

QC Solar (Suzhou) Corporation



File No: QC/IM-QC4.10-cd

Version: A2

Prepared by: Shuang Xiong

Date: 2020.12.07

QC4.10 1500V Connector Installation Manual

Revision History Record Form

NO.	Version	Change Section	Change Content	Date	Remark
1	A0	N/A	Original Issue	2016.12.05	
2	A/1	8. 1	Chemical Resistance Form	2020. 03. 12	
3	A/2	4. 4	The clearance control requirements are refined according to different wire diameters	2020. 12. 07	

QC4.10 1500V Connector Installation Manual

contents

1.warning	4
2.Product Specifications	5
3.product information	
3.1 Picture.....	5
3.2 Drawing.....	5
4.Machine assembly process	
4.1 Stripping.....	6
4.2 Crimping.....	6
4.3 Cable assembly.....	7
4.4 Nut assembly.....	7
5. Manual installation process	
5.1 Requirements for tools.....	8
5.2 Assembly steps.....	9
6.Connecting and disconnecting	
6.1 Connecting.....	10
6.2 disconnecting.....	10
7.Cable status	
7.1 Cable's connection.....	10
7.2 The state after connection.....	10
8. Annex	
8.1Chemical resistance form.....	11
8.2 The Connector liability exemption clause.....	12

QC4.10 1500V Connector Installation Manual

1. warning

- 1.1** During yourself installation, if the used part and tool are not ruled by QC or if you ignore the preparation and operation, we won't insure the safety and compatible of the product technology yourself installation.
- 1.2** For protecting against electric shock, please cut off the power when installing PV connector.
- 1.3** The final products must be supplied with the function electric shock proof.
- 1.4** PVC Cable is not recommended.
- 1.5** Don't pull out the PV connector under loading. Turn off the DC/AC inverter or tum on DC circuit interrupter, making PV connector in unloading. Then insert and extract under voltage is permitted.
- 1.6** H07RN cables without tinned are not recommended. Because the contact resistance of crimping place will probably exceed the permitted value since the copper wires are oxidized.
- 1.7** Sealing cap must be used for disconnected connector, avoiding dust and water.
- 1.8** Waterproof degree for inserted parts is IP68. They can't be put under water for long time. Don't put QC-PV connector on the roof of surface.
- 1.9** Do not use under hydrocarbon, phenol, Ammine and plastic corrosive environment. During installation process, do not add any grease and lubricant in the connector. (See 8.1)

QC4.10 1500V Connector Installation Manual

2. Product Specifications



PV- Female Connector

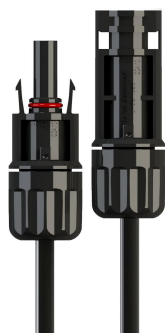


PV- Male Connector

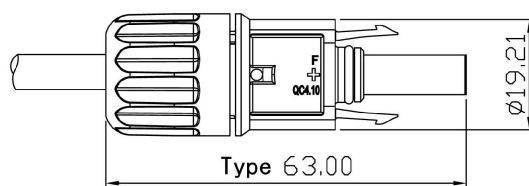
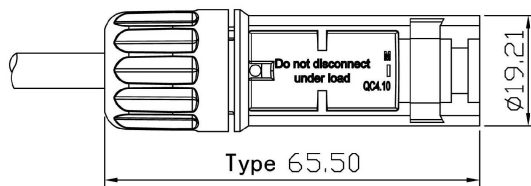
Type	QC4.10 (1500V)
Certifications	TUV/UL
Rated Voltage	IEC1500V/UL1500V
Rated Current	36A for 2.5mm ² 41A for 4.0mm ² 46A for 6.0mm ²
Degree of Protection	IP68
Protection Class	Class II
Resistance of Connector	Max 0.5mΩ
Flammability Class	UL94 V-0
Temperature Range	-40°C~+85°C

