2 mΩ
Safety class	II
Contact system	MULTILAM
Type of termination	Crimping
Contact material	Copper, tin plated
Insulation material	PA
Locking system (UL)	Locking type
Flame class	UL94-V0
Ammonia resistance (acc. to TÜV)	Q60095359
Salt mist spray test, degree of severity 6	IEC 60068-2-52
TÜV-Rheinland certified, in accordance with IEC 62852 UL recognized component, in accordance with UL 6703 cTÜVus certified according UL 6703 JET certified according IEC 61730-1:2004	R60127169 E343181 CU 72141256 01 B13T0062

[1] Information about a semi-automatic crimp device or assembly device on request
[2] Reel type subject to alterations
[3] Please take the cable to be used from MA273
[4] The connectors are to be used with USE2 or PV-Wire cables.
[5] The connectors are to be used with cables with the “S-JET mark” label

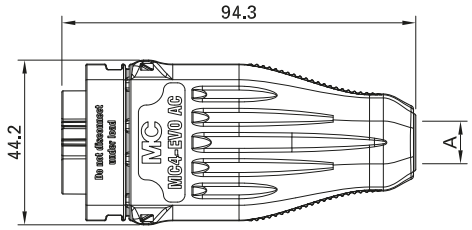
Female and male cable coupler MC4-EvoAC

Preassembled with cable

MC-K...PV-AC1/B...



MC-K...PV-AC1/S...



Order No.	Type	Female cable coupler	Male cable coupler	Conductor cross section		Cable		Rated voltage		Approvals	
				mm²	AWG	Type	Length (cm)	TÜV (V AC)	UL (V AC)	TÜV	
32.1208-10021	MC-K1,5Y3/PV-AC1/BI/100	×		1.5	–	BETAFlam Solar AC flex FRNC	100	250	–	×	
32.1209-10021	MC-K1,5Y3/PV-AC1/SI/100		×	1.5	–						
32.1210-10021	MC-K2,5Y3/PV-AC1/BII/100	×		2.5	–						
32.1211-10021	MC-K2,5Y3/PV-AC1/SII/100		×	2.5	–						
32.1212-10021	MC-K4Y3/PV-AC1/BIII/100	×		4	–						
32.1213-10021	MC-K4Y3/PV-AC1/SIII/100		×	4	–						
32.1214-10021	MC-K1,5Z3/PV-AC1/BII/100	×		–	16	Baohing		–	600		×
32.1215-10021	MC-K1,5Z3/PV-AC1/SII/100		×	–	16						
32.1216-10021	MC-K2,5Z3/PV-AC1/BII/100	×		–	14						
32.1217-10021	MC-K2,5Z3/PV-AC1/SII/100		×	–	14						
32.1218-10021	MC-K4Z3/PV-AC1/BIII/100	×		–	12						
32.1219-10021	MC-K4Z3/PV-AC1/SIII/100		×	–	12						

MA

Assembly Instructions MA284

www.staubli.com/electrical

Sealing caps page 53

Assembly tools page 58

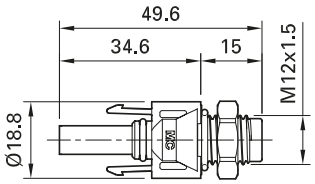
- AC plug connector for micro, nano, and string inverters.
- 250 V (IEC) 600 V (UL)
- MULTILAM technology
- Available preassembled from the factory
- Protection class IP65/IP67
- IP2X unmated protected against contact
- Various codings possible
- Compact form for hidden installation in the module frame or for stackable modules

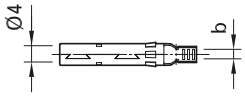
Technical data	
Connector system	MC4
Rated voltage	250 V AC (TÜV) 600 V AC (UL)
Rated current TÜV (85°C)	1.5 mm^2: 16 A 2.5 mm^2: 20 A 4.0 mm^2: 26 A
Rated current UL (85°C)	16 AWG: 26 A 14 AWG: 32 A 12 AWG: 43 A
Rated impulse voltage	4 kV
Ambient temperature range	-40°C...+85°C
Upper limiting temperature	115°C (TÜV)
Degree of protection, mated unmated	IP65/IP67 IP2X
Overvoltage category / Pollution degree	CATIII/3
Contact resistance of plug connectors	0.25 mΩ
Safety class	II (mated condition)
Contact system	MULTILAM
Type of termination	Crimping
Contact material	Copper, tin plated
Insulation material	PC
Locking system (UL)	Snap-in
Flame class	UL94-V1
TÜV-Rheinland certified, in accordance with 2 Pfg 1915 UL recognized component, in accordance with UL 6703	R60126938 E467440

Female and male panel receptacle MC4

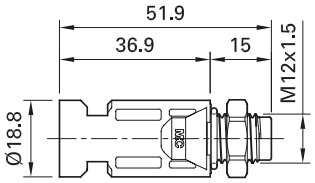
Female and male panel receptacles as individual part (including insulating part)

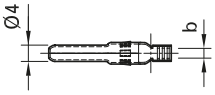
PV-ADBP4-S2...





