连接器安装说明书 PV-JK02M1 Series

Installation Manual for PV-JK02M1 Series Panel Connector

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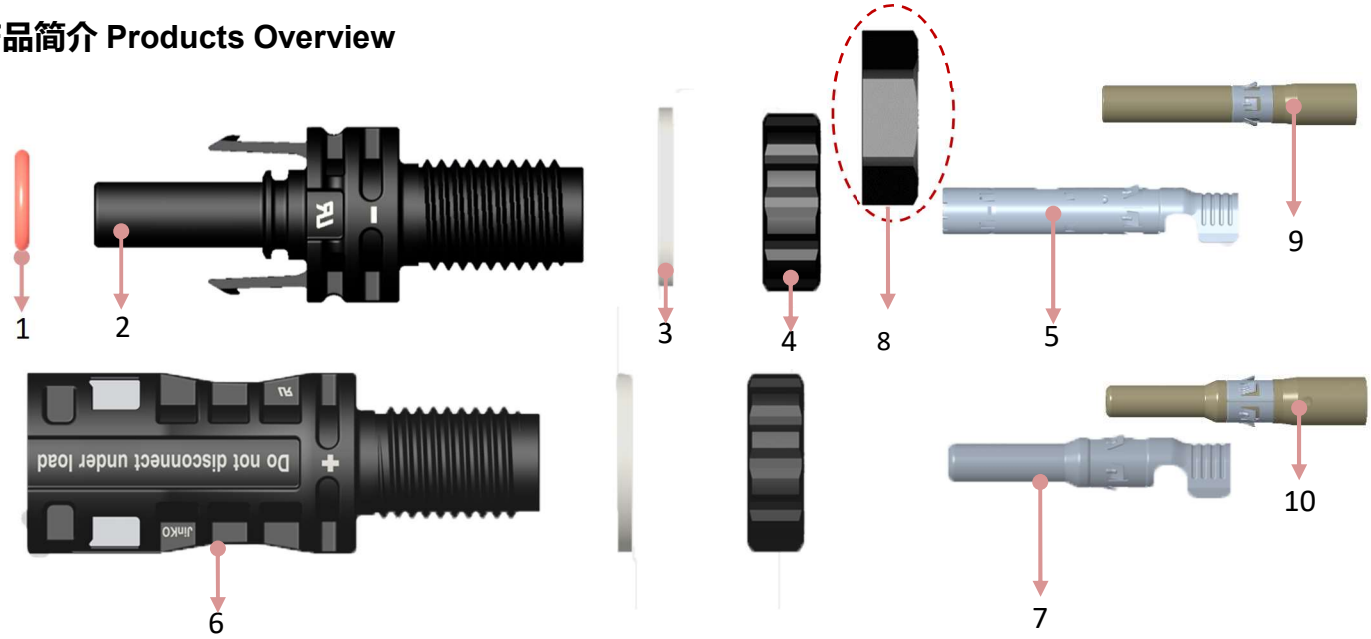
1.产品简介 Products Overview



1 0 型圈（O Ring）

2 母面板插座（Female Panel Receptacle）

3 密封垫圈（Seal Gasket）

4 塑胶螺母-标配（Gland Nut）

5 冲压插套（Stamping Formed Female Terminal）

6 公面板插座（Male Panel Receptacle）

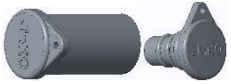
7 冲压插针（Stamping Formed Male Terminal）

8 塑胶螺母-选配（Gland Nut-Optional）

9 机加工插套（Machining Formed Female Terminal）

10 机加工插针(Machining Formed Male Terminal）

2.工具及配件简介 Tools and Parts Overview

Item	Tool Type	Tool Name	Pic.
1	JKT-01	剥线工具 Stripping Tool	
2	JKT-10	剥线工具 Stripping Tool	
3	JKT-02	压接工具 Crimping Tool	
4	JKT-11	压接工具 Crimping Tool	
5	JKT-07	组装工具 Assembly Tool Open-end-Wrench	
6	4JB03M31005 4JB03M31007	防尘塞 Dust Plug	

3.技术参数 Technical Data

型号名称 Type Name or Model No.	PV-JK02M1/ xyz (PV panel connector) (IEC) PV-JK02M1 Series (PV-JK02M1-F/xyzab and PV-JK02M1-M/xyzab) (UL)
额定电压 Rated Voltage (V DC)	1500 V DC 2000 V DC
额定绝缘测试电压 Rated Insulation Test Voltage	8000 V (1500 V DC) 13500 V (2000 V DC)
额定电流(IEC 85℃) Rated Current (IEC 85℃) (A DC)	30 A (2.5mm²/14AWG)；45 A (4.0mm²/12AWG) 50 A (6.0mm²/10AWG)；60 A (10.0mm²/8AWG) 70 A (8AWG/ Machining Formed)
应用等级 Application Class	Class A
过电压等级 / 污染等级 Over Voltage Category / Pollution Degree	CAT III / 2
工作温度范围 Operating Temperature Range	- 40℃ to + 85℃
温度上限 Upper Limiting Temperature	115℃ (IEC)
防护等级 Protection Class	Class II

