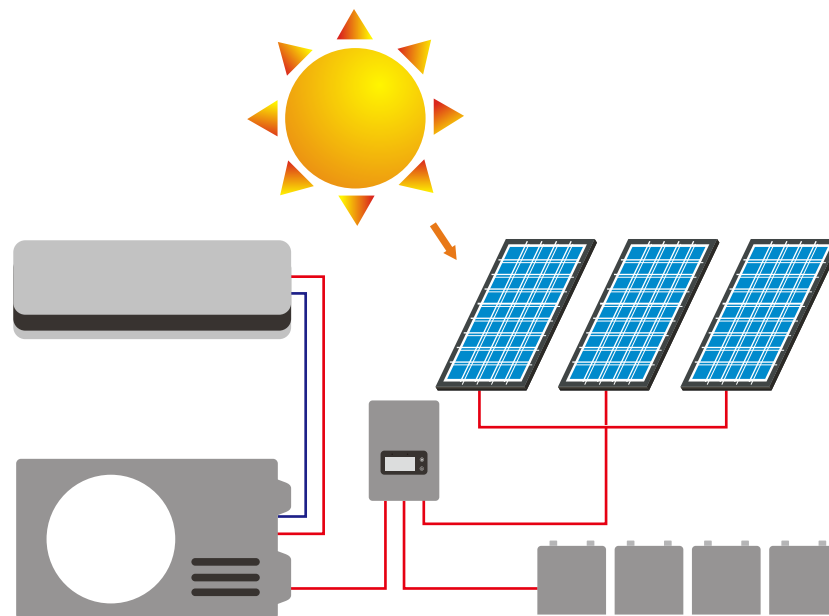


# Solar

## Installation Manual

DC 48V Off Grid Solar Air Conditioner



The design and specifications are subject to change without prior notice for product improvement.

Consult with the sales agency or manufacturer for details.

To use this unit correctly and safely, be sure to read this manual before use and installation.

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### Read This Manual

Inside you will find many helpful hints on how to install and test the air conditioner properly.



#### CAUTION

- Contact an authorised service technician for repair or maintenance of this unit.
- Contact an authorised installer for installation of this unit.
- The air conditioner is not intended for use by young children or infirmed persons without supervision.
- Young children should be supervised to ensure that they do not play with the air conditioner.
- If the power cord is to be replaced, replacement work shall be performed by authorised personnel only.
- Installation work must be performed in accordance with the national wiring Standards by authorised personnel only.

## SAFETY PRECAUTIONS






- Read the follow SAFETY PRECAUTIONS carefully before installation.
- Electrical work must be installed by a licensed electrician. Be sure to use the correct rating and main circuit for the model to be installed.
- Incorrect installation due to ignoring of the instruction will cause harm or damage.

#### ■ The seriousness is classified by the following indications.

 <b>WARNING</b>	This symbol indicates the possibility of death or serious injury.
 <b>CAUTION</b>	This symbol indicates the possibility of injury or damage to property.

#### ■ The items to be followed are classified by the symbols:

	Symbol with background white denotes item that is PROHIBITED from
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 <b>WARNING</b>	
1) Engage dealer or specialist for installation. If installation done by the user is defective, it will cause water leakage, electrical shock fire.	
2) Install according to this installation instructions strictly. If installation is defective, it will cause water leakage, electrical shock fire.	
3) Use the attached accessories parts and specified parts for installation. otherwise, it will cause the set to fall, water leakage, electrical shock fire.	
4) Install at a strong and firm location which is able to withstand the set s weight. If the strength is not enough or installation is not properly done, the set will drop and cause injury.	
5) For electrical work, follow the local national wiring standard, regulation and this installation instructions. An independent circuit and single outlet must be used. If electrical circuit capacity is not enough or defect found in electrical work, it will cause electrical shock fire.	
6) Use the specified cable and connect tightly and clamp the cable so that no external force will be acted on the terminal. If connection or fixing is not perfect, it will cause heat-up or fire at the connection.	
7) Wiring routing must be properly arranged so that control board cover is fixed properly. If control board cover is not fixed perfectly, it will cause heat-up at connection point of terminal, fire or electrical shock.	
8) When carrying out piping connection, take care not to let air substances other than the specified refrigerant go into refrigeration cycle. Otherwise, it will cause lower capacity, abnormal high pressure in the refrigeration cycle, explosion and injury.	
9) Do not modify the length of the power supply cord or use of extension cord, and do not share the single outlet with other electrical appliances. Otherwise, it will cause fire or electrical shock.	
 <b>CAUTION</b>	
1) This equipment must be earthed and installed with earth leakage current breaker. It may cause electrical shock if grounding is not perfect.	
2) Do not install the unit at place where leakage of flammable gas may occur. In case gas leaks and accumulates at surrounding of the unit, it may cause fire.	
3) Carry out drainage piping as mentioned in installation instructions. If drainage is not perfect, water may enter the room and damage the furniture.	

