HotSpot Energy Inc.
Solar Air Conditioner Installation Manual
ACDC12C / ACDC18C

Indoor Units:
ACDC12C-IDU
ACDC18C-IDU

Outdoor Units:
ACDC12C-ODU
ACDC18C-ODU

Version 1

7. Installation Manual

7.1 Notices for Installation

Caution

1.The unit should be installed only by authorized service center according to local or government regulations and in compliance with this manual.

2.Before installing, please contact with local authorized maintenance center. If the unit is not installed by the authorized service center, the malfunction may not be solved due to incovenient contact between the user and the service personnel.

3.When removing the unit to the other place, please firstly contact with the local authorized service center.

4.Warning: Before obtaining access to terminals, all supply circuits must be disconnected.

5.For appliances with type Y attachment, the instructions shall contain the substance of the following. If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard.

6.The appliance must be positioned so that the plug is accessible.

7.The temperature of refrigerant line will be high; please keep the interconnection cable away from the copper tube.

8.The instructions shall state the substance of the following:

This appliance is not intended for use by persons(including children)with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.

Children should be supervised to ensure that they do not play with the appliance.

7.1.1 Installation Site Instructions

Proper installation site is vital for correct and efficient operation of the unit. Avoid the following sites where:

- strong heat sources, vapours, flammable gas or volatile liquids are emitted.
- high-frequency electro-magnetic waves are generated by radio equipment, welders and medical equipment.
- salt-laden air prevails (such as close to coastal areas).
- the air is contaminated with industrial vapours and oils.
- the air contains sulphures gas such as in hot spring zones.
- corrosion or poor air quality exists.

7.1.2 Installation Site of Indoor Unit

1.The air inlet and outlet should be away from the obstructions. Ensure the air can be blown through the whole room.

2.Select a site where the condensate can be easily drained out, and where it is easily connected to outdoor unit.

3.Select a place where it is out of reach of children.

4.Select a place where the wall is strong enough to withstand the full weight and vibration of the unit.

5.Be sure to leave enough space to allow access for routine maintenance. The installation site should be 150cm or more above the floor.

6.Select a place about 1m or more away from TV set or any other electric appliance.

7.Select a place where the filter can be easily taken out.

8.Make sure that the indoor unit is installed in accordance with installation dimension instructions.

9.Do not use the unit in the laundry or by swimming pool etc.

7.1.3 Installation Site of Outdoor Unit

1.Select a site where noise and outflow air emitted by the unit will not annoy neighbors.

2.S elect a site where there is sufficient ventilation.

3.Select a site where there is no obstruction blocking the inlet and outlet.

4.The site should be able to withstand the full weight and vibration.

5.Select a dry place, but do not expose the unit to strong wind.

6.Make sure that the outdoor unit is installed in accordance with the installation instructions,and is convenient for maintenance and repair.

7.The height difference between indoor and outdoor units is within 5 m, and the length of the connecting tubing does not exceed 15 m.

8.Select a place where it is out of reach of children.

9.Select a place where the unit does not have negative impact on pedestrians or on the city.

7.1.4 Safety Precautions for Electric Appliances

1.A dedicated power supply circuit should be used in accordance with local electrical safety regulations.

2.Don't drag the power cord with excessive force.

3.The unit should be reliably earthed and connected to an exclusive earth device by the professionals.

4.The air switch must have the functions of magnetic tripping and heat tripping to prevent short circuit and overload.

5.The minimum distance between the unit and combustive surface is 1.5m.

6.The appliance shall be installed in accordance with national wiring regulations.

7.An all-pole disconnection switch with a contact separation of at least 3mm in all poles should be connected in fixed wiring.

Note:

•Make sure the live wire, neutral wire and earth wire in the family power socket are properly connected. There should be reliable circuit in the diagram.

•Inadequate or incorrect electrical connections may cause electric shock or fire.

7.1.5 Earthing Requirements

1.Air conditioner is type I electric appliance. Please ensure that the unit is reliably earthed.

2.The yellow-green wire in air conditioner is the earthing wire which can not be used for other purposes. Improper earthing may cause electric shock.