防火等级 Flame Class	UL94 V-0
防护等级，插合状态 / 未插合状态 Degree of Ingress Protection, mated / unmated	IP65 / IP68(1m, 2h) in mated condition IP2X in unmated condition
电缆截面积 Wire Cross Section Area or Cross Section Range	1X2.5mm²（14AWG）for y=A;(IEC/UL) 1X4.0mm²（12AWG）for y=B; (IEC/UL) 1X6.0mm²（10AWG）for y=C; (IEC/UL) 1X10.0mm² for y=D (IEC) ;1X8AWG for y=E(UL) 1X8AWG （Machining Formed）for y=D(UL)
电缆线径 Cable Diameter	5,00mm to 8,50mm (UL)
可否更换电缆 Can the cable be replaced	No
接触电阻 Contact Resistance	≤0.2 mΩ
触点材料 Contact material	铜，镀锡 Copper, tin plated
绝缘材料 Insulation Material	PA
接线方式 Type of Termination	压接 / Crimping
认证标准 Certification Standard	IEC 62852; UL 6703

Note: IEC PV-JK02M1/xyz , PV-JK02M1-F/xyz, PV-JK02M1-M/xyz (x=R1、D1、R2 or D2, y=A、B、C or D, z=T or H);
UL PV-JK02M1-F/xyzab, PV-JK02M1-M/xyzab (x=R1、D1、R2 or D2, y=A、B、C、D or E, z=T or H, a=1 or 2 , b=1 or 2);

4.工具使用说明 Tools Instruction

✧ 剥线工具 JKT-01：适用于 2.5mm²(14AWG)、4.0mm²(12AWG)、6.0mm²(10AWG)线缆。

The Stripping tool JKT-01 is applicable to 2.5mm²(14AWG) or 4.0mm²(12AWG) or 6.0mm²(10AWG) cable.

一套=1 把

There is one stripping tool JKT-01 per tool set.

作用：裁切电缆线绝缘层（使得铜丝外露）。

Function: Cutting insulation of cable (exposing the copper wire).

Stripping Tool - JKT-01

✧ 剥线工具 JKT-10：适用于 4.0mm²(12AWG)、6.0mm²(10AWG) 、10.0mm²(10AWG)线缆。

The Stripping tool JKT-10 is applicable to 4.0mm²(12AWG) or 6.0mm²(10AWG) or 10.0mm²(8AWG) cable.

一套=1 把

There is one stripping tool JKT-10 per tool set.

作用：裁切电缆线绝缘层（使得铜丝外露）。

Function: Cutting insulation of cable (exposing the copper wire).

Stripping Tool – JKT-10

✧ 压接工具 JKT-02：适用于 2.5mm²(14AWG)、4.0mm²(12AWG)、6mm²(10AWG)线缆。

The Crimping tool JKT-02 is applicable to 2.5mm²(14AWG) or 4.0mm²(12AWG) or 6.0mm²(10AWG) cable.

一套=1 把

There is one crimping tool JKT-02 per tool set.

作用：起到铆接功能，使得电缆线铜丝与金属端子之间的连接与固定。

Function: Crimping copper wire with metal terminals.

Crimping Tool- JKT-02

✧ 压接工具 JKT-11：适用于 10mm²(8AWG)线缆(机加工端子压接钳)：。

The Crimping tool JKT-11 is applicable to 10.0mm²(8AWG) cable (Crimp tool for cold forming contact).

一套=1 把

There is one crimping tool JKT-11 per tool set.

作用：起到铆接功能，使得电缆线铜丝与金属端子之间的连接与固定。

Function: Crimping copper wire with metal terminals.

Crimping Tool- JKT-11

✧ 组装工具 JKT-07：一套=2 把；

Assembly tool JKT-07：There are two assembly tools per tool set.

作用：用于组装拆卸连接器。

Function: Assembling and disassembling connectors.