## INSTALLATION INSTRUCTIONS

### Selecting installation place

Select an installation location which is rigid and strong enough to support or hold the unit, and select a location for easy maintenance. Read completely, then follow step by step.

### Indoor unit

- Do not expose the indoor unit to heat or steam.
- Select a place where there are no obstacles in front or around the unit.
- Make sure that condensation drainage can be conveniently routed away.
- Do not install near a doorway.
- Ensure the spaces indicated by arrows from the wall ceiling or other obstacles.
- A place where noise prevention is taken into consideration.
- A place 1m or more to TV or radio instrument.
- A place where air circulation in the room is good.
- There should not be any direct sunlight. Otherwise, the sun will fade the plastic cabinet and affect its appearance. If unavoidable, sunlight prevention should be taken into consideration.

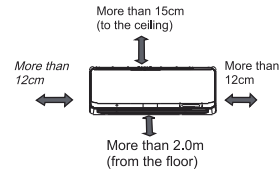


Fig.1

### Outdoor Unit

- If an awning is built over the outdoor unit to prevent direct sunlight or rain exposure, make sure that heat radiation from the condenser is not restricted.
- Keep the spaces indicated by arrows from wall or other obstacles.
- Do not place animals and plants in the path of the air inlet or outlet.
- Take the air conditioner weight into account and select a place where noise, vibration and hot air discharged will not be an issue.
- Do not install in a place full of machine oil or sulfide gas such as hot-spring resort.
- Do not install in a saline place such as coast.
- Do not install in a place where there are high frequency machines such as wireless equipment, welding machine or medical facility.

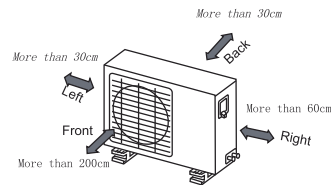


Fig.2

### Rooftop installation:

- If the outdoor unit is installed on a roof structure, be sure to level the unit.
- Ensure the roof structure and anchoring method are adequate for the unit location. Consult local codes regarding rooftop mounting.

### Tools needed for installation:

Level gauge  
Screwdriver  
Electric drill, Hole core drill ( 65mm )  $\phi$   
Flaring tool set  
Specified torque wrenches: 1.8kgf.m,  
4.2kgf.m, 5.5kgf.m, 6.6kgf.m (different depending on model No.)  
Spanner (half union)

Hexagonal wrench (4mm)  
Gas-leak detector  
Vacuum pump  
Gauge manifold  
Users manual  
Thermometer  
Multimeter  
Pipe cutter  
Measuring tape

## INSTALLATION INSTRUCTIONS

### Accessories

Number	Name of Accessories			Qty
1	Installation Plate			1 5-8(dependending on models)
2	Clip Anchor			5-8(dependending on models)
3	Self-tapping Screw A ST3.9x25			1
4	Seal(For cooling & heating models only)			1
5	Drain Joint(For cooling & heating models only)			
6	Connecting pipe Assembly	Liquidside	Φ 6.35	Parts you must purchase. The pipe size differ from appliance to appliance. Consult the technician for the proper size.
			Φ 9.52	
		Gasside	Φ 9.52	
			Φ 12.7	
			Φ 15.88	
7	Remote controller			1
8	Self-tapping Screw B ST2.9x10		optional parts	2
9	Remote controller holder			1
10	Air freshening filter(installed on Air filter)			1

**Note:** Except the above parts provided, the other parts needed during installation you must purchase.

### CAUTION

- Use a stud finder to locate studs to prevent unnecessary damage to the wall.
- A minimum pipe run of 3 metres is required to minimise vibration & excessive noise.
- Two of the A, B and C directions should be free from obstructions.

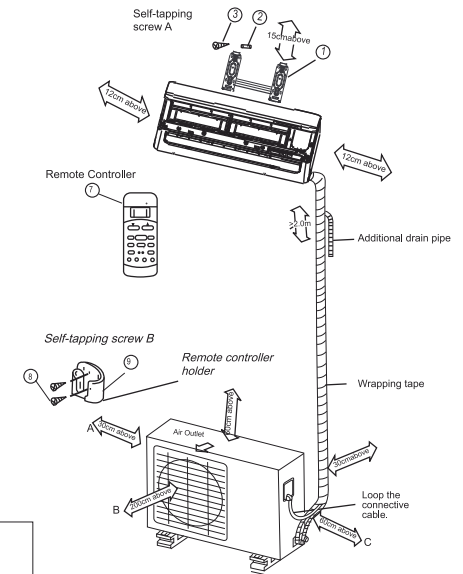


Fig.3

- This illustration is for explanation purposes only.
- Copper lines must be insulated independently.

