

CONNECTOR INSTALLATION INSTRUCTIONS  
**H4 Plus™ P2KV Connectors**



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## 1. Safety Caution

-  1) The connector must be isolated and disconnected from the power supply during the assembly or disassembly process.
-  2) Do not disconnect under load.
-  3) IP68 The mated Amphenol PV connectors are IP68 (under water 1meter for 24 hour) compliant in the function of sealing. However please prevent connectors from being immersed in water.
-  4) UL6703: The connector is considered to be in compliance with UL 6703 only when assembled in the manner specified by assembly instructions.
-  5) Amphenol declines any liability in the event of failure to comply with this assembly instruction.
-  6) Amphenol Connectors not made by Amphenol which can be mated with Amphenol elements and in some cases are also described as “Amphenol-compatible” do not conform to the requirements for safe electrical connection with long-term stability, and for safety reasons must not be plugged together with Amphenol elements. Amphenol can therefore accept no liability for damage which occurs as a result of mating these connectors that lack Amphenol approval with Amphenol elements.
-  7) Please be aware that this 3rd Party laboratory test is just a reference for application. It is the customer’s responsibility to validate connector durability in system function at specific and extreme environment conditions, we recommend customer to consider a margin in actual applications with high current situations that can lead to overheating.
-  8) WI -S047-ENG Amphenol warns customers and users to avoid exposure of chemical substances in the connector application environment. Chemical compatibility of thermoplastics e.g. Lexan polycarbonate is dependent on contact time, temperature, concentration and stress (external stress to which the application is subjected to). Chemicals exposure can result in discoloration, softening, swelling, cracking or loss of properties of the thermoplastics. DO NOT allow the connectors contact any chemicals including below but not limited as they may cause stress cracking. Grease, Oils, Mold Release Agent, Binder, Alcohols, Fatty hydrocarbons, Acid, Aromatic hydrocarbon, Ketones, Halogenated hydrocarbon, Organic solvents including Gasoline, Kerosene, Ethyl Acetate and others, Cleaning agents. Detailed refer to file. See file: WI -S047-ENG (Chemicals exposure check list). The list of chemicals provided by Amphenol does not include all chemicals that may appear in the production and subsequent use of customers. Customers are requested to verify their impact on products and take corresponding to risk management measures for chemical contamination. Amphenol does not accept any return requests for products contaminated with chemicals.

## 2. Technical Data

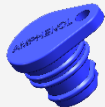
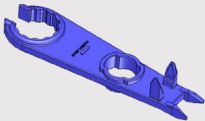
|                                                                                                                                                                   |                                                                                                                                 |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|
| Rated Voltage:                                                                                                                                                    | 2000V DC                                                                                                                        |
| Rated Current:                                                                                                                                                    | ETL (UL6703) 65A; (6AWG), TUV SUD(PPP 58211A) 70A<br>Protection degree: IP68 mated (1m@1H) and IP2X unmated<br>Safety class: II |
| Operation Temperature Range:                                                                                                                                      | -40° to +85°                                                                                                                    |
| License holder: Amphenol Technology (Shenzhen) Co., Ltd                                                                                                           |                                                                                                                                 |
| Full Address: C301c Building C, 2nd Industrial Zone of Xia Shi Jia, Jiangshi Community, Gongming Sub-district,Guangming New District, Shenzhen, Guangdong, China. |                                                                                                                                 |

### 3. Connector Part Number and Tool Selection

#### 3.1 Connector Part Number Logic Code

| H4        | X        | X                                    | X                                           | X                                   | X                        | X                                    | X                           |
|-----------|----------|--------------------------------------|---------------------------------------------|-------------------------------------|--------------------------|--------------------------------------|-----------------------------|
| Product   | Type     | Gender                               | Connector Type                              | Terminals-Cable Size                | Approvals                | Packing                              | Contact*                    |
| <b>H4</b> | <b>N</b> | <b>F</b> Female +<br><b>M</b> Male - | <b>C</b><br>Cable connector, Tool<br>unlock | <b>9</b><br>16mm <sup>2</sup> /6AWG | <b>D</b><br>UL6703 (ETL) | <b>M</b><br>400pcs/bag<br>800pcs/box | <b>Blank</b><br>Cold formed |