作用：锁紧螺母

Function: Lock nut

作用：固定连接头

Function: To fix connectors

组装工具：开口扳手（1 套=2 把）

Assembly tool：Open-end Wrench（1 set=2 pieces）

作用：打开紧锁装置

Function: To open the locking device

Assembly Tool -JKT-07

5.安装说明 Installation Instruction

5.1 电缆准备 Cable Preparation

- ✧ 请勿使用无镀锡的或氧化的导线，推荐使用镀锡的导线。
  Do not use untreated or oxidized wire. Tinned wires are recommended.
- ✧ 剥去电缆线端部 L=7-9mm 的绝缘层。
  When stripping the cable insulation “L”, 7mm to 9mm in length should be removed on the end of cable.
- ✧ 剥线时请勿切断内部的铜丝。
  Do not cut the copper wires inside.

- ✧ 把剥线工具的固定块调至 7-9mm 处（控制“L”的长度）。
  The fixed block of the stripper is adjusted to 7-9mm (control the length of "L").
- ✧ 调节完毕后，一手拿取电缆，一手手持剥线工具 JKT-01。
  Take the cable one hand and take the stripping tool JKT-01 the other hand.

- ✧ 将电缆线的端部放至对应的刀口处，并使电缆的端部触碰到固定块（如图 1）。

  Insert the cable until the end touches fixed block (Fig. 1).

- ✧ 手用力压紧剥线工具的手柄，最后切除绝缘层（如图 2）。

  Squeeze the handle of the stripping tool by hand, then cut and remove the insulation of cables (Fig. 2).

Figure 1

Figure 2

5.2 压接 Crimping

5.2.1 压接工具压接 Tools Crimping

✧ 使用专用压接工具（类似 JKT-02）压接时，先将已剥好的线缆线芯放入端子槽内，并确保所有芯线都在端子槽内，然后将要压接的端子放入压线钳钳口，并对应正确的定位器孔位压接（见图 3 至图 7），压接完成后检查压接是否牢固（如图 8），压接后电缆拉力要求需满足表 1 要求。

When crimping with specified crimping tools（e.g. JKT-02）, insert striped cable into contact barrel and insure all conductor strands are captured in the contact barrel. Crimp contact barrel by using the corresponding crimping die, refer to figure 3 to 7 for details. Check whether the crimping is firm after the crimping was completed (Fig. 8). The cable force after crimping must meet the requirements in Table 1.

表 1 （Table 1）

No.	线缆规格 Cable Specification	电缆压接拉力要求 Cable Crimping Pull-Out Force
1	2.5mm²/14AWG	≥223 N (Min.223 N)
2	4.0mm²/12AWG	≥310 N (Min.310 N)
3	6.0mm²/10AWG	≥360 N (Min.360 N)
4	10.0mm²/8AWG	≥400 N (Min.400 N)

- ✧ 打开压接工具并按住夹子，把插针/插套放在合适的界面区域，转动插针/插套使开口朝上，松开夹子，插针/插套即被固定（如图 3&4）。

  Open the crimping tool and press the clip. Insert the male/female terminal into appropriate groove until fully seated. To make the opening of the male/female terminal face up (Fig. 3 & 4).

- ✧ 逐渐压压接工具直到插针/插套开口完全接触到压接模（如图 5）。

  Squeeze the crimping tool gradually until the male/female terminal totally touches the crimping mold (Fig. 5).

Figure 3

Figure 4

Figure 5

- ✧ 将电缆线的剥线端插入插针/插套的开口内直到电缆线的绝缘层接触到插针/插套开口处，最后完全压紧压接工具（如图 6&7）。

  Insert the stripped wire into the male/female terminal until the cable insulation touches the opening of the male/female terminal. Press the crimping tool completely (Fig. 6&7).
- ✧ 检查压接完整且牢固（如图 8）。

  Be sure the crimping is complete and fixed (Fig. 8).

Figure 6

Figure 7

Figure 8

5.2.2 自动压接设备压接 Automatic Machine Crimping

- ✧ 客户用自动铆接设备对线缆进行压接时，建议压接规范如表格 2 和表格 3。
  When the customer uses the automatic crimping machine, we suggest that the contact crimping specification should meet the requirements of table 2 and table 3.
- ✧ 需要定期对压接结构做剖面分析，分析内容应涵盖如下（参考 Fig. 9&10）。
  It is very important to do the section analysis, which contains the items as follows（Fig.9&Fig.10）.
- ✧ 如压缩比率无法达到推荐的技术要求，建议在电缆与导体连接处采用二次加锡工艺固定，确保其可靠连接。
  If the compression ratio cannot meet the recommended technical requirements, using a secondary tinning process to fix the connection between the cable and the conductor to ensure a reliable connection.