3.The earth resistance should accord to the national criterion.

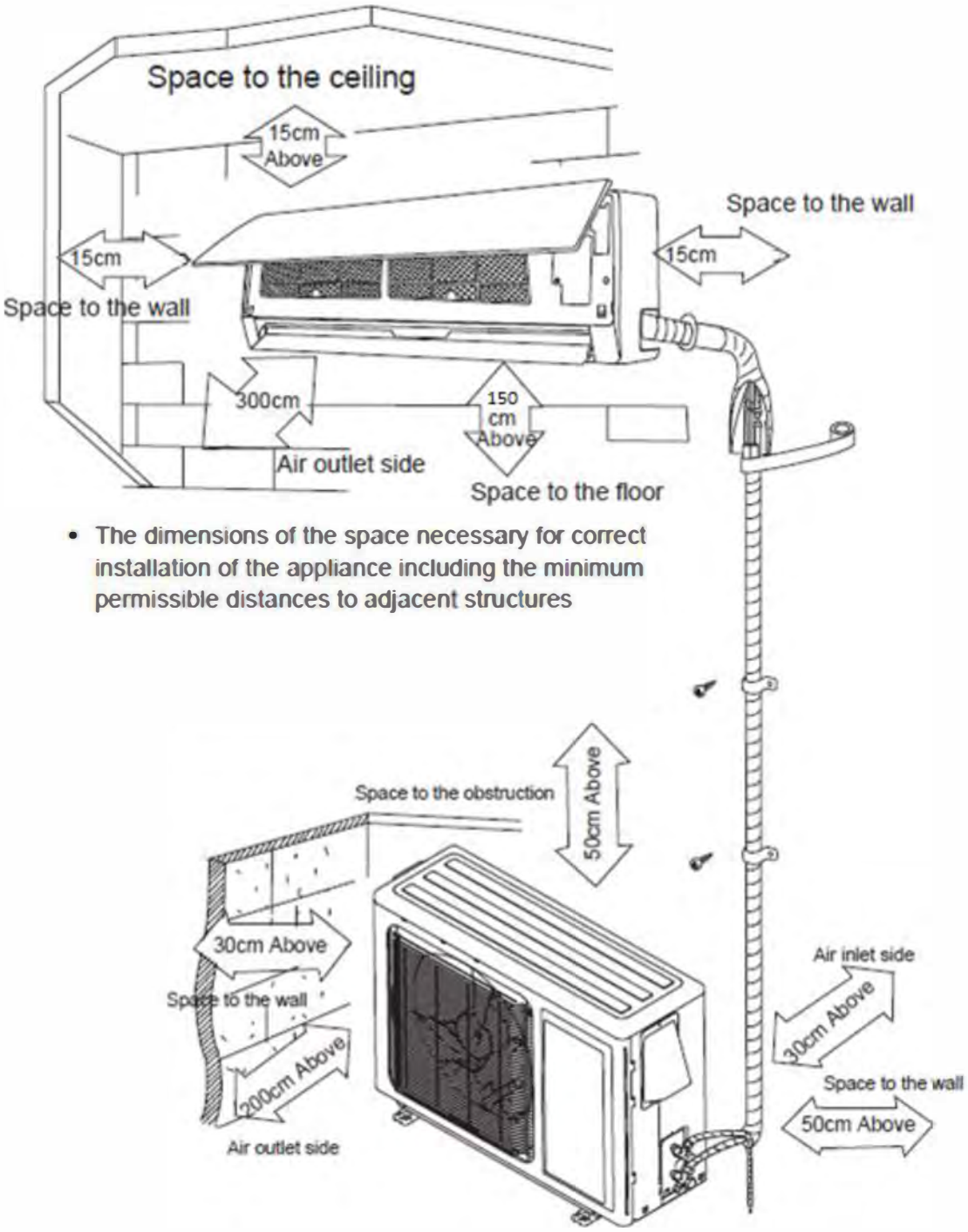
4.The power must have reliable earthing terminal. Please do not connect the earthing wire with the following:

① Water pipe ② Gas pipe ③ Contamination pipe

④ Other place that professional personnel consider is unreliable

5. The model and rated values of fuses should accord with the silk print on fuse cover or related PCB.

7.2 Installation Drawing

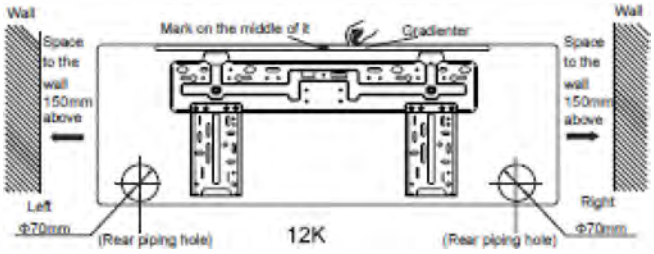


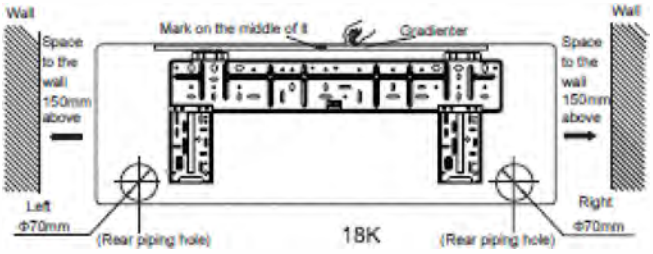
- The dimensions of the space necessary for correct installation of the appliance including the minimum permissible distances to adjacent structures

7.3 Install Indoor Unit

7.3.1 Installation of Mounting Plate

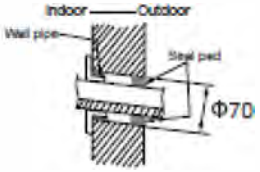
1. Mounting plate should be installed horizontally. As the water tray's outlet for the indoor unit is two-way type, during installation, the indoor unit should slightly slant to water tray's outlet for smooth drainage of condensate.
2.Fix the mounting plate on the wall with screws.
3.Be sure that the mounting plate has been fixed firmly enough to withstand about 60 kg. Meanwhile, the weight should be evenly shared by each screw.





7.3.2 Drill Piping Hole

1.Slant the piping hole (Φ70) on the wall slightly downward to the outdoor side.
2.Insert the piping-hole sleeve into the hole to prevent the connection piping and wiring from being damaged when passing through the hole.



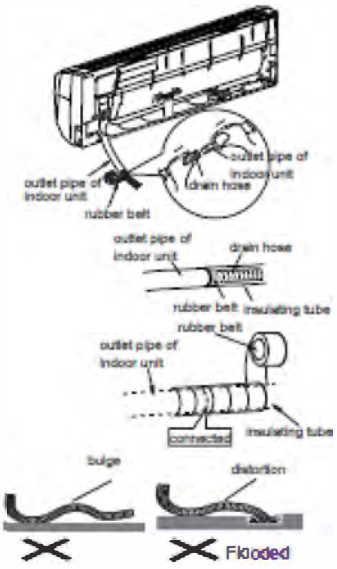
7.3.3 Installation of Drain Hose

1.Connect the drain hose to the outlet pipe of the indoor unit. Bind the joint with rubber belt.

2.Put the drain hose into insulating tube.

3.Wrap the insulating tube with wide rubber belt to prevent the shift of insulating tube. Slant the drain hose downward slightly for smooth drainage of condensate.

Note: The insulating tube should be connected reliably with the sleeve outside the outlet pipe. The drain hose should be slanted downward slightly, without distortion, bulge or fluctuation. Do not put the outlet in the water.



7.3.4 Connecting Indoor and Outdoor Electric Wires

1.Open the front panel.
2.Remove the wiring cover .Connect and fix the power connection cord to the terminal board. as shown in Fig 2.
3.Make the power connection cord pass through the hole at the back of indoor unit.
4.Reinstall the cord anchorage and wiring cover.
5.Reinstall the front panel.