3. product information

3.1 Picture



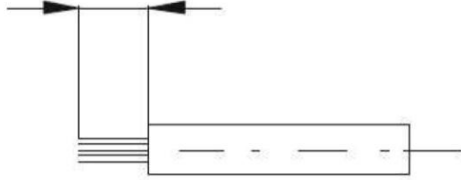
3.2 Drawing



QC4.10 1500V Connector Installation Manual

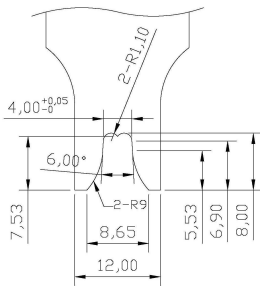
4. Machine assembly process

4.1 Stripping

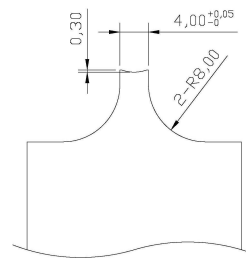
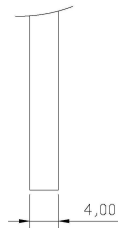


size: $7 \pm 0.5\text{mm}$

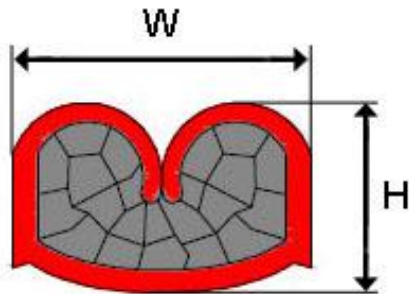
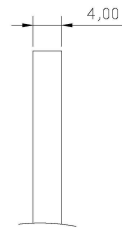
4.2 Crimping



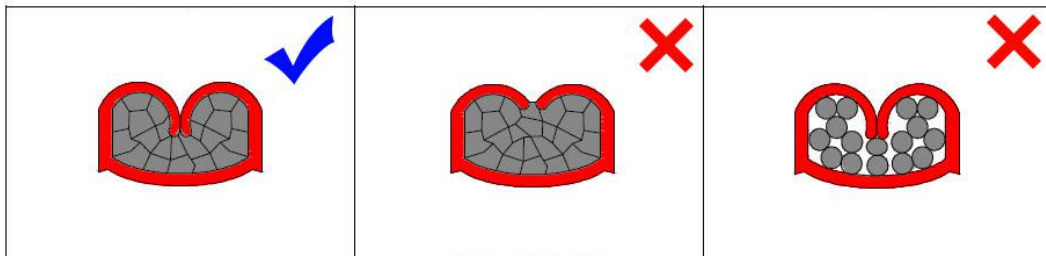
4mm²/12AWG Tool Size(Up)



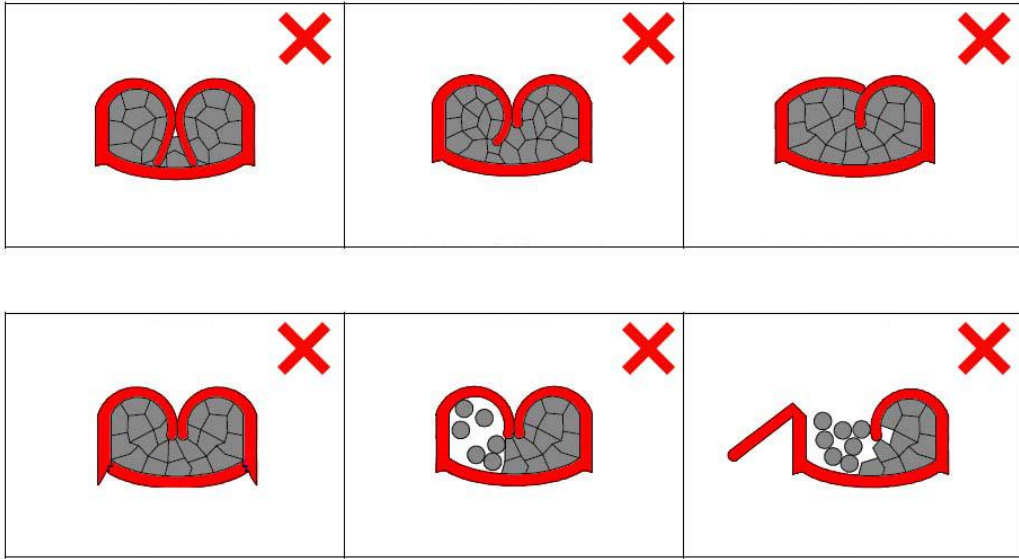
4mm²/12AWG Tool Size(Down)



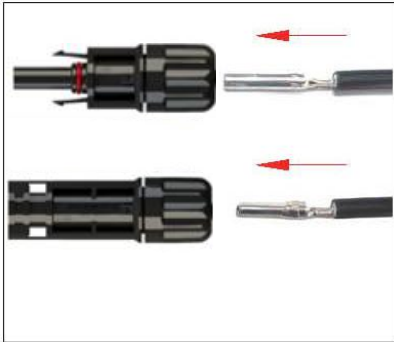
Cable Spec.	Crimping(H)	Crimping(W)
4mm ² /12AWG	$2.3 \pm 0.1\text{mm}$	$4.1 \pm 0.1\text{mm}$
Compression ratio: $70\% \leq X \leq 90\%$		



QC4.10 1500V Connector Installation Manual



4.3 Cable assembly



Push the riveted pin into the insulator until they engage. Pull lightly on the lead to check that the metal part has engaged.