## INSTALLATION INSTRUCTIONS

### Indoor unit installation

1. Fit the installation plate horizontally on structural parts of the wall with spaces around the installation plate.
2. If the wall is made of brick, concrete or the like, drill eight (4) 5mm diameter holes in the wall. Insert Clip Anchor for appropriate mounting screws.
3. Fit the installation plate on the wall with eight (4) type "A" screws.

#### Note:

Fit the Installation Plate and drill holes in the wall according to the wall structure and corresponding mounting points on the installation plate. The installation plate is different according to the models.

(Dimensions are in "mm" unless otherwise stated)

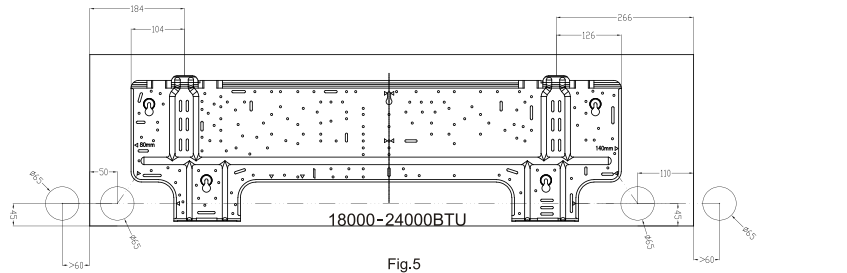


Fig.5

### 2. Drill a hole in the wall

1. Determine hole positions according to the diagram detailed in Fig.5. Drill one (1) hole slanting slightly to outdoor side.
2. Always use wall hole conduit when drilling metal grid, metal plate or the like.

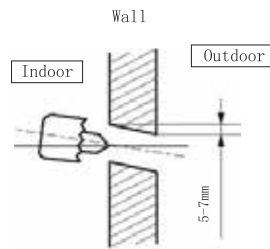


Fig.6

## INSTALLATION INSTRUCTIONS

### 3. Connective Pipe and Drainage

#### Installation

1. Run the drain hose sloping downward. Do not install the drain hose as illustrated in Fig.7.
2. When connecting extension drain hose, insulate the connecting part of extension drain hose with a shield pipe, do not let the drain hose slack.

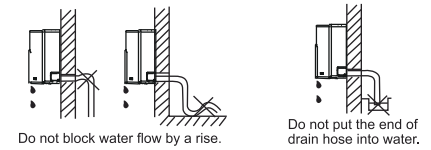


Fig.7

#### Connective pipe installation

1. For the left-hand and right-hand piping, remove the pipe cover from the side panel.
2. For the right back and left back piping, install the piping as shown.

**NOTE:** For 9K/12K model, there is only one side drainage structure design. For 18k model, one side drainage structure is optional and can only be customized from factory. For both sides drainage structure, it can be chosen for right, left or both sides drainage connection. If choosing both sides drainage connection, another proper drain hose is needed as there is only one drain hose offered by factory. If choosing one side drainage connection, make sure the drain hole on the other side is well plugged. The connection of the drain hose is supposed to be done by qualified installer in case of water leakage.

3. Bundle the tubing, connecting cable, and drain hose with tape securely, evenly as shown in Figure on the right.

- Because the condensed water from rear of the indoor unit is gathered in ponding box and is piped out of room. Do not put anything else in the box.

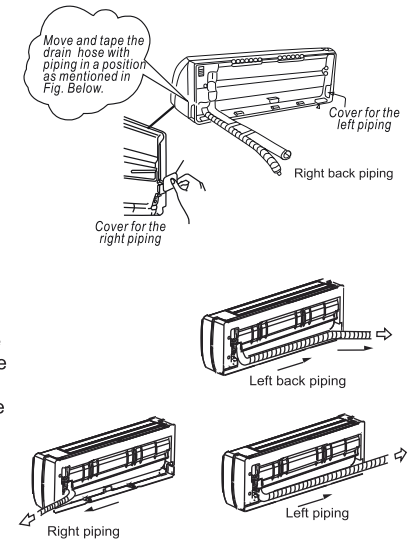


Fig.8

### 4. Indoor unit installation

1. Pass the piping through the hole in the wall.
2. Put the upper claw at the back of the indoor unit on the upper hook of the installation plate, move the indoor unit from side to side to see that it is securely hooked (see Fig.9 & Fig.10).
3. Piping can easily be made by lifting the indoor unit with a cushioning material between the indoor unit and the wall. Get it out after finish piping.
4. Push the lower part of the indoor unit up on the wall, then move the indoor unit from side to side, up and down to check if it is hooked securely.