表格 2 线缆截面分析(Table 2 Cable cross-section analysis)

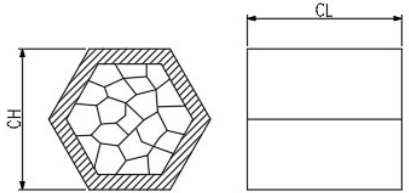


Figure 9

No.	截面规格 Cross section specification		技术要求 Technical requirement
			8AWG/10mm²
1	CH	压接高度 Crimp Height	4.8±0.1mm
2	CL	压接长度 Crimp Length	8.00±0.5mm

注意：上述剖面分析仅针对 8AWG/10mm² 线缆。
Note: The above cross section analysis are only for 8AWG/10mm² cable.

表 3 线缆截面分析(Table 3 Cable cross section analysis)

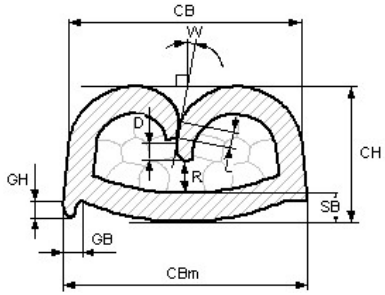


Figure 10

No.	截面规格 Cross section specification		技术要求 Technical requirement	
			12AWG / 4mm²	10AWG / 6mm²
1	CH	压接高度 Crimp Height	2.30±0.20mm	2.60±0.20mm
2	CB	压接宽度 Crimp Width	4.00±0.10mm	4.25±0.10mm
3	CBm	可测量压接宽度 Measurable Crimp Width	1.0*CB≤CBm≤1.1*CB	1.0*CB≤CBm≤1.1*CB
4	D	羽翼尖端间距 Crimp face Ends	D ≤ 0.35mm	D ≤ 0.35mm
5	GH	毛刺高度 Burr Height	GH ≤ 0.7mm	GH ≤ 0.7mm
6	GB	毛刺宽度 Burr Width	GB ≤ 0.5mm	GB ≤ 0.5mm
7	CH / CB	高度/宽度比率 Crimp Height/Crimp Width	50%≤(CH / CW)≤70%	50%≤(CH / CW)≤70%
8	C/ R	压缩比率 Compression Ratio	75%≤C / R≤85%	75%≤C / R≤85%
9	P	孔隙率 Void Ratio	≤1.00%	≤1.00%
10	W	压接(支撑)角度 Crimp (Support) Angle	0°≤W≤30°	0°≤W≤30°
11	L	羽翼支撑长度 Support Length	L≥¼*S but minimum L≥ 0.1mm	L≥¼*S but minimum L≥ 0.1mm
12	R	压接翼与底部距离 Flank End Distance	R≥0.5*S	R≥0.5*S
13	SB	底部厚度 Bottom Thickness	SB≥¾*S	SB≥¾*S

注意:上述剖面分析仅针对 12AWG / 4mm² &10AWG / 6mm² 线缆;端子材料厚度表中简称“S”.

Note: The above cross section analysis are only for 12AWG / 4mm²&10AWG / 6mm² cable; terminal material thickness referred as "S".

✧ 压接刀具图纸参考（如图 11&12）

Crimping Tool Drawing for reference (Fig. 11&12)

