JinkoSolar Switzerland AG

Chamerstrasse 85
6300 Zug SWITZERLAND
Tel: +41 41 748 0010
Fax: +41 41 748 0019

JinkoSolar GmbH

Freisinger Straße 9
85716 Unterschleißheim GERMANY
Fax: +49 89 1433246-29

JinkoSolar Enerji Teknolojilero A.Ş.

NİDA KULE İş Merkezi Göztepe Merdivenköy
Mah. Bora Sk. No:1, Kat:7 34732, Kadıköy,
Istanbul, TURKEY

www.jinkosolar.eu | Technical Support: cs.eu@jinkosolar.com

Building **Your Trust** in Solar

Installation Manual for PV-JK03M2/xy Series Cable Connector

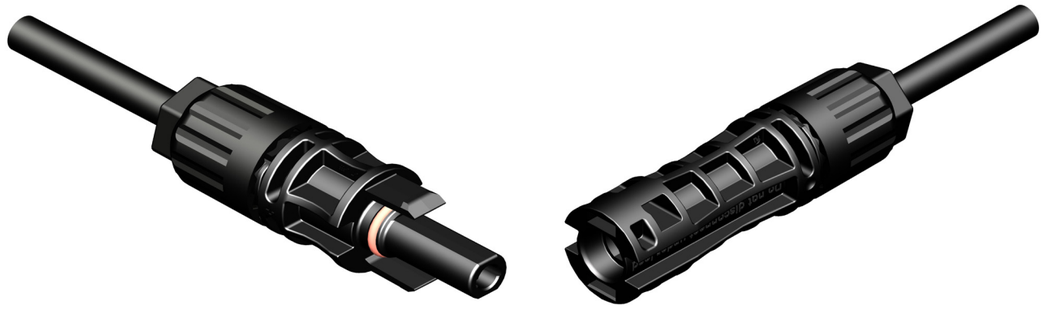
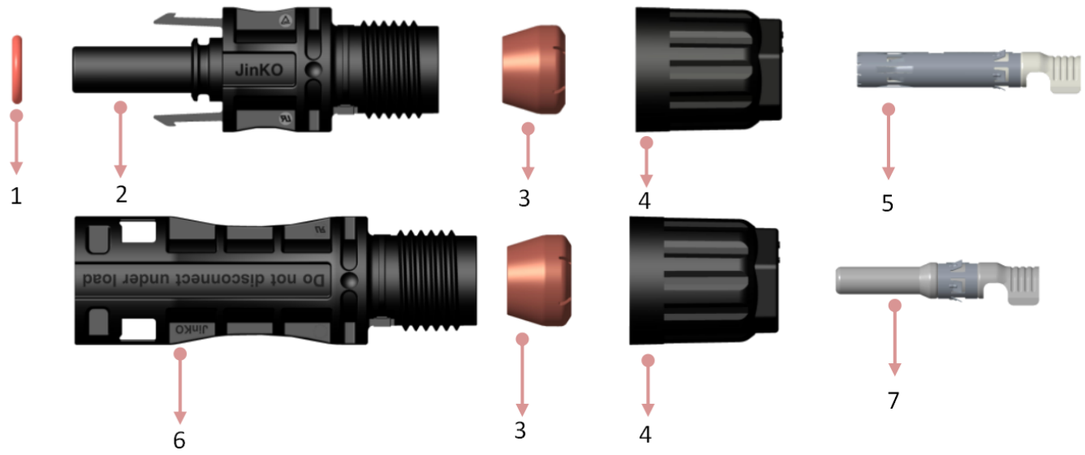


Table of Content

1.Products Overview



1. O Ring
2. Male Housing
3. Cable Gland
4. Gland Nut
5. Female Terminal
6. Female Housing
7. Male Terminal

2.Tools and Parts Overview

Item	Tool Type	Tool Name	Pic.
1	**JKT-01**	Stripping Tool	
2	**JKT-02**	Crimping Tool	
3	**JKT-06**	Assembly Tool Open-end-Wrench	
4	**JKT-04**	Universal Tool	
5	**4JB03M31005** **4JB03M31007**	Dust plug	
6	**JKT-08**	Torque wrench	