#### 3.2 Tools List

|                                                                        |           |                                                                                       |
|------------------------------------------------------------------------|-----------|---------------------------------------------------------------------------------------|
| Contact depth inspection tool                                          | H4TT0003  |    |
| Protection cap for female connector:                                   | HH4SPF    |    |
| Protection cap for male connector:                                     | HH4SPM    |    |
| Hand-held electric crimp tool:                                         | H4TTC0002 |   |
| 6AWG/16mm <sup>2</sup> Crimping die: 6AW-G/16mm <sup>2</sup> H4TTD0002 | H4TTD0002 |  |
| Wrench Tool:                                                           | H4TW0010  |  |
| Open-end back cap spanner for H4 Plus 6AWG:                            | H4TTW300  |  |
| 16mm <sup>2</sup> /6AWG Wire Stripper                                  | H4TS0001  |  |

## 4. Assembly Process of Terminal and Cable

### 4.1 Applicable Cable Selection

4.1.1 16mm<sup>2</sup> /6AWG (7 - 126) Only suitable for the PV cable 16 mm<sup>2</sup>/6AWG (7 - 126 Strands) with cooper conductor (bare copper tinned copper conductor).

4.1.2 ø8.38mm - ø11mm: The cable OD range from ø8.38mm to ø11m.

### 4.2 Stripper tool selection

4.2.1. (P/N: H4TS0001), Recommend to use the special wire stripper of Amphenol, the stripper die has been installed.

4.2.2 Stripper die selection, as shown in figure 4.2.2.



4.2.1



4.2.2

| 6AWG(Strands)            | A(Die A) | B(Die B) |
|--------------------------|----------|----------|
| 7-49 (7 - 49 strands)    | O        | X        |
| 50-126 (50 -126 strands) | X        | O        |

### 4.3 Crimping Tool Selection

Please choose the crimping tool based on the terminal and cross section area of cable conductor. Use of the wrong crimping tool may lead to the crimping failure to cause the connector overheating, and lower the reliability of the connector.

4.3.1 & 4.3.2 Recommend to use the electric hydraulic crimp tool in the installation field, the schematic diagrams of the electric hydraulic clamp and the matching crimping die are shown in Figures 4.3.1 and 4.3.2.



4.3.1



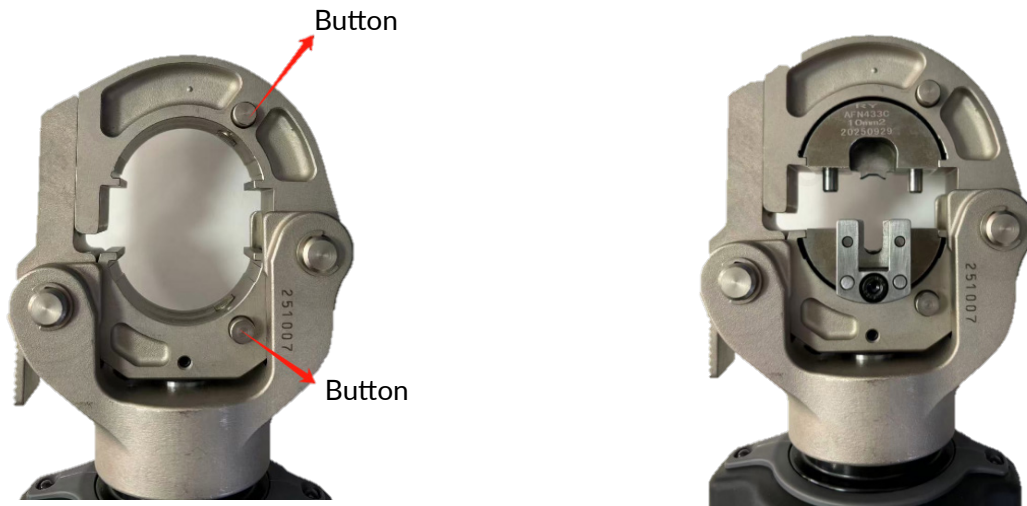
4.3.2

| Cold Formed Contact |                   | Cable Conductor |                                       | Crimp Die   | Pull Force(N) | Compression Ratio |
|---------------------|-------------------|-----------------|---------------------------------------|-------------|---------------|-------------------|
| Type                | Crimp Height (mm) | AWG             | Cross section area (mm <sup>2</sup> ) | Part Number |               |                   |
| C16                 | 5.65+/-0.1        | 6               | 16                                    | H4TTD0002   | >445          | 70 – 90%          |