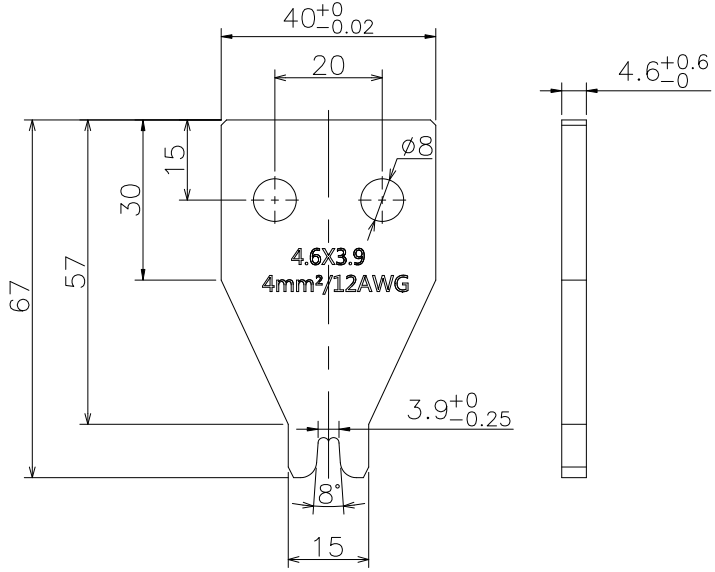


Figure 11 上刀模（Up Blade）

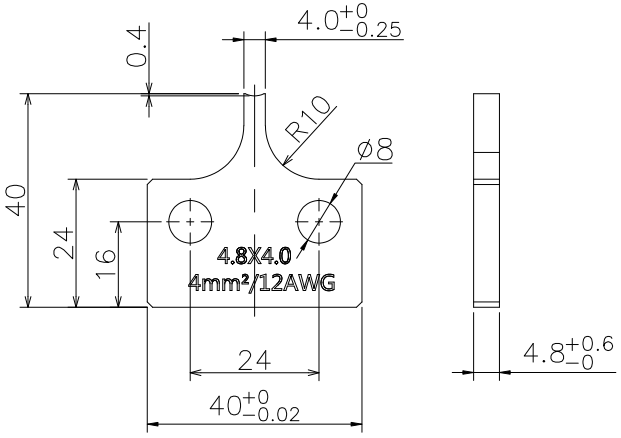


Figure 12 下刀模（Down Blade）

注意：上述压接刀具图纸仅针对 12AWG/4mm²线缆。

Note: The above crimping tool drawing are only for 12AWG/4mm^2 cable.

✧ 压接刀具图纸参考（如图 13&14）

Crimping Tool Drawing for reference (Fig 13&14)

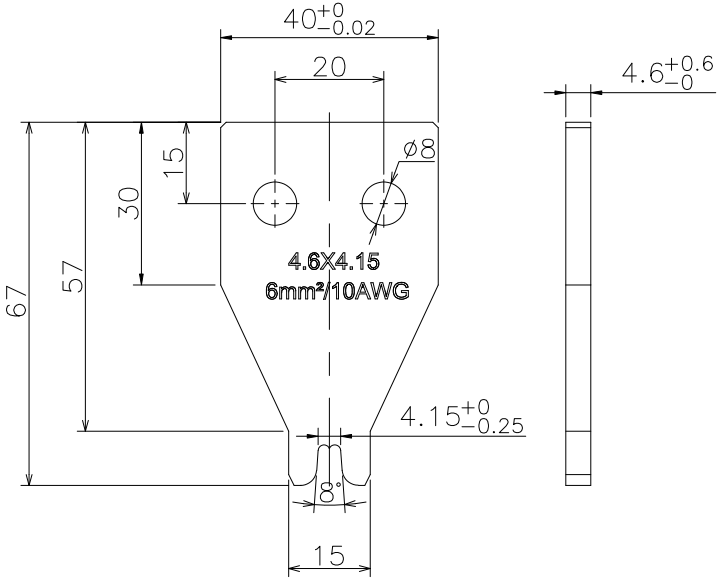


Figure 13 上刀模（Up Blade）

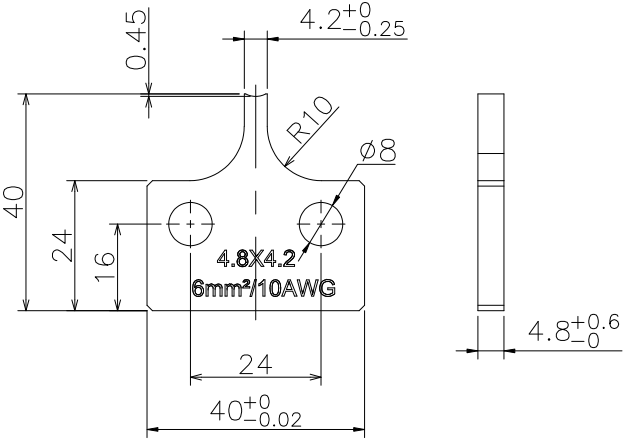


Figure 14 下刀模（Down Blade）

注意：上述压接刀具图纸仅针对 10AWG/6mm² 线缆。

Note: The above crimping tool drawing are only for 10AWG/6mm² cable.

5.3 插座安装 Installation of Receptacles

- ✧ 请确保面板厚度不小于 2mm 且最大不超过 6mm。在面板厚度小于 2mm 的情况下，验证过程需由客户来完成。
  Ensure that the thickness of the panel is no less than 2mm and no more than 6mm. In cases where the panel thickness is less than 2mm, the verification process is done by the customer.
- ✧ 面板钻孔。钻孔的建议尺寸如图 15，所有钻孔边缘的毛刺需要清除。我们建议，无论水平或垂直结构，间距值（X）至少要有 25mm(如图 15)。
  Drill holes at the panel wall. The proposed size of the borehole is shown in Figure 15. We recommend that the spacing value (X) is at least 25mm for both horizontal and vertical structures (Figure 15).
- ✧ 在公/母面板连接器插入钻孔前，请确保已安装防水垫圈，且防水垫圈安装在墙板的外侧(如图 16)
  Please ensure seal gasket is located and positioned outside of the mounting surface before the male or female panel connector inserts the drilled hole (Fig.16).