3.Technical Data

Type Name or Model No.	**PV-JK03M2-F/xy, PV-JK03M2-M/xy**
Rated Voltage (V DC)	1500 V DC
Rated Insulation Voltage	8000 V (1500 V DC)
Rated Current (A DC)	30 A (2.5mm²/14AWG) 45 A (4.0mm²/12AWG) 50 A (6.0mm²/10AWG) 60 A (10.0mm²/8AWG)
Application Class	Class A
Protection Class / Pollution Degree	Class II / 2
Ambient Temperature	-40℃ to +85℃
Upper Limit Temperature	115℃
Over Voltage Category	CAT III
Flammability Class	UL94 V-0
Degree of Protection, mated / unmated	IP65/ IP68 (1m, 2h) in mated condition IP2X in unmated condition
Wire Cross Section Area or Cross Section Range	1X2.5mm²(14AWG) for x=1 ; 1X4.0-6.0mm² (12AWG/10AWG) for x =2 ; 1X10.0mm²(8AWG) for x=3 ;
Rewireable	No
Cable Diameter	4.7mm to 8.0mm
Contact Resistance	≤ 0.2 m Ω
Contact material	Copper, tin plated
Insulation Material	PA
Existence of an enclosure	Enclosed connector
Certification Standard	IEC 62852 Edition 1.0 2014-11; UL6703

Note: PV-JK03M2-F/xy ; PV-JK03M2-M/xy (x=1 or 2, y=B or C)

4.Tools Instruction

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

There is one stripping tool JKT-01 per tool set.
Function: Cutting the wire insulation (exposing the copper wire).

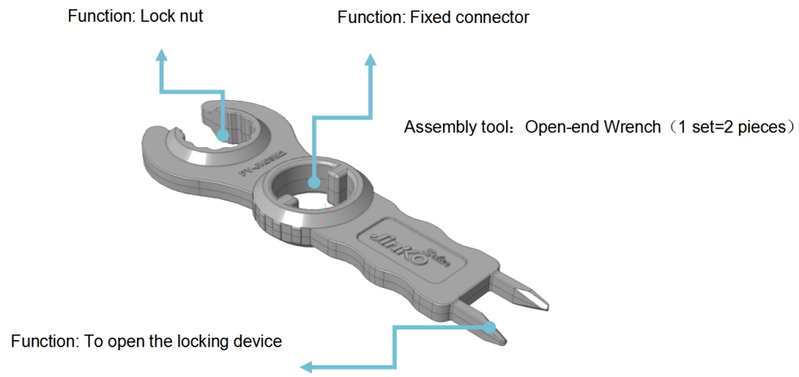
Stripping Tool - JKT-01

JKT-02：2.5mm²(14AWG)、4.0mm²(12AWG)、6mm²(10AWG)
The Crimping Tool-JKT-02 is applicable to 2.5mm²(14AWG) or 4.0mm²(12AWG) or 6.0mm²(10AWG) cable.

There is one crimping tool-JKT-02 per tool set.
Function: The connection and crimping between the copper wire and metal terminals are all made by the crimping tool.

Crimping Tool- JKT-02

JKT-06:
Assembly Tool -JKT-06：There are two assembly tools per tool set.
Function: Used for assembling and disassembling connectors.



Assembly Tool -JKT-06

5.Installation Instruction

5.1 Cable Preparation

TÜV, TÜV/UL
Connector configuration in combination with TÜV, TÜV/UL
TÜV、TÜV/UL：
Choose the suitable configuration in Tab. 1 by using TÜV, TÜV/UL (dual) certified cables:

Table-1

Conductor cross section		Ø-range of the cable (mm)	Chose Cable Gland	Connector configuration
mm²	AWG			
2.5	14	4.7~6.4	Black	PV-JK03M2/xB
4	12	4.7~6.4	Black	PV-JK03M2/xB
6	10	6.4~8.0	Red	PV-JK03M2/xC
10	8	6.4~8.0	Red	PV-JK03M2/xC

Do not use untreated cables. Tinned wires are recommended. L=7-9mm
When stripping the cable insulation “L”, 7mm to 9mm in length should be removed on the end of cable.
Do not cut the copper wire inside.