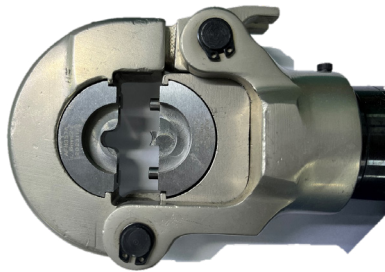
## 4.4 Adjust Crimping Tool

If needed, following below steps to adjust the pressure force to optimize crimping.

- I. Push the button and then install the Crimping die. Install in place and release the button.



- II. Close crimp tool and test basic function.



## 4.5 Crimping Quality Verification

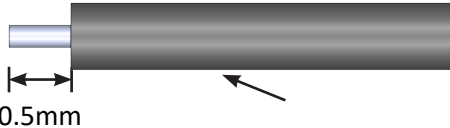
Great variations exist in the diameter, quantity and cross section of strands between PV cables made by different manufactures, so the above dimensions are only for reference. In order to get quality crimping, please verify the pull force and crimping cross section.

UL486a - 486b, 4.3

Pull force between the contact and cable should meet to UL486a-486b, refer to the table in section 4.3. The cross section inspection standard:

- The crimp shall have all cable strands compressed into a hexagonal shape with minimal voids.
- No cracks/fractures in crimp material or wire stranding
- Ensure symmetrical and uniform distribution of strands
- All strands are captured within crimp
- Crimp wings are fully closed at surface. Crimping wings are curled evenly and uniform
- The burr on the base of the crimp must not exceed 0.1mm, and will not scratch the sealing component in the next assembly process.

## 4.6 Crimping Operation

| Process                           | Tools | Process control                                                                                                                                                                                                                                                                                                                                                                                                         |
|-----------------------------------|-------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Stripping                         | N/A   | <p>7.0±0.5mm<br/>Stripping Length 7.0±0.5mm, dont damage or cut the wire strands.</p>  <p>L=7±0.5mm</p>                                                                                                                                                                                                                               |
| Insert the cable into the contact | N/A   | <ul style="list-style-type: none"> <li>Put the contact at right crimping die.</li> <li>Insert striped cable into contact barrel and insure all conductor strands are captured in the contact barrel and the conductors are visible in the inspection hole for CF (cold formed) terminal.</li> </ul>                                   |
| Crimping                          |       | <ul style="list-style-type: none"> <li>Push button and crimp.</li> <li>Crimp to meet the requirements in section 4.4.</li> <li>Regularly check crimping height, and adjust the crimping force to get the perfect crimping quality.</li> </ul>   |

## 4.7 Electric Hydraulic Crimping Tool Operation and Notes

1. Misuse may cause personal injury, keep crimper out of reach from children.
2. Do not insert fingers into the jaws of the tool.
3. Before using the crimper, clean the die to prevent oil or other chemical material from polluting the contact and connector.
4. Crimp tool and crimp dies are prone to wear, regularly check the quality of Crimping Height, pull out force. Tool and die wear can be compensated by removing the lock screw and turning the adjuster.
5. The use of electric hydraulic tool must refer to the instructions for the use of hydraulic tools.