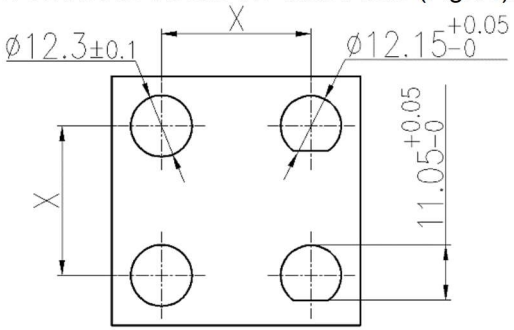


Figure 15

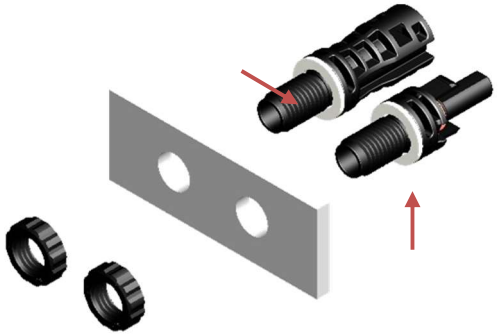


Figure 16

- ✧ 安装公/母面板连接器时，推荐用 2.0 N.m 的扭矩锁紧螺母。具体情况，需要由终端用户根据不同的面板验证合适的扭矩(如图 17)。

  When installing the male or female panel connector, it is recommended to use 2.0 N.m torque lock nut. The appropriate torque has to be verified in the end use according to the respective housing (Fig.17).

- ✧ 安装后目测检查，确保防水垫圈没有破裂、折痕及其他干扰物。

  No cracks, folds or other disturbances during a visual check after assembling.

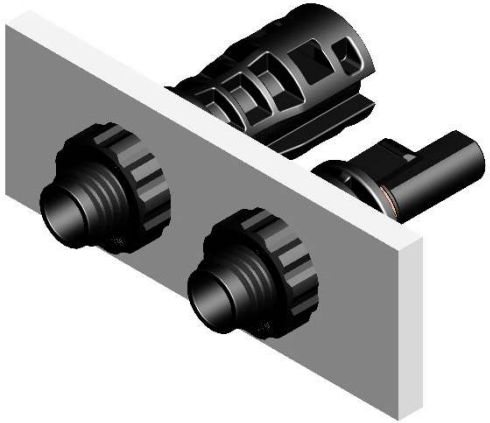


Figure 17

5.4 插针/插套安装 Male/Female Terminals Installation

✧ 压接好的插针/插套插入到公端面板连接器/母端面板连接器内，直至其啮合（如图 18）。轻轻拉动导线，检查金属件是否啮合牢固（如图 19）。

Insert the crimped male or female terminals into corresponding male or female panel connectors separately until they engaged (Fig.18). Pull lightly on the lead to check that the metal part has engaged (Fig. 19).

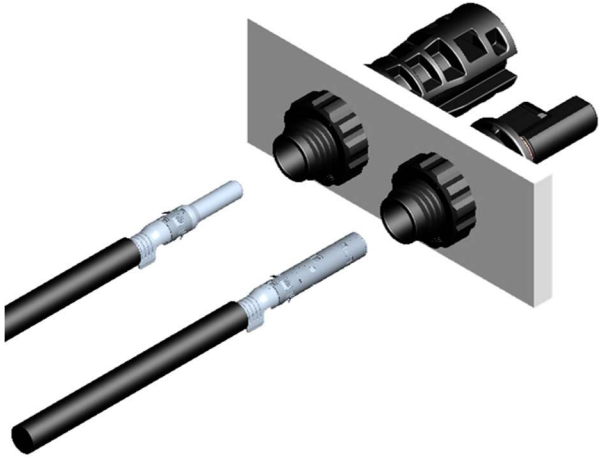


Figure 18

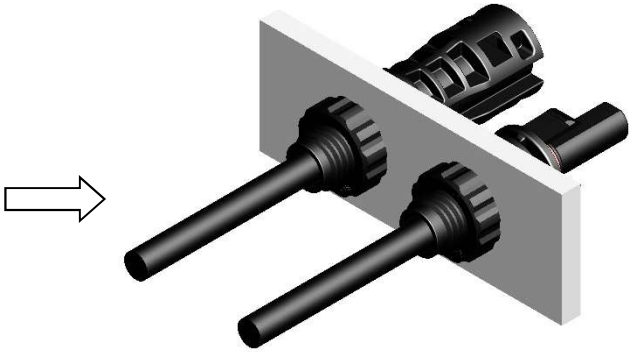


Figure 19

✧ 公母连接器插合：将公/母电缆连接器插入母/公面板连接器，直至其啮合。轻轻拉动，以检查是否啮合牢固（如图 20&21）。同时检查公母连接器有无对配不到位现象（如图 22）。

Insert the Male/ female cable connector into the female/ male panel connector until they engaged. And pull lightly to check correct engagement (Fig. 20&21). At the same time, check whether the male and female connectors are in place or not (Figure 22).