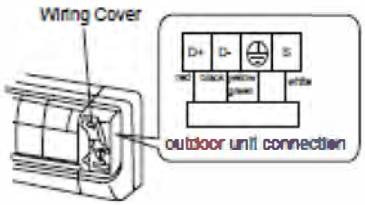


Fig.2

NOTE:

All wires between indoor and outdoor units must be connected by the qualified electric contractor.

- Electric wires must be connected correctly. Improper connection may cause malfunction.
- Tighten the terminal screws securely.
- After tightening the screws, pull the wire slightly to confirm whether it's firm or not.
- Make sure that the electric connections are earthed properly to prevent electric shock.
- Make sure that all wiring connections are secure and the cover plates are reinstalled properly. Poor installation may cause fire or electric shock.

7.3.5 Installation of Indoor Unit

- The piping can be output from right, right rear, left or left rear.

1.When routing the piping and wiring from the left or right side of indoor unit, cut off the tailings from the chassis when necessary(As shown in Fig.3)

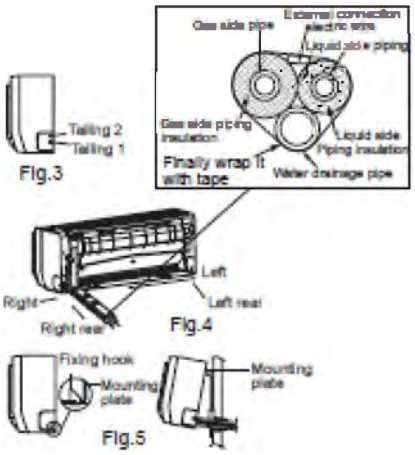
(1) Cut off tailing 1 when routing the wiring only;

(2) Cut off tailing 1 and tailing 2 when routing both the wiring and piping.

2.Take out the piping from body case; wrap the piping, power cords, drain hose with the tape and then make them pass through the piping hole. (As shown in Fig.4)

3.Hang the mounting slots of the indoor unit on the upper hooks of the mounting plate and check if it is firm enough. (As shown in Fig.5)

4.The installation site should be 250cm or more above the floor.



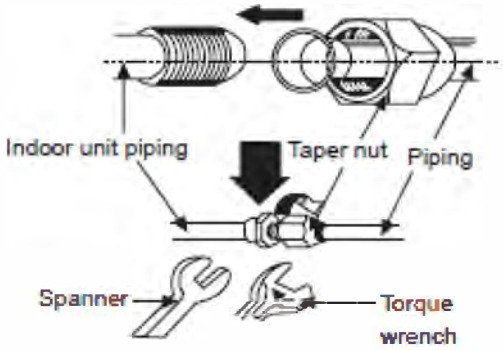
7.3.6 Installation of Connection Pipe

1.Align the center of the pipe flare with the related valve.

2.Screw in the flare nut by hand and then tighten the nut with spanner and torque wrench by referring to the following:

The size of pipe	Torque
Φ6.35mm(1/4")	18N. m
Φ9.52mm(3/8")	42N. m
Φ12.7mm(1/2")	55N. m
Φ15.88mm(5/8")	75N. m

NOTE: Connect the connection pipe to indoor unit at first and then to outdoor unit. Handle piping bending with care. Do not damage the connection pipe. Ensure that the joint nut is tightened firmly, otherwise, it may cause leakage.



7.4 Install Outdoor Unit

7.4.1 Electric Wiring

1.Disassemble the cable cross plate sub-assy on the outdoor unit right side plate.

2.Take off wire cord anchorage. Connect and fix the power connection cord to the terminal board. Wiring should fit that of indoor unit.

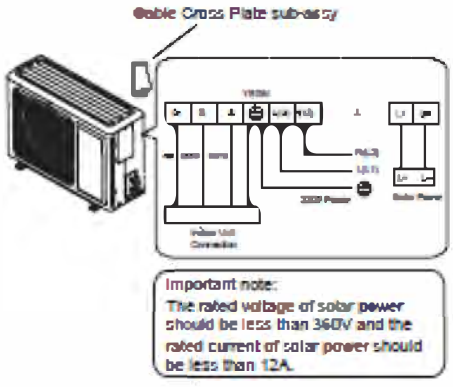
3.Fix the power connection cord with wire clamps and then connect the corresponding connector.