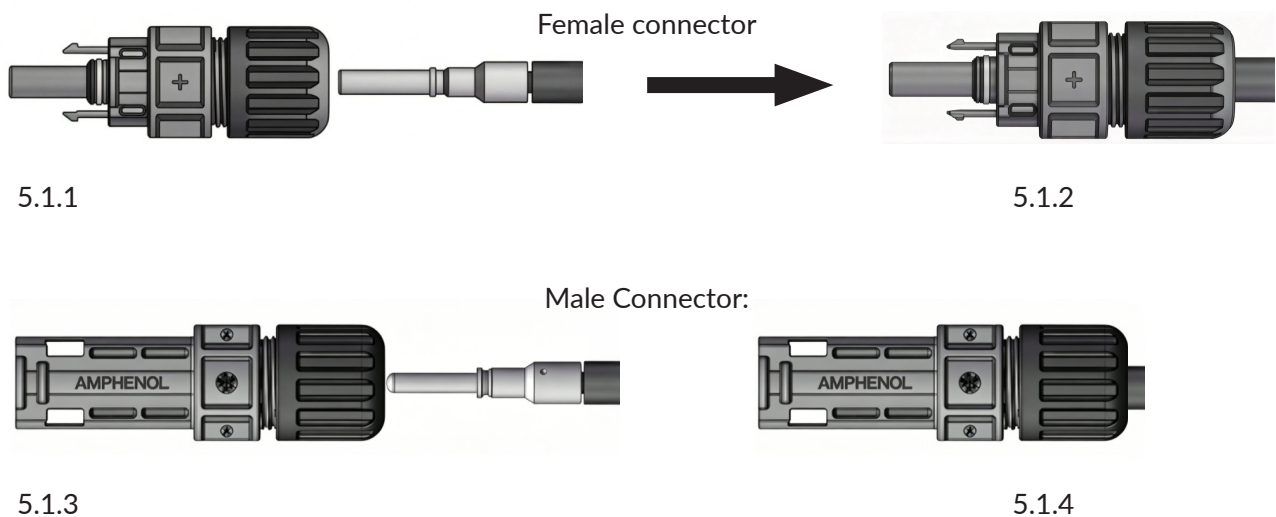
## 5. Connector Assembly Process

### 5.1 Cable end assembly

#### 5.1.1 Insert the crimped contact into the body

(3.2-3.4) 5.1.1 - 5.1.4

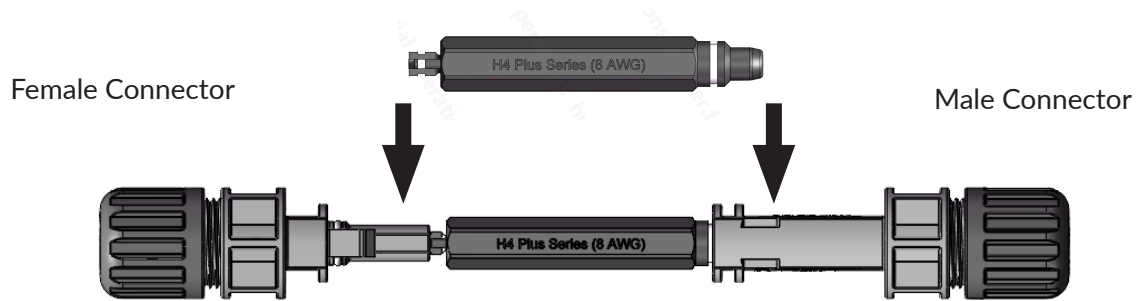
Insert terminal into back of male or female connector. A “click” should be heard or felt when the terminal is seated in the right position. Terminals cannot be removed once seated (Terminals are crimped per tool application 3.2 to 3.4) See below pictures 5.1.1 to pictures 5.1.4.



If the terminals are not inserted in the correct position, the connector itself will not be fully assembled, the contacts will not mate as intended, which will cause the connector to overheat and possibly cause a fire or safety risk.

## Inspection

Use the contact depth inspection tool to check if the contact was in right position. The edge of connector housing should be located within the white area of the contact depth inspection tool.