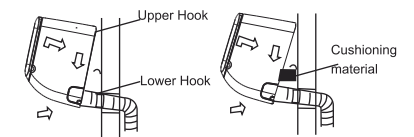


Fig.9

Fig.10

## INSTALLATION INSTRUCTIONS

### 5. Piping and wrapping

Bundle the tubing, connecting cable, and drain hose with tape securely, evenly as shown in Fig.12

- Because the condensed water from rear of the indoor unit is gathered in ponding box and is piped out of room. Do not put anything else in the box.

#### CAUTION

- Connect the indoor unit first, then the outdoor unit.
- Do not allow the piping to let out from the back of the indoor unit.
- Be careful not to let the drain hose slack.
- Heat insulated both of the auxiliary piping.
- Be sure that the drain hose is located at the lowest side of the bundle. Locating at the upper side can cause drain pan to overflow inside the unit.
- Never intercross nor intertwist the power wire with any other wiring.
- Run the drain hose sloped downward to drain out the condensed water smoothly.

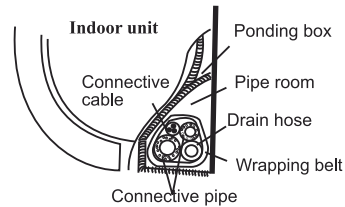


Fig.11

### Outdoor unit installation

#### Outdoor installation precaution

- Install the outdoor unit on a rigid base to prevent increasing noise level and vibration.
- Determine the air outlet direction where the discharged air is not blocked. In the case that the installation place is exposed to strong wind such as a seaside, make sure the fan operating properly by putting the unit lengthwise along the wall or using a dust or shield plates.
- Specially in windy area, install the unit to prevent the admission of wind. If need suspending installation, the installation bracket should accord with technique requirement in the installation bracket diagram.
- The installation wall should be solid brick, concrete or the same intensity construction, or actions to reinforce, damping supporting should be taken. The connection between bracket and wall, bracket and the air conditioner should be firm, stable and reliable.
- Be sure there is no obstacle which block radiating air.

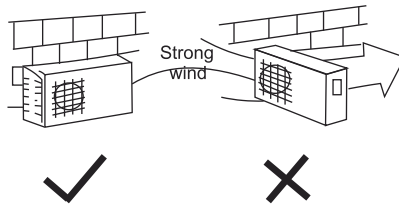


Fig.12

## REFRIGERANT PIPE CONNECTION

### Settlement of outdoor unit

- Anchor the outdoor unit with a bolt and nut  $\Phi 10$  or  $\Phi 8$  tightly and horizontally on a concrete or rigid mount.

Model	Outdoor unit dimension	Mounting dimension	
	Mm(W*H*D)	A(mm)	B(mm)
9000BTU	835*540*320	549	325
9000BTU(A)	835*540*320	549	325
12000BTU	835*540*320	549	325
12000BTU(A)	835*540*320	549	325
18000BTU	835*540*320	549	325
24000BTU	845*700*320	560	335

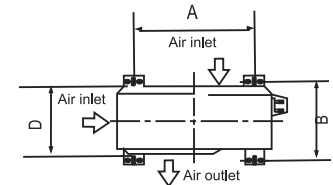


Fig.13

### Drain joint installation

- If a drain elbow is used, the unit should be placed on a stand which is taller than 3cm.
- Fit the seal into the drain elbow, then insert the drain joint into the base pan hole of outdoor unit, rotate 90° to securely assemble them. Connecting the drain joint with an extension drain hose (Locally purchased), in case of the water draining off the outdoor unit during the heating mode.

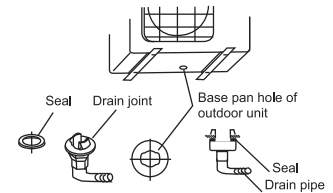


Fig.14

### Refrigerant pipe connection

#### 1. Flaring work

Main cause for refrigerant leakage is due to defect in the flaring work. Carry out correct flaring work using the following procedure:

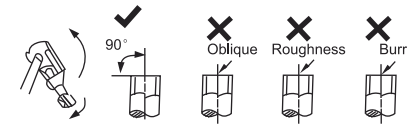


Fig.15

#### A: Cut the pipes and the cable.

- Use the piping kit accessory or pipes purchased locally.
- Measure the distance between the indoor and the outdoor unit.
- Cut the pipes a little longer than the measured distance.
- Cut the cable 1.5m longer than the pipe length.