4.Ensure wire has been fixed well.

5.Install the cable cross plate sub-assy.

NOTE:

- Wrong wiring may cause spare parts malfunction.
- After the cable fixed, make sure there should be a free space between the connection and connection and fixing place on the lead wire.



7.4.2 Air Purging and Leakage Test

1.Connect charging hose of manifold valve to charge end of low pressure valve (both high/low pressure valves must be lightly shut).
Connect joint of charging hose to vacuum pump.
3. Fully open the handle of Lo manifold valve.
4. Open the vacuum pump for vacuumization. At the beginning, slightly loosen joint nut of low pressure valve to check if there is air coming inside (If noise of vacuum pump has been changed, the reading of multimeter is 0). Then tighten the nut.
5.Keep vacuuming for more than 15mins and make sure the reading of multi-meter is $-1.0X10^5$ pa(-76cmHg).
6. Fully open high/low pressure valves.
7. Remove charging hose from charging end of low pressure valve.
8. Tighten lid of low pressure valve. (As shown in Fig.6)

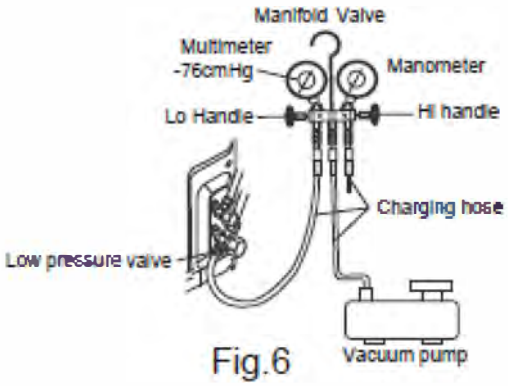
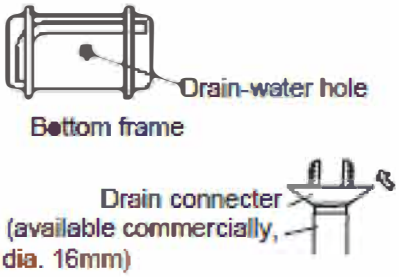


Fig.6

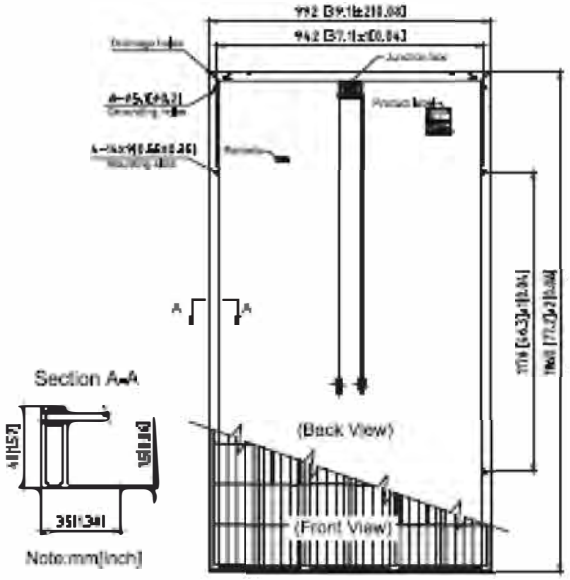
7.4.3 Outdoor Condensate Drainage (only for Heat pump unit)

During heating operation, the condensate and defrosting water should be drained out reliably through the drain hose. Install the outdoor drain connector in a Φ25 hole on the base plate and attach the drain hose to the connector so that the waste water formed in the outdoor unit can be drained out .The hole diameter 25 must be plugged. Whether to plug other holes will be determined by the dealers according to actual conditions.