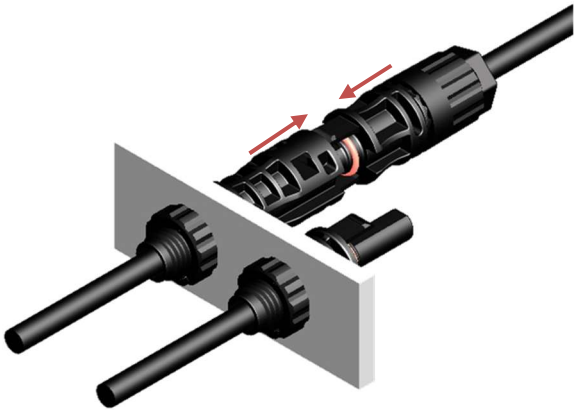


Figure 20

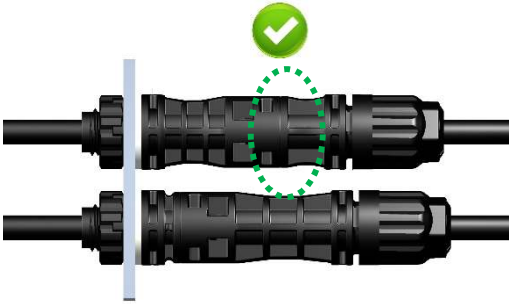


Figure 21

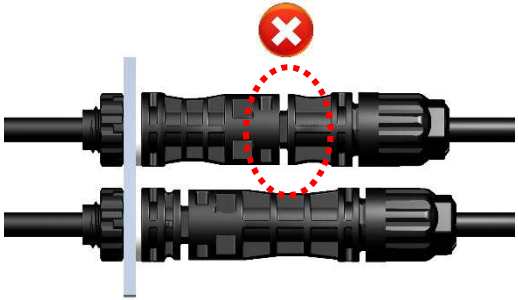


Figure 22

5.5 连接器拆卸 Disconnecting Connector

- ✧ 使用组装工具(类似 JKT-07)带有插销的一端插入连接器的卡扣位置（如图 23）。
  Insert the forks into the buckle of the connector by the assembly tool such as tool JKT-07(Fig. 23).
- ✧ 拉拔电缆连接器，即可分开公母连接器（如图 24&25）。
  Pull the cable connector by hand respectively. The connector can now be separated (Fig. 24 &25).

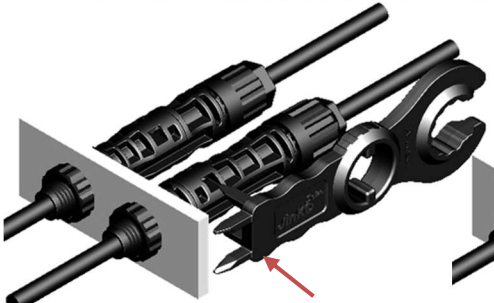


Figure 23

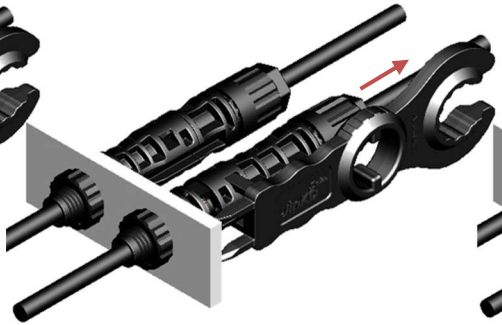


Figure 24

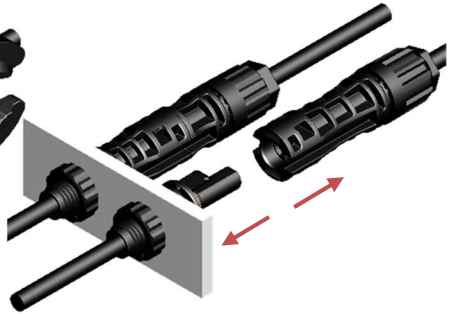


Figure 25

5.6 安装提示 Installation Warning

- ✧ 在自行安装时，如果所用的部件和工具不是 JinKO 官方指定的，或者没有按照官方要求进行准备和安装操作，我们将不保证产品的安全性和技术参数的一致性。
  If parts and tools used are not specified by JinKO or not prepared and assembled as JinKO described during installation, the safety and technical data on products are not guaranteed.