## 5.1.2 Tightening the Back Cap

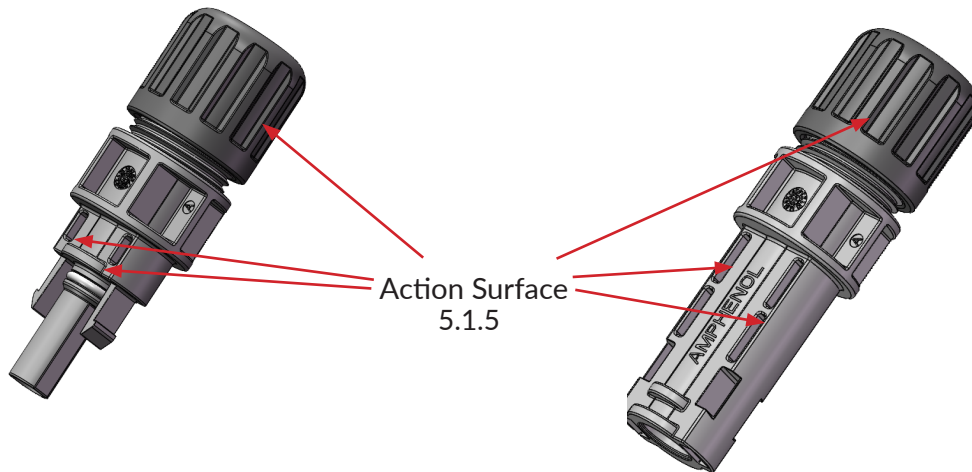
2.6 N·m - 4.0 N·m



- Connector back cap must be screwed up with a proper torque range of 2.6 to 4.0 N·m.
- Over torquing may damage insulation on the cable, lead to a sealing failure and electrical leakage.
- Under torquing may lead to a sealing failure, and compromise the reliability of the connector.

### 5.1.5

Action surface of connector, screw end cap and hold body of connector, as below picture 5.1.5.



### (H4TW0010 )(H4TW300)

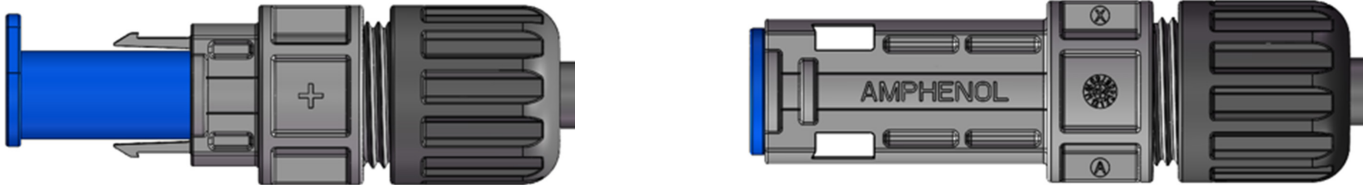
Amphenol specified wrench tool (H4TW0010) can be used in this step. Customer can choose to use open-end back cap spanner (Use H4TW300) if customer uses electric torque controlled wrench tool to tighten the cap.

## 5.2 Protection Before Mating

If the male and female connector is not inserted in a timely manner, measures should be taken to prevent dust, moisture, and other pollutants from the connector, that may result in terminal oxidation, or sealing failure.

(HH4SPF, HH4SPM)

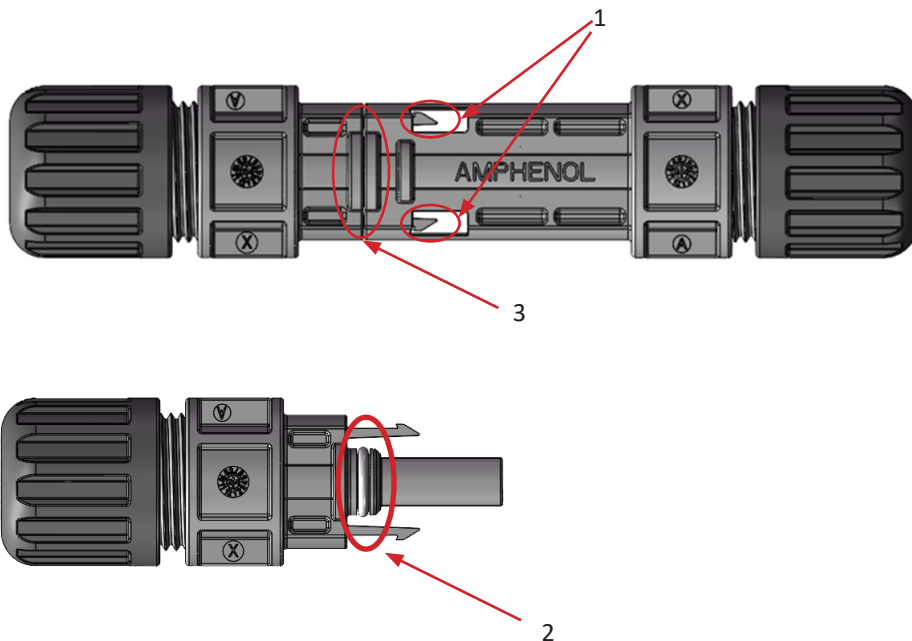
Dust caps are recommended (female end use UTXPF and male end use UTXPM) for protection.