7.5 Install PV-Module

7.5.1 PV-Module Characteristics



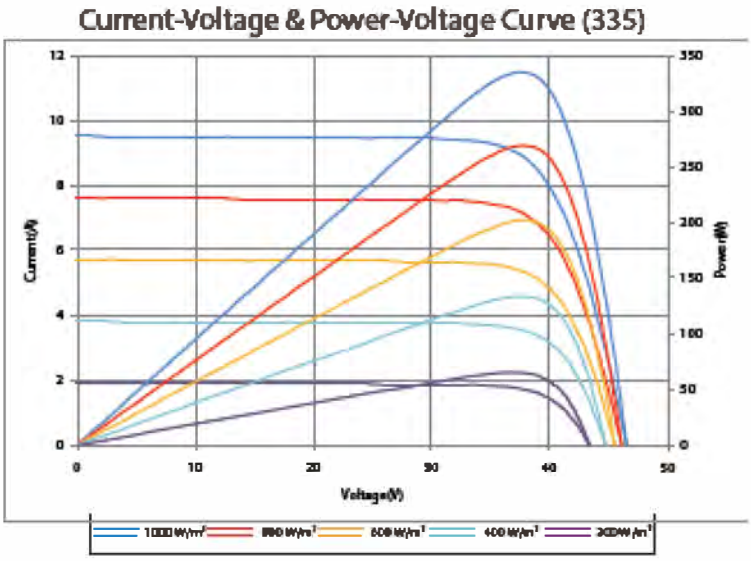
Electrical Characteristics

STC	STP335-24/ Vfw	STP330-24/ Vfw	STP325-24/ Vfw
Maximum Power at STC (Pmax)	335W	330W	325 W
Optimum Operating Voltage (Vmp)	37.7V	37.5V	37.3V
Optimum Operating Current (Imp)	8.89A	8.81A	8.72A
Open Circuit Voltage (Voc)	46.5V	46.2V	45.9 V
Short Circuit Current (Isc)	9.51A	9.38A	9.26 A
Module Efficiency	17.2%	17.0%	16.7%
Operating Module Temperature	-40 °C to +85 °C		
Maximum System Voltage	1500 V DC (IEC)		
Maximum Series Fuse Rating	20 A		
Power Tolerance	0/+5W		

STC: Irradiance 1000 W/m², module temperature 25 °C, AM=1.5;
Best in Class AAA solar simulator (IEC 60904-9) used, power measurement uncertainty is within +/- 2%

NOCT	STP335-24/ Vfw	STP330-24/ Vfw	STP325-24/ Vfw
Maximum Power at NOCT (Pmax)	247.1W	243.5W	240.0W
Optimum Operating Voltage (Vmp)	34.4V	34.3V	34.2V
Optimum Operating Current (Imp)	7.19A	7.10A	6.99 A
Open Circuit Voltage (Voc)	42.8V	42.5V	42.2V
Short Circuit Current (Isc)	7.71A	7.60A	7.49A

NOCT: Irradiance 800 W/m², ambient temperature 20 °C, AM=1.5, wind speed 1 m/s;
Best in Class AAA solar simulator (IEC 60904-9) used, power measurement uncertainty is within +/- 2%