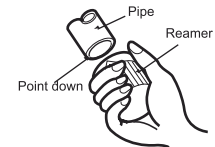


Fig.16

#### B: Burr removal

- Completely remove all burrs from the cut crossection of pipe/tube.
- Put the end of the copper tube/pipe in a downward direction as you remove burrs in order to avoid dropping burrs into the tubing.

## ELECTRICAL WORK

### C: Putting nut on

Remove flare nuts attached to indoor and outdoor unit, then put them on pipe/tube having completed burr removal.(not possible to put them on after flaring work)

### D: Flaring work

Firmly hold copper pipe in a die in the dimension shown in the table below.

Outer diam. (mm)	A(mm)	
	Max.	Min.
φ6.35	1.3	0.7
φ9.52	1.6	1.0
φ12.7	1.8	1.0
φ15.88	2.1	1.3

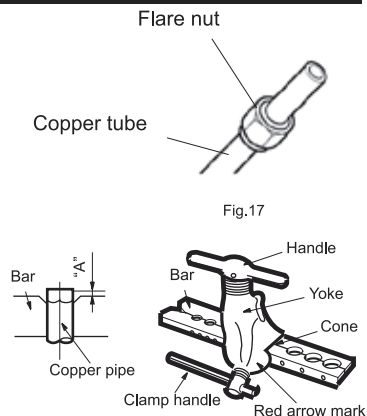


Fig.17

Fig.18

### Tightening Connection

- Align the center of the pipes.
- Sufficiently tighten the flare nut with fingers, and then tighten it with a spanner and torque wrench as shown in Fig.20 & 21.

Outer diam.	torque(N.cm)	Additional tightening torque(N.cm)
φ 6.35	1500 (153kgf.cm)	1600 (163kgf.cm)
φ 9.52	2500 (255kgf.cm)	2600 (265kgf.cm)
φ 12.7	3500 (357kgf.cm)	3600 (367kgf.cm)
φ15.88	5000 (510kgf.cm)	5200 (530kgf.cm)

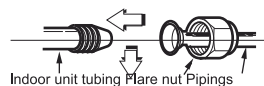


Fig.19

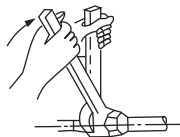


Fig.20

### Caution

- Excessive torque can break nut depending on installation conditions.

### Electrical work

Electric safety regulations for the initial Installation

- If there is serious safety problem about the power supply, the technicians should refuse to install the air conditioner and explain to the client until the problem is solved.
- Power voltage should be in the range of 90%~110%of rated voltage.
- The creepage protector and main power switch with a 1.5 times capacity of Max. Current of the unit should be installed in power circuit.
- Ensure the air conditioner is grounded well.
- According to the attached Electrical Connection Diagram located on the panel of the outdoor unit to connect the wire.
- All wiring must comply with local and national electrical codes and be installed by qualified and skilled electricians.
- An individual branch circuit and single receptacle used only for this air conditioner must be available. See the following table for suggested wire sizes and fuse specifications:

## ELECTRICAL WORK

### Minimum nominal cross-sectional area of conductors:

Recommended cable size for different capacity		
Model	Indoor&Outdoor connection wire	DC connection wire
9000BTU	18AWG/0.75mm <sup>2</sup>	8AWG/10mm <sup>2</sup>
12000BTU	18AWG/0.75mm <sup>2</sup>	8AWG/10mm <sup>2</sup>
18000BTU	18AWG/0.75mm <sup>2</sup>	6AWG/16mm <sup>2</sup>
24000BTU	18AWG/0.75mm <sup>2</sup>	4AWG/25mm <sup>2</sup>

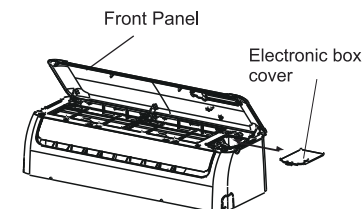


Fig.21

**NOTE:** The cable size and the current of the fuse or switch are determined by the maximum current indicated on the nameplate which located on the side panel of the unit. Please refer to the nameplate before selecting the cable, fuse and switch.

### Connect the cable to the indoor unit

**NOTE:** Before performing any electrical work, turn off the main power to the system.

1: When you do the indoor & outdoor unit wire connection, please refer to the diagram at the right side.