- 7-9mm “L”
- Fix the stripping tool, cutting length to 7mm to 9mm (the length of L should be fixed). Take the cable one hand and take the stripping tool-JKT-01 the other hand.

  Insert cables until the end touches fixed block. (Fig. 1)
  Squeeze the handle of the stripping tool by hand, then cut and remove the cable insulation. (Fig. 2).

Figure 1

Figure 2

5.2 Crimping

5.2.1 Manual Tools Crimping

JKT-02
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, See below pictures from Fig.3 to Fig.7. Check whether the crimping is firm after the crimping is completed. (Fig. 8). The pull-out force has to meet below table-2.

Table-2

No.	Cable Size	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)

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

Figure 3

Figure 4

Figure 5

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).

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

Figure 6

Figure 7

Figure 8

5.2.1 Automatic Machine Crimping

If customer use the automatic crimping machine, we suggest that the contact crimping spec. should meet the table-3 requirements.

It is very important to do a micro-cutting tests, the test should be contained following items:(REF. Fig.9).

(Table-3 Cable cross-sectional Analysis)

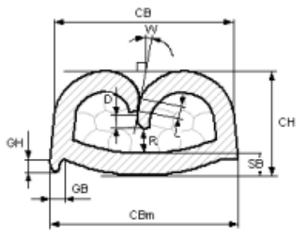


Figure 9

NO.	Cross-Sectional		Spec.	
			12AWG/4mm²	10AWG/6mm²
1	CH	Crimp Height	2.30±0.05mm	2.60±0.05mm
2	CB	Crimp Width	4.00±0.10mm	4.25±0.10mm
3	CBm	Measurable Crimp Width	1.0*CB≤CBm≤1.1*CB	1.0*CB≤CBm≤1.1*CB
4	D	Crimp face Ends	D ≤ 0.35mm	D ≤ 0.35mm
5	GH	Burr Height	GH ≤ 0.7mm	GH ≤ 0.7mm
6	GB	Burr Width	GB ≤ 0.5mm	GB ≤ 0.5mm
7	CH/CB	Crimp Height/Crimp Width	50%≤(CH/CW)≤70%	50%≤(CH/CW)≤70%
8	C/R	Compression Ratio	75%≤C/R≤85%	75%≤C/R≤85%
9	P	Void Ratio	≤1.00%	≤1.00%

Note: The above cross-sectional analysis is only for 12AWG/4mm² & 10AWG/6mm² cable.

Crimping Tool Drawing (Fig 10&11)

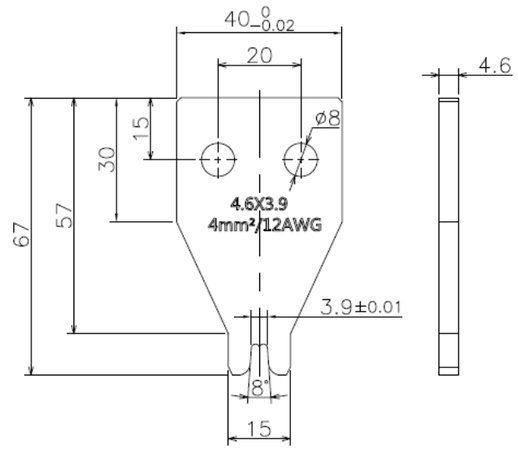


Figure 10 （Up Blade）

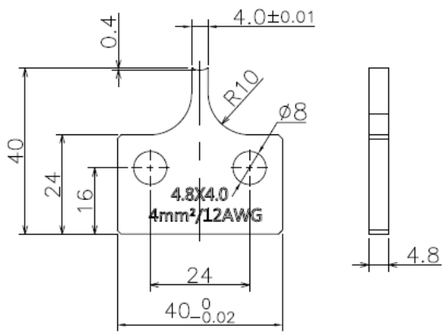
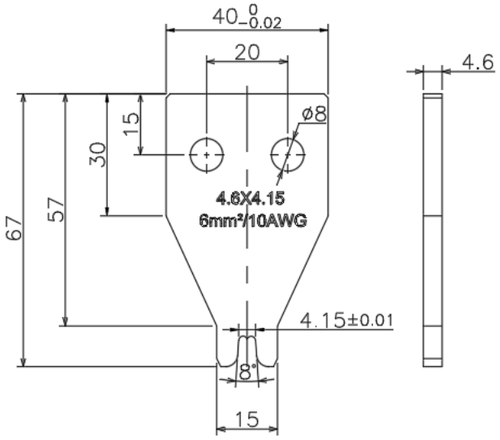