PV-ADSP4-S2...





Order No.	Type	Female cable coupler	Male cable coupler	Conductor cross section			Approvals		
				mm²	AWG	b (mm)	TÜV		
32.0076P0001-UR	PV-ADBP4-S2/2.5-UR	×		2.5	14	3	×	×	×
32.0077P0001-UR	PV-ADSP4-S2/2.5-UR		×	2.5	14	3			
32.0078P0001-UR	PV-ADBP4-S2/6-UR	×		4; 6	12; 10	5			
32.0079P0001-UR	PV-ADSP4-S2/6-UR		×	4; 6	12; 10	5			
32.0150P0001	PV-ADBP4-S2/10	×		10		7.2	×		
32.0151P0001	PV-ADSP4-S2/10		×	10		7.2			

Note:

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

Sealing caps page 53

Special socket wrench insert page 57

Unlocking tool page 58

Assembly Instructions MA275

www.staubli.com/electrical

- 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

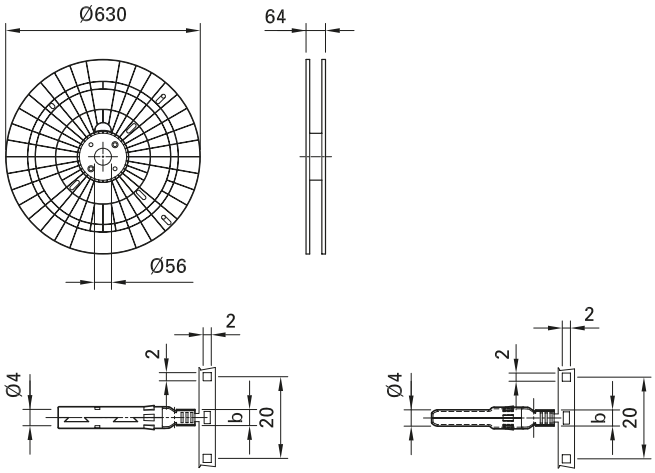
Technical data	
Connector system	Ø 4 mm
Rated voltage	1250 V DC (TÜV) 1500 V DC (UL)
Rated current TÜV (85°C)	22.5 A (2.5 mm^2; 14 AWG) 39 A (4 mm^2; 12 AWG) 45 A (6 mm^2; 10 AWG) 51 A (10 mm^2)
Rated impulse voltage	16 kV (1250 V)
Ambient temperature range	-40°C...+85°C (TÜV/UL)
Upper limiting temperature	105°C (TÜV)
Degree of protection, mated unmated	IP65; IP68 (1 m/1 h) IP2X
Overvoltage category / Pollution degree	CATIII / 3
Contact resistance of plug connectors	≤ 0.25 mΩ
Safety class	II
Contact system	MULTILAM
Type of termination	Crimping
Contact material	Copper, tin plated
Insulation material	PC / PA
Locking system (UL)	Locking type
Flame class	UL94-V0
TÜV-Rheinland certified, in accordance with IEC 62852 UL recognized component, in accordance with UL 6703 CSA certified, in accordance with UL 6703	R60127181 E343181 250725

Note:
Custom made special versions with cable are also available. Lengths and choice of cable ends on request, see page 60

Female and male panel receptacle MC4

Contacts on carrier band (including insulating part)

PV-ADBP4-S2...
PV-ADSP4-S2...



Order No.	Type	Female cable coupler	Male cable coupler	Conductor cross section			Crimping tool	Contacts per Reel[2)]	Approvals		
				mm²	AWG	b (mm)			TÜV		
32.0076P2000-UR	PV-ADBP4-S2/2.5-UR	×		2.5	14	3	[1)]	2000	×	×	×
32.0077P2000-UR	PV-ADSP4-S2/2.5-UR		×	2.5	14	3	[1)]	2000			
32.0078P2000-UR	PV-ADBP4-S2/6-UR	×		4; 6	12; 10	5	[1)]	2000			
32.0079P2000-UR	PV-ADSP4-S2/6-UR		×	4; 6	12; 10	5	[1)]	2000			
32.0150P1700	PV-ADBP4-S2/10	×		10		7.2	[1)]	1700	×		
32.0151P1700	PV-ADSP4-S2/10		×	10		7.2	[1)]	1700			