## 5.3 Mating the male and female connectors

After mating the male and female connectors, check the below items to confirm the male and female connectors were mated correctly.

- ✓ The latch is engaged as below.
- ✓ O-ring pressed inside and is not visible.
- ✓ ( $\leq 0.3\text{mm}$ ) There is very small gap between the interface of male and female ( $\text{gap} \leq 0.3\text{mm}$ ).

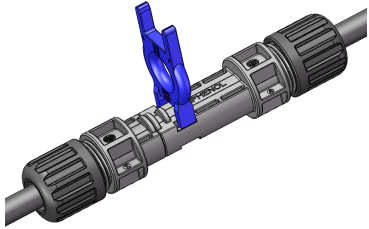


## 5.4 Un-mating the Male and Female Connectors

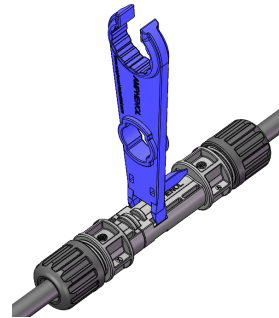
Use the specified tool to open the connectors. Dont pull directly or shake the connector back and forth wildly to open the connector.

(H4TW0010) (H4TU0000) 6AWG

Amphenol specified wrench tool (H4TW0010) or Universal tool (H4TU0000) should be used in this step for 6AWG Series, see below picture.



UNIVERSAL TOOL DISCONNECT

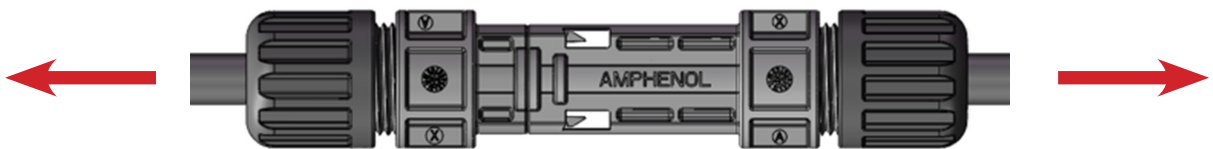


WRENCH TOOL DISCONNECT

## 6. Cable Routing

✓ H489N

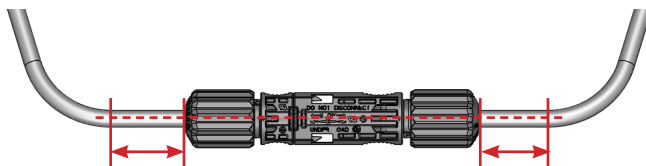
The locking fixture of H4 series can withstand pull forces of 89N min along the axial.



✓ External stress on the cable should be avoided; excessive cable stress along the axial for extended amounts of time; added cable stress and torque should be prohibited, and may impact sealing and reliability of the connector

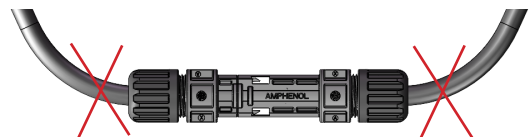
✓ 30mm

In order to avoid excessive cable stress to connector, the cable beside connector should be kept straight, straight cable length should be at least 30mm MIN.



30mm MIN.

30mm MIN.



✓ Refer to cable manufacturers specification for minimum bending radius of cable.

## 7. Storage Requirement

-30°C – +60°C, 70%

We recommend that you store connector components at a temperature between -30° to +60° and with a relative humidity of less than 70%. The components must not be exposed to moisture due to direct rainfall, condensation etc. Ensure that the individual components do not come into contact with acids, alkalis, gases, acetone or any other chemical substance that could impact the materials use. The connector can stored for two years if these conditions are met.

8. REVISION RECORD

| REV | Description   | Date       | Name        |
|-----|---------------|------------|-------------|
| A   | FIRST RELEASE | 02/10/2026 | Hunter Fang |

Prepared by:           Hunter Fang

Date:           02/10/2026

Checked by:           Johnny Wang

Date:           02/10/2026

Amphenol Technology Shenzhen Ltd  
Building C, 2nd Industrial Zone of Xia Shi Jia, Jiangshi Community, Gongming Sub-district, Guangming New District, Shenzhen, PRC CHINA  
Tel: +86 755 2881 8389  
Fax: +86 755 2991 83