4.4 Nut assembly

No.	Cable Diameter (mm)	Control gap (mm)	Reference torque (N*m)	Remark
1	$5 \leq OD < 6$	$0.1 < X \leq 0.5$	3 ± 0.5 N*m	Please calibration equipment before production, in order to meet the gap between control requirements
2	$6 \leq OD < 6.6$	$0.2 < X \leq 0.6$		
3	$6.6 \leq OD < 7.2$	$0 < X \leq 1.0$		

5. Manual installation process

5.1 Requirements for tools



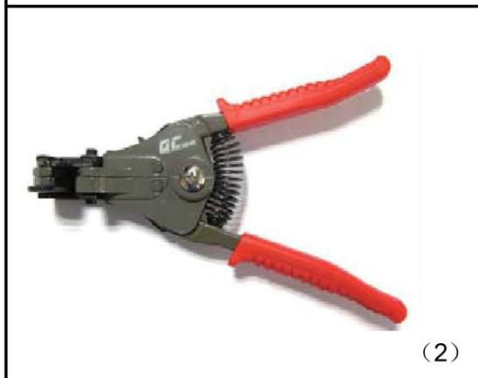
(1)

(1) Tool Box

Manufacturer:

QC Solar (Suzhou) Corporation

Type: 02.04.003



(2)

(2) Strip Clamp

Mark	Crimping Range	
	2.5/14	2.5mm ²
4.0/12	4.0mm ²	12AWG
6.0/10	6.0mm ²	10AWG

Manufacturer:

QC Solar (Suzhou) Corporation

Type: 02.04.008



(3)

(3) Rivet Clamp

Manufacturer:

QC Solar (Suzhou) Corporation

Type: 02.04.007



(4)

(4) Plastic spanner 1 set=2 pieces

Manufacturer:

QC Solar (Suzhou) Corporation

Type: 06.49.115

Mark	Riveting Range	
	2.5/14	2.5mm ²
4.0/12	4.0mm ²	12AWG
6.0/10	6.0mm ²	10AWG

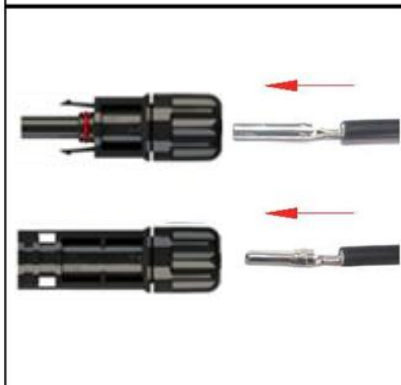
5.2 Assembly steps



(1) Strip the insulating layer of cable.
 $L=7\pm 0.5\text{mm}$. Be attention and not to cut off the wire core.



(2) Rivet terminal. Ensure the concentricity of metal parts and cable at same level, crimped metal parts and cable pull tension $\geq 310\text{N}$.



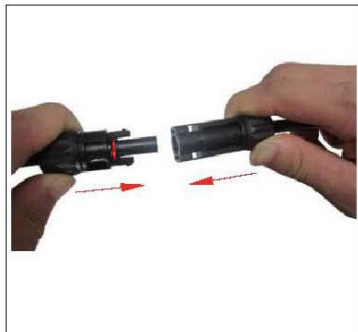
(3) Push the riveted pin into the insulator until they engage. Pull lightly on the lead to check that the metal part has engaged.



(4) Install the cable gland. First screw it by hands, then lock tightly by plastic spanner (pls refer the gap sheet for detailed gap from page one). Ensure the concentricity of cable and cable gland when screw cable gland. Cable gland is detachable, original factory plastic spanner can assembly in site, but not suitable for mass quantity assembly.

6. Connecting and disconnecting

6.1 Connecting



Plug the coupling together until they engage.
And pull lightly to check correct engagement.