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

Sealing caps page 53
Special socket wrench insert page 57
Unlocking tool page 58

MA

Assembly Instructions MA275
www.staubli.com/electrical

- Feeder bands for fully automatic assembly
- Tools specially designed for MC4 available for automatic crimping
- Process reliability as result of specially developed supply reel

Technical data	
Connector system	Ø 4 mm
Rated voltage	1250 V DC (TÜV) 1500 V DC (UL)
Rated current TÜV (85°C)	22.5 A (2.5 mm^2; 14 AWG) 39 A (4 mm^2; 12 AWG) 45 A (6 mm^2; 10 AWG) 51 A (10 mm^2)
Rated impulse voltage	16 kV (1250 V)
Ambient temperature range	-40°C...+85°C (TÜV/UL)
Upper limiting temperature	105°C (TÜV)
Degree of protection, mated unmated	IP65; IP68 (1 m/1 h) IP2X
Overvoltage category / Pollution degree	CATIII / 3
Contact resistance of plug connectors	≤ 0.25 mΩ
Safety class	II
Contact system	MULTILAM
Type of termination	Crimping
Contact material	Copper, tin plated
Insulation material	PC / PA
Locking system (UL)	Locking type
Flame class	UL94-V0
TÜV-Rheinland certified, in accordance with IEC 62852 UL recognized component, in accordance with UL 6703 CSA certified, in accordance with UL 6703	R60127181 E343181 250725

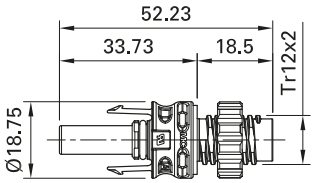
[1] Information about a semi-automatic crimp device or assembly device on request

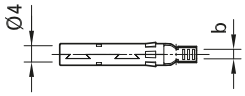
[2] Reel type subject to alterations

Female and male panel receptacle MC4-Evo2

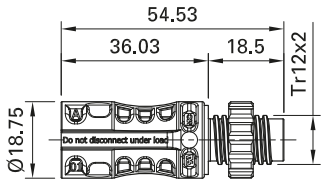
Female and male panel receptacles as individual part (including insulating part)

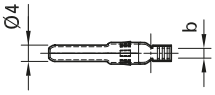
PV-ADB4-EVO 2





PV-ADS4-EVO 2





Order No.	Type	Female cable coupler	Male cable coupler	Conductor cross section			Approvals	
				mm²	AWG	b (mm)	TÜV	
32.0020P0001-UR	PV-ADB4-EVO 2/2,5-UR	×		2.5	14	3	×	×
32.0021P0001-UR	PV-ADS4-EVO 2/2,5-UR		×	2.5	14	3		
32.0022P0001-UR	PV-ADB4-EVO 2/6-UR	×		4.0; 6.0	12; 10	5		
32.0023P0001-UR	PV-ADS4-EVO 2/6-UR		×	4.0; 6.0	12; 10	5		

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

Sealing caps page 53
Unlocking tool page 58

MA

Assembly Instructions MA285
www.staubli.com/electrical

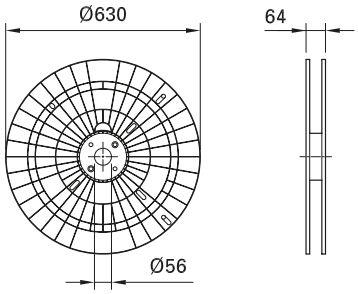
- MC4-Evo2 panel-receptacle connectors are the interface between the inverter or the distributor housing and string
- Assembly directly via the threads or in the perforated plate with the plastic nut (contained in scope of delivery)
- Thanks to the D shape, the threaded connection is secured against turning
- For 1500 V DC (IEC), 1500 V DC (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

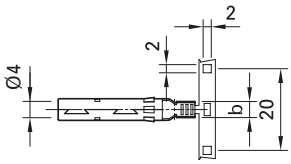
Technical data	
Connector system	Ø 4 mm
Rated voltage	1500 V DC (TÜV) 1500 V DC (UL)
Rated current TÜV	32 A (2.5 mm^2 / 14 AWG) 42 A (4.0 mm^2 / 12 AWG) 47 A (6.0 mm^2 / 10 AWG)
Rated impulse voltage	16 kV (1500 V)
Ambient temperature range	-40°C...+85°C (TÜV) -40°C...+90°C (UL)
Upper limiting temperature	115°C
Degree of protection, mated unmated	IP65; IP68 (1m/1h) IP2X
Overvoltage category / Pollution degree	CATIII / 3
Contact resistance of plug connectors	≤ 0.2 mΩ
Safety class	II
Contact system	MULTILAM
Type of termination	Crimping
Contact material	Copper, tin plated
Insulation material	PA
Locking system (UL)	Locking type
Flame class	UL94-V0
TÜV-Rheinland certified, in accordance with IEC 62852 UL recognized component, in accordance with UL 6703	R60127171 E343181