- ✧ 产品在运输、储存过程中，不可有过分承压，撞击等破坏产品的行为。
  During the transportation and storage, there should be no excessive pressure, impact and other acts of damaging the product;
- ✧ 产品在运输、储存时应注意避光、防水、防尘等。
  The product should be protected from light, water and dust during transportation and storage;
- ✧ 连接器只有按照安装说明指定的方式组装时，才被认定符合 UL 6703。
  The connector is considered to be in compliance with UL 6703 only when assembled in the manner specified by these assembly instructions.
- ✧ 在安装过程中，应避免接触汽油、机油、丙酮、酒精、脱膜剂、灌封胶、TBP、清洗剂、除草剂、防锈剂、除垢剂等可能会造成连接器功能失效的物质，同时需注意施工人员的手套不能带有以上物质。被污染的连接器不能插合使用。
  During the installation process, it should be avoided to contact with gasoline, oil, acetone, alcohol, mold release agent, potting glue, TBP, cleaning agent, herbicide, rust inhibitor, scale remover and other substances that may cause connector function failure. At the same time, the construction personnel's gloves must not contain the above substances. The contaminated connector cannot be inserted and used.
- ✧ 连接器在安装、使用过程中，不可将连接器拖在水中、草丛中、地上等，防止连接器使用前内部受到污染，降低产品性能。
  During installation and using, the connector must not be dragged in the water, grass, ground, etc., to prevent the connector from internal pollution and reduction of product performance before using.

- ✧ 在负载的情况下，禁止断开光伏连接器。可通过关闭直流/交流转换器或切断交流电信号，使其处于无载状态，则可在允许范围带电插拔。
  PV connectors must not be disconnected while under load. They can be placed in a not load state by switching off the DC/AC converter or breaking the AC circuit, then insertion and removal is permitted within the allowable range.
- ✧ 长期不对插连接或断开连接时必须盖上防尘塞（4JB03M31005&4JB03M31007）以防止灰尘和湿气。同时产品在沿海、沙漠等粉尘、粉尘、灰尘多的地域使用，产品出厂前必须带防尘帽。
  When disconnected for a long time, the dust plug（4JB03M31005&4JB03M31007） must be covered to prevent dust and moisture. On the other hand, if the product is going to be used in dust areas such as coastal and desert, it should come from factory directly with the dust plugs.
- ✧ 插合状态后的连接器符合 IP68 水密性的标准。但是它们不适合长期在水下使用。请勿将连接器直接放置在屋顶表面。连接器在未耦合情况下，产品将不能满足任何 IP 防护等级，也不能正常使用。
  The connector in the plugged state meets the IP68 watertight standard. They are not suitable for long-term underwater use. Also, do not place the connector directly on the roof surface. If the connector are not coupled, the product will not meet any IP protection class and will not be used normally.
- ✧ 连接器不能承受持续垂直于产品外力。
  The connector cannot withstand continuous external forces perpendicular to the product.
- ✧ 出于安全原因，强烈建议在专业人员指导下进行操作。
  For safety reason, it is highly recommended to operate under the guidance of professionals.
- ✧ 此连接器只适用于 B 类和 C 类铜导线(参见 NFPA NEC 70 第 9 章，表 10) 。

This connector is only suitable for copper wires of Class B and Class C (Refer to Table 10, Chapter 9, NFPA NEC 70).

✧ 电气安装说明应包含根据美国国家电气规范 ANSI/NFPA 70 所使用的布线方法的详细描述。

The electrical installation instructions shall include a detailed description of the wiring method to be used in accordance with the National Electrical Code, ANSI/NFPA 70.

备注：连接器安装过程中操作困难或无法操作，请参照如下联络方式询问、查询：

Notes: If you have any questions during installation, please contact us as follows:

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Jiangxi Jinko PV Material Co., Ltd.

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6.变更清单 Change List

版本号 Ver.	修订内容 Rev. content	修订日期 Rev. date
A0	初版发行 First edition	2020.03.26
A1	更新格式 Update format	2020.11.20
A2	更新 UL logo Update UL logo	2021.08.17
A3	更新技术参数和联系方式 Update technical data and contact information	2022.04.28
A4	调整压接高度和压接刀具图纸尺寸公差范围 Adjust the tolerance range of crimp height and crimping tool drawing dimension	2024.10.10
A5	1、修正英文描述，增加四项线缆截面分析内容和公母连接器未对插到位图示，增加安装提示说明， 2、修改部分英文描述 1、Modified the English description, added four items of cable cross section analysis and the figure indicating that the male and female connectors are not inserted properly, and added installation tips 2、Revise some English descriptions.	2025.05.24