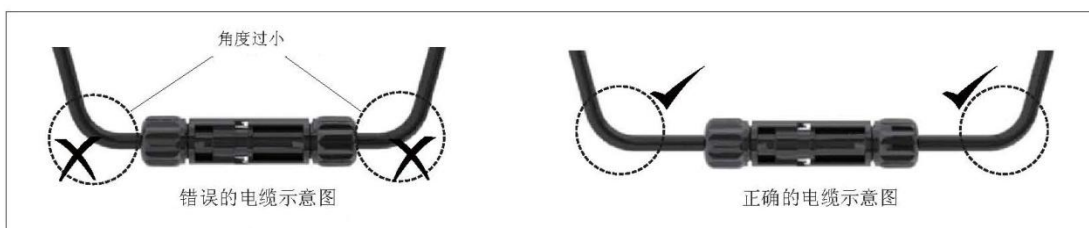
6.2 disconnecting



This connection can only be unlocked with plastic spanner.

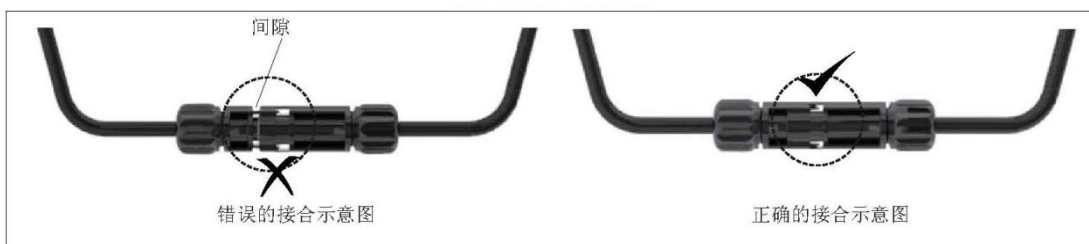
7. Cable status

7.1 Cable's connection



Please refer to the detailed instruction ones of the min bend radius given by manufacturer

7.2 The state after connection



QC4.10 1500V Connector Installation Manual

8. Annex

8.1 Chemical resistance form

Ingredient	Material	Manufacturer	Critical Stress (%) 23°C	Grade
Binder	KE45W/ KE4828W	Shin-Etsu Chemical	> 1.0	A
	TSE382W/ TSE392W	Momentive	> 1.0	A
	PV804/PV8101	Dow Corning	> 1.0	A
	APF125	Wacker Chemical	> 1.0	B
	VHB/TAPE 4941	3M	> 1.0	A
	Chemlok	LORD	0.2-.0.5	C
Filler	PV7010	Dow Corning	> 1.0	A
	KE200/CX 200	Shin-Etsu Chemical	> 1.0	A
	KE210F/CAT 210		> 1.0	A
	RAKUSIL A/B	RAMPF	> 1.0	A
	VU4459/41 SVHF	Peters	0.2-.0.5	C
Greases	Z260/ A7002	/	> 1.0	A
Surfactant	Charmy V quick	Kao	> 1.0	A
Heat reactivator	SC102 compound	Dow Corning	> 1.0	A
Mold release	KF-96SP	Shin-Etsu Chemical	0.2-.0.5	C
	PANDO 39D	Three Bond	< 0.2	D

QC4.10 1500V Connector Installation Manual

	Telicoat S-6	Kukdong oil&chem	0.2-.05	C
	Snowwhit EC	Netherlands	0.2-.05	C
	Telicoat A	Kukdong oil&chem	> 1.0	A
Antirust	Antikor RS Aerosol	technik Gmbh	0.2-.05	C
	D1 MIST	Yamaichi	0.2-.05	C
	Barrier Guard	Yamachi	< 0.2	D
	TFP Spray	Sumico	< 0.2	D
	WD40	WD-40	0.5-.1.0	B
Adhesive	CEMEDINE SuperX No.8008	Cemedine	0.5-.1.0	B
	CEMEDINE SuperX No.8008Y6	Cemedine	> 1.0	A
	CEMEDINE SuperX SX720B	Cemedine	0.2-.05	C
	Chemlok 487A/B	LORD	< 0.2	D
	Chemlok 7701	LORD	< 0.2	D
ALK	Methanol	/	> 1.0	A
	Ethyl alcohol	/	> 1.0	A
	Isopropyl alcohol	/	0.5-.1.0	B
	Ethylene glycol	/	0.5-.1.0	B