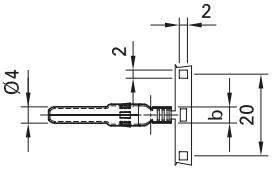
Female and male panel receptacle MC4-Evo2

Contacts on carrier band (including insulating part)

PV-ADB4-EVO 2
PV-ADS4-EVO 2







Order No.	Type	Female cable coupler	Male cable coupler	Conductor cross section			Crimping tool	Contacts per Reel[2)]	Approvals	
				mm²	AWG	b (mm)			TÜV	
32.0020P2000-UR	PV-ADB4-EVO 2/2,5-UR	×		2.5	14	3	[1)]	2000	×	×
32.0021P2000-UR	PV-ADS4-EVO 2/2,5-UR		×	2.5	14	3	[1)]	2000		
32.0022P2000-UR	PV-ADB4-EVO 2/6-UR	×		4.0; 6.0	12; 10	5	[1)]	2000		
32.0023P2000-UR	PV-ADS4-EVO 2/6-UR		×	4.0; 6.0	12; 10	5	[1)]	2000		

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

Sealing caps page 53
Unlocking tool page 58

MA

Assembly Instructions MA285
www.staubli.com/electrical

- Feeder bands for fully automatic assembly
- Tools specially designed for MC4-Evo2 available for automatic crimping
- Process reliability as result of specially developed supply reel

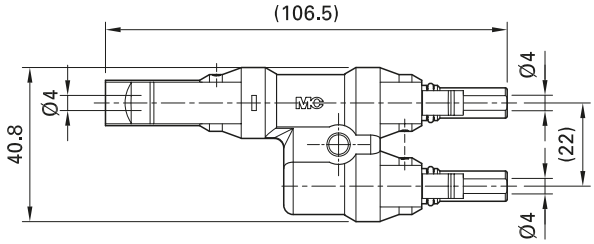
Technical data	
Connector system	Ø 4 mm
Rated voltage	1500 V DC (TÜV) 1500 V DC (UL)
Rated current TÜV	32 A (2.5 mm^2 / 14 AWG) 42 A (4.0 mm^2 / 12 AWG) 47 A (6.0 mm^2 / 10 AWG)
Rated impulse voltage	16 kV (1500 V)
Ambient temperature range	-40°C...+85°C (TÜV) -40°C...+90°C (UL)
Upper limiting temperature	115°C
Degree of protection, mated unmated	IP65; IP68 (1m/1h) IP2X
Overvoltage category / Pollution degree	CATIII / 3
Contact resistance of plug connectors	≤ 0.2 mΩ
Safety class	II
Contact system	MULTILAM
Type of termination	Crimping
Contact material	Copper, tin plated
Insulation material	PA
Locking system (UL)	Locking type
Flame class	UL94-V0
TÜV-Rheinland certified, in accordance with IEC 62852 UL recognized component, in accordance with UL 6703	60127171 E343181

[1] Information about a semi-automatic crimp device or assembly device on request

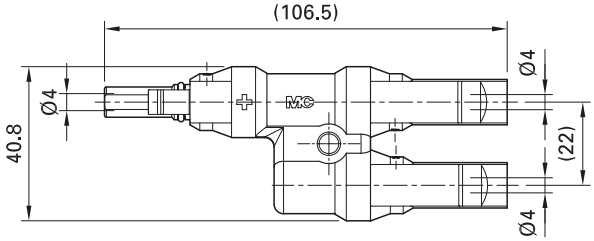
[2] Reel type subject to alterations

Branch socket, branch plug MC4

PV-AZB4



PV-AZS4



Order No.	Type	Description	Approvals
32.0018	PV-AZB4	Branch socket	
32.0019	PV-AZS4	Branch plug	