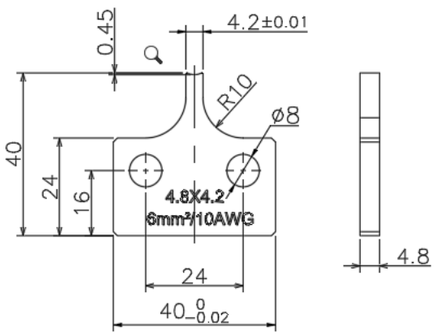
Figure 11 （Down Blade）

12AWG/4mm²

Note: The above crimping tool drawing are only for 12AWG/4mm² cable.

Crimping Tool Drawing (Fig 12&13)





10AWG/6mm²

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

5.3 Male/Female Terminals Installation

Insert the crimped male or female terminal into corresponding male or female cable connector (Fig. 14). Installation is complete when heard an audible click sound. (Fig. 15).

Figure 14

Figure 15

To fixed the gland nut by the torque wrench-17mm of the assembly tool, and to fixed the male cable connector or female cable connector by the another assembly tool, then tighten the gland nut with the specified tightening torque. (Fig. 16).

Spin clockwise to tighten the gland nut. The acting tightening torque must be adapted to the solar cables used in each specific case. (Table-4).

Tighten the gland nut clockwise by using a tool or a torque wrench, refer to the torque values in the table below and ensure that the nut is screwed to the anti-loosing position and can be buckled. Take consideration of the production process of different wire manufacturers and the softness and hardness of insulation/sheath material. To avoid damage to the nut and prevent deformation, do not screw the nut to the bottom of the body (It is recommended to leave a gap of 0.8~1.5mm) (Fig.17).

Figure 16

Cross-Sectional		Cross-Sectional
mm^2	AWG	Nm
2.5	14	3.0
4	12	3.5
6	10	4.0
10	8	4.0

Table-4

Figure 17

Insert the female cable connector into the male cable connector when the gland nut is fully tightened. The connection of female and male cable connector is complete when an audible click is heard. (Fig. 18 – 19).

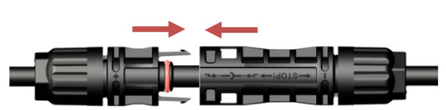


Figure 18

Figure 19

5.4 Disconnecting Cable Connector

Insert the forks into the buckle of the cable connector by the universal tool. (Fig. 20)

Pull the cable connector by hand respectively. The cable connector can now be separated. (Fig. 21 to 22)

Figure 20

Figure 21

Figure 22

5.5 Installation Warning

- If parts and tools used are not specified by Jinko or not prepared and assembled as Jinko described during installation, the uniformity of safety and technical data on products are not guaranteed.
- The connector is considered to be in compliance with UL 6703 only when assembled in the manner specified by these assembly instructions.
- During assembling, the connector must not be touched with any machine oil, grease, solvent, with which connector would be out of action. Notice that the gloves the operators used must not contain the substance above. The male cable connectors and the female connectors must not plugged together when soiled.
- The work described here must not be carried out on live or load-carrying part.
- Connectors must not be disconnected under load. Plugging and unplugging when voltage is permitted.
- The dust plug（4JB03M31005/4JB03M31007）should be placed to avoid exposing the dust and water when disconnected or disconnected after connected.
- The plug connectors are watertight in accordance with IP68 protection class. However, they are not suitable for continuous operation under water. Do not place the connectors directly on the proof membrane.
- The plug connection must not be subjected to continuous mechanical tension. The cable should be fixed with cable binders.
- For safety reason, the use of either PVC cables or untinned cables are prohibited.
- This connector is suitable for use only with Class B and C stranded copper conductors (See NFPA NEC 70 Chapter 9, Table 10).