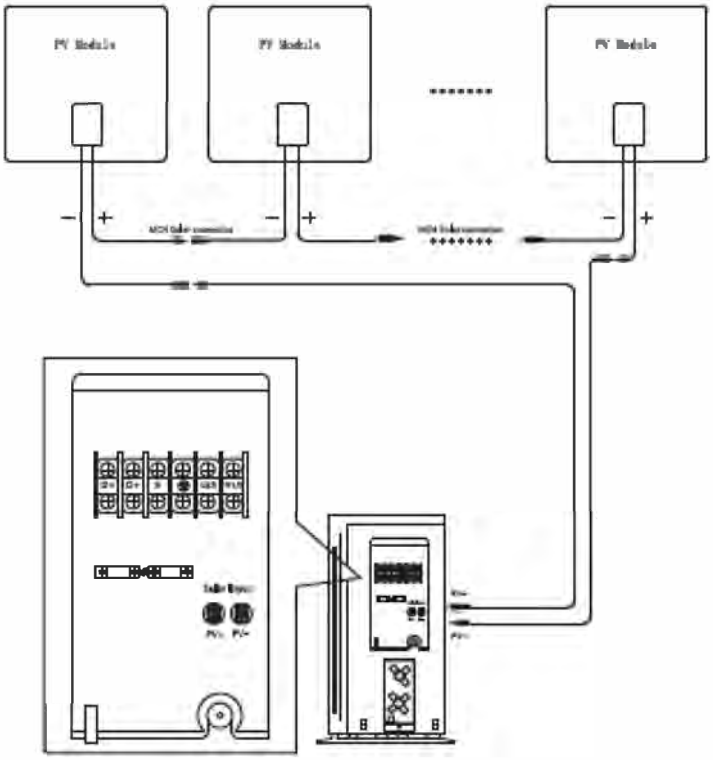


7.5.2 Mechanical Installation

1. Mechanical Installation of PV-modules should be operated by professional solar photovoltaic installation guides or reputable solar installer or systems integrator.
2. We do not provide any mechanical installation guide of PV-modules, as a result, we will not provide any instructor or after service for the problems of mechanical installation of PV-modules.

7.5.3 Electrical Installation

1. General Installation
   - Any hardware used must be compatible with the mounting structure material to avoid galvanic corrosion
   - It is not recommended to use modules with different configurations in the same system.
   - Several modules should be connected in series to form a string of modules if needed.The maximum number of series connected modules is 10pcs (275W/30V panel) or (8pcs 335W poly panel).
   - MC-4 connector is the recommended connector and the recommended system wires size is AWG12 .
2. Installation Sketch

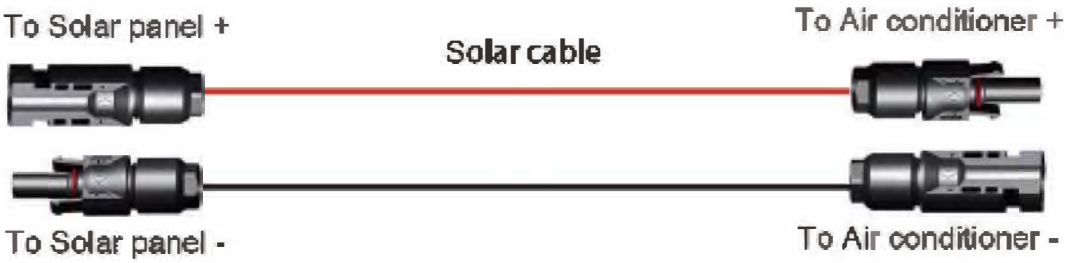


7.5.4 Assembly of PV-wire

1.The PV-wire should be single-pole, double insulated solar cable, the length of which is due to the distance from PV module to outdoor unit of AC, the recommended conductor cross section is AWG12, and it should accord with UL4703.

2. The MC-4 Connectors should be assembled to the PV-wires , and the other side of the PV-wires should be assembled with spade terminals.

MC-4connectors,



7.5.5 Assembly of MC-4 Connector

1. Introduction of MC-4 Connector

The MC-4 Connector contains three Parts, male PV cable coupler(PV-KST4/6II-UR), female PV cable coupler(PV-KBT4/6II-UR) and a safty lock clip(PV-SSH4).

Male PV cable coupler (PV-KST4/6II-UR)

Female PV cable coupler (PV-KBT4/6II-UR)

Safty lock clip (PV-SSH4)

2.Assembly Method

	Introduction	Photo	Recommended tool
Step1	Strip cable insulation. L = 6-7,5 mm. Take care not to cut individual strands.		Stripping pliers:PV-AZM-1.5/6  Interchangeable blade: PV-M-AZM-156 

Step2	Open and hold clamping clip (K). Insert contact in the appropriate cross-section range of the crimping tool. Turn contact till crimping tabs face the top. Release clamping clip (K). The contact is secured.		Crimping pliers: PV-CZM-19100  Insert: PV-ES-CZM-19100  Locator: PV-LOC 
Step3	Lightly press the pliers together so that the crimping tabs lie securely within the crimping die.		
Step4	Insert the stripped cable until the insulation comes into contact with the crimping insert. Close crimping tool completely. Check crimp.		
Step5	Push the crimped contact into the socket resp. plug insulator until it engages. Pull lightly on the lead to check that the metal part has engaged.		
Step6	Insert the test pin with the corresponding side into the socket or plug to the end position. If the contact is correctly assembled, the white marking on the test pin must be still visible.		Test plug PV-PST 