Sealing caps page 53

Unlocking tool page 58

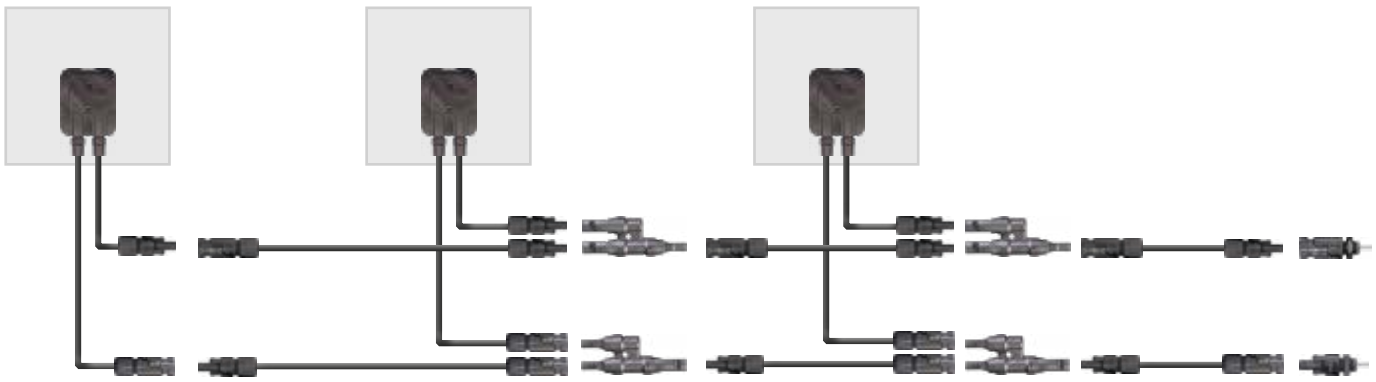
MA

Assembly Instructions MA250

www.staubli.com/electrical

- For a safe and simple parallel or serial-parallel connection of PV-modules.
- Pluggable with single-pole Stäubli PV-cable coupler MC4. Unmated connections must be protected by sealing caps.

Technical data	
Connector system	Ø 4 mm
Rated voltage	1500 V DC (UL)
Rated current	50 A
Rated impulse voltage	12 kV
Ambient temperature range	-40°C…+85°C (UL)
Upper limiting temperature	105°C (Stäubli)
Degree of protection, mated unmated	IP67 IP2X
Overvoltage category / Pollution degree	CATIII / 2
Contact resistance of plug connectors	≤ 0.5 mΩ
Safety class	II
Contact system	MULTILAM
Contact material	Copper, tin plated
Insulation material	PC
Locking system (UL)	Locking type
Flame class	UL94-V0
UL recognized component, in accordance with UL 6703	E343181

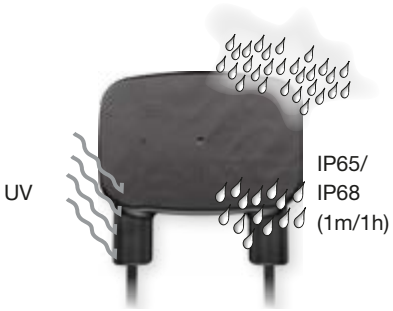


Advantages of the Stäubli junction boxes

Plug connector incorporates tried and tested MULTILAM technology with long-term stability

Protected

IEC 60068-2-52

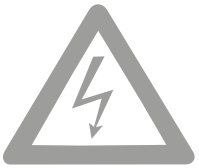


Ammonia

Safety class II

Voltage level

TÜV 1000 V/1500 V
UL 600 V/1000 V



Suitable for customer-specific assembly

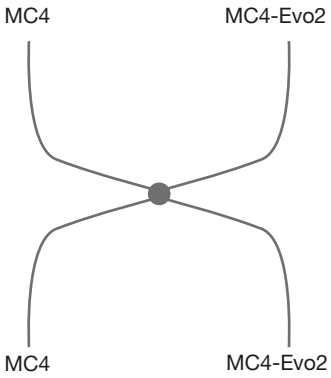
- Connector system
- Diode
- Cable length

3

Connection alternatives

- Welding
- Soldering
- Clamping

Compatibility



Certificates

These products are certified by TÜV Rheinland LGA Gmbh

UL recognized

EAC

CSA

Assembly

Suitable for automated assembly

Overview junction boxes

	Connector Ssytem	Approvals[1)]
For crystalline modules		
PV-JB/WL-H PV-JB/WL-V 	MC4 MC4-Evo2	TÜV EAC UL CSA
PV-JB/MF... 	MC4	TÜV UL CSA
For thin-film modules		
TwinBox PV-JB/TB-... 	MC4	TÜV UL CSA

Legend

Mounting with silicone

Mounting with potting compound

Suitable for customer-specific assembly