2: The outdoor unit wire and indoor outdoor connection wire is YZW series.

3: Wrap those cables not connected with terminals with insulation tapes, so that they will not touch any electrical components. Secure the cable onto the control board with the cord clamp.

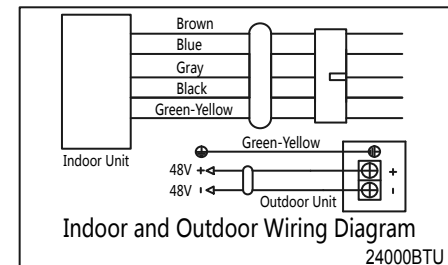
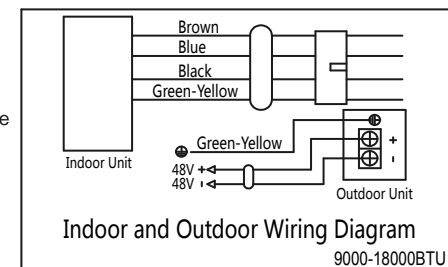


Fig.22



## ELECTRICAL WORK

- Solar panels produce electrical energy when light strikes on their front surface. If the modules are connected in series, the total voltage is equal to the sum of the individual module voltages. (If the modules are connected in parallel, the total voltage is equal to the sum of series connected module voltages). According to the input voltage of solar charger, you may decide the solar panels to be series or parallel connected. Please do not use modules of different configurations in the same system.

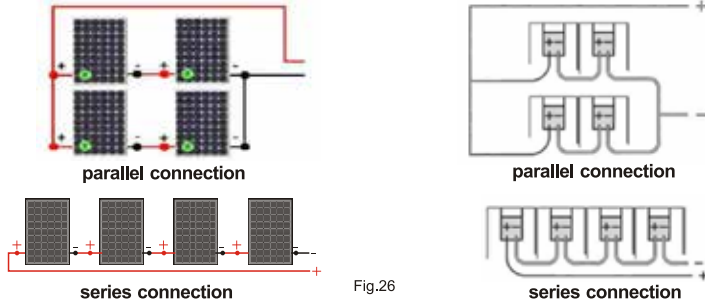


Fig.26

- Keep children well away from the system while transporting and installing mechanical and electrical components.



Fig.27

- Completely cover the module with an opaque material during installation to keep electricity from being generated. Do not touch the components or the end of live wires. However, if appropriate protections has been taken during the operation according to the local safety regulations, the above requirement is unnecessary.



Fig.28

- Do not wear metallic rings, watchbands, ear, nose, lip rings or other metallic devices while installing or troubleshooting photovoltaic systems.
- Use only insulated tools that are approved for working on electrical installations.



Fig.29



Fig.30

## ELECTRICAL WORK

- Between solar panel and solar charger, battery and solar charger, solar charger and air conditioner, please install individual circuit breaker, it is to protect the air conditioner when the PV voltage and current big fluctuates. To choose the capacity of circuit breaker, please calculate based on total power of solar panels

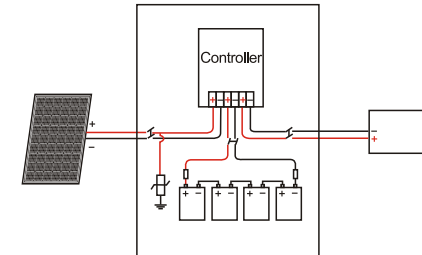


Fig.45

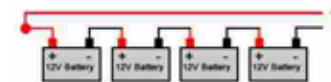
solar power supply system diagram

- If you want to connect the photovoltaic modules by using the cables purchased by yourself, the following requirements must be complied:
  - Cable installation should comply with all local regional and national regulations.
  - In some countries, an individual circuit breaker used between the solar panel and air conditioner must be installed. So select an circuit breaker in accordance with local regulations, and the rated current is more than 30A.
  - Cable installation need to distinguish the positive pole and negative pole, reverse connection may cause permanent damage to the air conditioner. Use qualified photovoltaic cables only.
  - The cable can resist UV rays and climate of rapid change.
  - The rated voltage of the cable is more than 600V.
  - The cross section area of the cable depends on the maximum short circuit current and the length of wire.
  - Be very careful when install the cable at extremely low temperature.
  - Recommended to use the cable of cross section area of 4mm or greater, and the wire should be as short as possible to reduce the energy consumption.
- When the modules are connected in parallel, cables must be securely fastened on the support frame which is used for mounting the modules to avoid wire slack.