Step7	Screw on the cable gland, hand-tight, with the tools PV-MS. The tightening torque must be adapted to the solar cables used in each specific case. Typical values lie in a range between 2,5Nm to 3Nm.		Open-end spanner PV-MS 1 set = 2 pieces 
Step8	Plug the coupling together until they engage. Check correct engagement by pulling on the coupling.		
Step9	Compress the two snapin springs (X) by hand or with the PV-MS tool and separate the coupling.		
Step10	Plugging: Mount the plug connection until it engages. Check correct engagement by pulling on the coupling. Unplugging: The plug connection can only be unlocked with the tool PV-MS.		PV-SSH4 

7.6 Check after Installation and Operation Test

7.6.1 Check after Installation

Items to be checked	Possible malfunction
Has it been fixed firmly?	The unit may drop, shake or emit noise.
Have you done the refrigerant leakage test?	It may cause insufficient cooling(heating) capacity
Is heat insulation sufficient?	It may cause condensation and dripping.
Is water drainage satisfactory?	It may cause condensation and dripping.
Is the voltage in accordance with the rated voltage marked on the nameplate?	It may cause electric malfunctionor damage the product.
Is the electric wiring and piping connection installed correctly and securely?	It may cause electric malfunction or damage the part.
Has the unit been connected to a secure earth connection?	It may cause electrical leakage.
Is the power cord specified?	It may cause electric malfunctionor damage the part.
Are the inlet and outlet openings blocked?	It may cause insufficient cooling(heating) capacity.
Is the length of connection pipes and refrigerant capacity been recorded?	The refrigerant capacity is not accurate.

7.6.2 Operation Test

1.Before Operation Test

(1)Do not switch on power before installation is finished completely.

(2)Electric wiring must be connected correctly and securely.

(3)Cut-off valves of the connection pipes should be opened.

(4)All the impurities such as scraps and thrums must be cleared from the unit.

2.Operation Test Method

(1)Switch on power and press "ON/OFF"?button on the remote controller to start operation.

(2)Press MODE button to select the COOL, HEAT (Not available for cooling only unit), FAN to check whether the operation is normal or not.

7.7 Installation and Maintenance of Healthy Filter

7.7.1 Installation of Healthy Filter

1.Lift up the front panel from its two ends, as shown by the arrow direction, and then remove the air filter. (As shown in fig a)

2.Attach the healthy filter onto the air filter. (as shown in fig b)

3.Install the air filter properly along the arrow direction in Fig.c, and then close the panel .

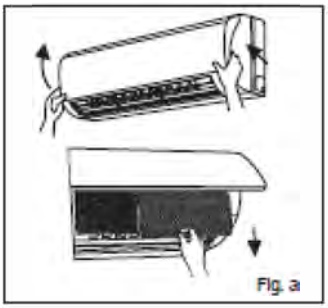


Fig. a

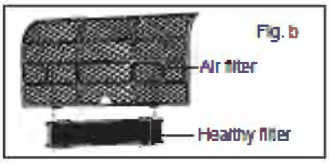


Fig. b

7.7.2 Cleaning and Maintenance

Remove the healthy filter and reinstall it after cleaning according to the installation instruction. Don't use brush or hard things to clean the filter. After cleaning, be sure to dry it in the shade.

7.7.3 Service Life

The general serive life for the healthy filter is about one year under normal condition. As for silver ion filter, it is invalid when its surface becomes black (green).

•This supplementary instruction is provided for reference to the unit with healthy filter. If the graphics provided herein is different from the actual product, please refer to the atual product. The quantity of healthy filters is based on the actual delivery.

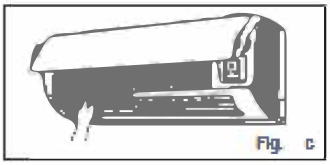


Fig. c