QC4.10 1500V Connector Installation Manual

	25% Ammonium water	/	> 1.0	A
	50% sulfuric acid water	/	0.5-.1.0	B
	Sodium chlorid	/	> 1.0	A
	60% phosphoric acid water	/	> 1.0	A
Ketone	Acetone	/	< 0.2	D
	2-Butanone	/	< 0.2	D
Hydrocarbon	Toluene	/	< 0.2	D
	Xylenes	/	< 0.2	D
	Cresol	/	0.5-.1.0	B
Oil	DiaCut	Oelheld	0.5-.1.0	B
	Oily sealing agent	/	< 0.2	D
	Engine oil	/	< 0.2	D
	Base oil	/	< 0.2	D
	kerosene	/	< 0.2	D
	Gasoline	/	< 0.2	D
	varnish	/	< 0.2	D
	Forming oil	/	< 0.2	D
	Cutting oil	/	< 0.2	D
	Heat transfer oil	/	> 1.0	A
Lube oil	/	< 0.2	D	

QC4.10 1500V Connector Installation Manual

	High temperature grease	/	> 1.0	A
	Dry oil	/	> 1.0	A
Others	Hand cream	/	0.5-.1.0	B
	Vaseline	/	> 1.0	A
	Olive oil	/	0.5-.1.0	B
	Butter	/	0.2-.0.5	C
	margarine	/	0.2-.0.5	C
	Soybean oil	/	0.2-.0.5	C

Mark:

Critical stress(%)	Remark	Grade
> 1.0	Secondary factor of cracking.	A
1.0-0.5	Basically, there will be some cracking in the stress concentration area. Need to pay special attention to the use of chemicals.	B
0.5-0.2	Regardless of the static or dynamic stress, there is a risk of cracking. Special attention should not be in contact with chemicals.	C
< 0.2	Exposure to chemicals will have a high risk of cracking.	D

8.2 The Connector liability exemption clause

There exist following case, and lead to product goes wrong, any loss caused, product manufacturers will not take any responsibility,

1 Product transportation and storage

- 1.1 Products in the process of transportation, warehouse, can not stored with "attachment 2" in the table of chemicals together that lead the product pollution with these chemicals;
- 1.2 Products in the process of transportation, warehouse, can not pressure too much on products and such as impact damage behavior;
- 1.3 Products in the process of transportation, warehouse, should room temperature storage, avoid light, should waterproof, dustproof, and should be paid attention to protection, so as not to reduce product performance, pay special attention to product when in power station;
- 1.4 Product health storage for 2 years

2 Product installing and operating environment

- 2.1 The product health working environment temperature - 40 ~ + 85 °C
- 2.2 The Product installing should be in accordance with the QC Solar product installation instructions.
- 2.3 Products in the coastal, desert dust, dust more regional use, before the products leave the factory, they must take the dust cap
- 2.4 Products used in roof power station, the connector shall not directly on the surface of the roof.

3 Products and chemical compatibility See Chemical resistance form

4 The connector under the condition of disconnect, the product will not be able to meet any IP protection grade, also can't normal use

- 4.1 Products meet IP68 degree of protection requirement after connects, while it can't work under water for a long time, or on the roof.
- 4.2 Connector in the case of disconnect, should not placed in the outdoor for long time, so may be the cause of the corrosion of the metal, and lower the connector performance.
- 4.3 Connector in the process of outdoor installation and use, if not to connect in time, please do a good job in the connector protection, put on the dust cap and protect the connector from water, dust and other pollution, affect the product performance.

5 Connector in the process of installation and use should not be collision, drag in the water, grass, and the ground to prevent the pollution of inside the connector before use, reduce the product performance.

6 Connector connect right one

- 6.1 QC Solar brand connector must be connect with the brand "QC Solar", can not connect with other brands on the market.
- 6.2 If the customer need connect with other brand connector, please contact the manufacturer in advance.

This disclaimer final explanation right belongs to the "QC Solar (Suzhou) Corporation" or "QC solar".

QC4.10 1500V Connector Installation Manual

QC Solar(Suzhou) Corporation has the rights to make certain amendment for the printing errors, improvements and innovation for the products, and there will be no prior notice when these changes happen. If there was any misunderstanding for the version in different language, please regard Chinese version as the right one.

QC Solar(Suzhou) Corporation

ADD:No.31,Xinfa Road,SIP,215123,Suzhou,China.

PO No:215123

TEL:+86-512-62603395

FAX:+86-512-62603396

WEBSITE:www.quick-contact.com

EMALE:market@quick-contact.com