Fig.46

- To choose the battery capacity, please consider the total power of solar panels, hours of running the air conditioner and capacity of the air conditioner. After series/parallel connection, the battery total voltage is 48V.



- To choose the capacity of solar charger, please use total power of solar panels divide 48V (W/48V), when making the calculation, please consider to choose little bigger capacity of the solar charger. (roughly about 1.2 times after calculation)



**CAUTION**

After complying to the above conditions, prepare the wiring as follows:

- 1) Never fail to have an individual power circuit specifically for the air conditioner. As for the method of wiring, be guided by the circuit diagram posted on the inside of control cover.
- 2) The screw which fasten the wiring in the electrical fitting case are liable to come loose from vibrations which the unit is subjected during the course of transportation. Check them and make sure that they are all tightly fastened. (If they are loose, it could cause burn-out of the wires.)
- 3) Specification of power source.
- 4) Confirm that electrical capacity is sufficient.
- 5) Check the starting voltage is maintained at more than 90 percent of the rated voltage marked on the nameplate.
- 6) Confirm that the cable thickness is as specified in the power source specification.
- 7) Always install an earth leakage circuit breaker in a wet or moist area.
- 8) The following would be caused by voltage drop:  
Vibration of a magnetic switch, which will damage the contact point, fuse breaking, disturbance of the normal function of the overload.
- 9) The means for disconnection from a power supply shall be incorporated in the fixed wiring and have an air gap contact separation of at least 3mm in each active(phase) conductors.

**Air purging**

Air and moisture in the refrigerant system have undesirable effects as indicated below:

- Pressure in the system rises.
- Operating current rises.
- Cooling or heating efficiency drops.
- Moisture in the refrigerant circuit may freeze and block capillary tubing.
- Water may lead to corrosion of parts in the refrigeration system.

Therefore, the indoor unit and tubing between the indoor and outdoor unit must be leak tested and evacuated to remove any noncondensables and moisture from the system.

**Air purging with vacuum pump**

Preparation

- Check that each tube(both liquid and gas side tubes) between the indoor and outdoor units have been properly connected and all wiring for the test run has been completed. Remove the service valve caps from both the gas and the liquid side on the outdoor unit. Note that both the liquid and the gas side service valves on the outdoor unit are kept closed at this stage.
- Pipe length and refrigerant amount:

Connective pipe length	Air Purging method	Additional amount of refrigerant to be charged	
Less than 5m	Use Vacuum pump		
More than 5m	Use Vacuum pump	R410A(Pipe Length-5)	
		9000BTU	30g
		12000BTU	30g
		18000BTU	40g
		24000BTU	60g

- When relocate the unit to another place, perform evacuation using vacuum pump.
- Make sure the refrigerant added into the air conditioner is liquid form in any case. (Not applicable to the units adopt freon R22 )

**Caution in handling the packed valve**

- Open the valve stem until it hits against the stopper. Do not try to open it further.
- Securely tighten the valve stem cap with a spanner or the like.
- Valve stem cap tightening torque (See Tightening torque table in previous page ).

**When Using the Vacuum Pump**

(For method of using a manifold valve, refer to its operation manual.)

1. Completely tighten the flare nuts, A, B, C, D, connect the manifold valve charge hose to a charge port of the low-pressure valve on the gas pipe side.
2. Connect the charge hose connection to the vacuum pump.
3. Fully open the handle Lo of the manifold valve.
4. Operate the vacuum pump to evacuate. After starting evacuation, slightly loose the flare nut of the Lo valve on the gas pipe side and check that the air is entering (Operation noise of the vacuum pump changes and a compound meter indicates 0 instead of minus).
5. After the evacuation is complete, fully close the handle Lo of the manifold valve and stop the operation of the vacuum pump. Make evacuation for 15 minutes or more and check that the compound meter indicates -76cmHg (-1x10 Pa).
6. Turn the stem of the packed valve B about 45° counterclockwise for 6~7 seconds after the gas coming out, then tighten the flare nut again. Make sure the pressure display in the pressure indicator is a little higher than the atmosphere pressure.
7. Remove the charge hose from the Low pressure charge hose.
8. Fully open the packed valve stems B and A.
9. Securely tighten the cap of the packed valve.

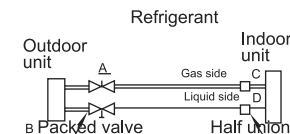


Fig.52

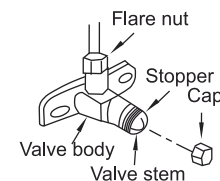


Fig.53

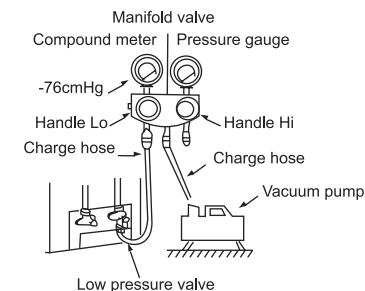


Fig.54



## Safety and leakage check

### ● Electrical safety check

Perform the electric safe check after completing installation:

#### 1. Grounding work

After finishing grounding work, measure the grounding resistance by visual detection and grounding resistance tester. Make sure the grounding resistance is less than 4  $\Omega$

#### 2. Electrical leakage check (performing during test running)

During test operation after finishing installation, the serviceman can use the electroprobe and multimeter to perform the electrical leakage check. Turn off the unit immediately if leakage happens. Check and find out the solution ways till the unit operate properly.

### ● Gas leak check

#### 1. Soap water method:

Apply a soap water or a liquid neutral detergent on the indoor unit connection or outdoor unit connections by a soft brush to check for leakage of the connecting points of the piping. If bubbles come out, the pipes have leakage.

#### 2. Leak detector

Use the leak detector to check for leakage.

### CAUTION

A: Lo packed valve B: Hi packed valve  
C and D are ends of indoor unit connection.

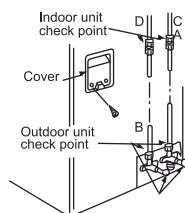


Fig.55

## Test running

Perform test operation after completing gas leak check at the flare nut connections and electrical safety check.

- Check that all tubing and wiring have been properly connected.
- Check that the gas and liquid side service valves are fully open.

1. Connect the power, press the ON/OFF button on the remote controller to turn the unit on.

2. Use the MODE button to select COOL, HEAT, AUTO and FAN to check if all the functions work well.

3. When the ambient temperature is too low (lower than 16°C), the unit cannot be controlled by the remote controller to run at cooling mode, manual operation can be taken. Manual operation is used only when the remote controller is disabled or maintenance necessary.

- Press the Manual control button on the right side of the panel frame to select the AUTO or COOL, the unit will operate under Forced AUTO or COOL mode (see User Manual for details).

4. The test operation should last about 30 minutes.

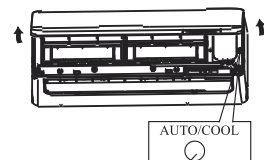


Fig.56

1. Aim the remote controller towards the receiver on the air-conditioner.

2. The remote controller should be within 8 meters away from the receiver.

3. No obstacles between the remote controller and receiver.

4. Do not drop or throw the remote controller.

5. Do not put the remote controller under the forceful sun rays or heating facilities and other heating sources.

6. Use two 7# batteries, do not use the electric batteries.

7. Take the batteries out of remote controller before stop its using for long.

8. When the noise of transmitting signal can't be heard indoor unit or the transmission symbol on the display screen doesn't flare, batteries need be replaced.

9. If reset phenomenon occurs on pressing the button of the remote controller, the electric quantity is deficient and new batteries need to be substituted.

10. The waste battery should be disposed properly.

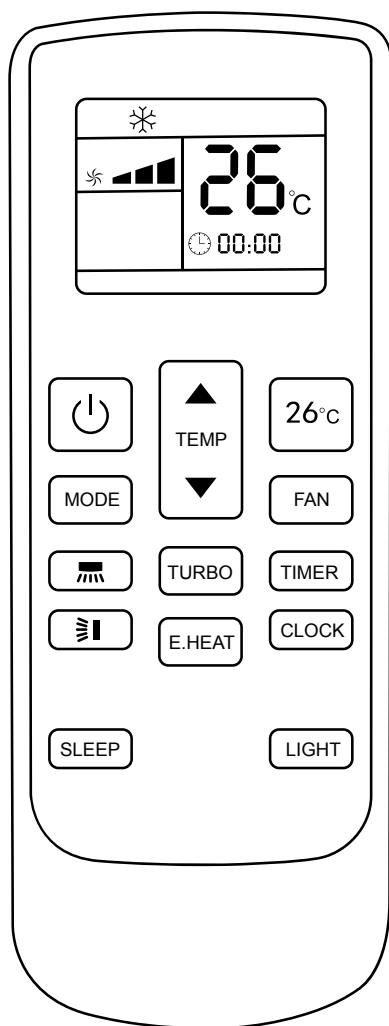
### Note:

\* The picture is general remote controller, contains almost all of the function buttons. They may be slightly different from material object (depend on model).

\* All the figures above are the displays after being initially electrified or re-electrified after power off. In actual operations, the remote controller screen displays related items only.

\* The cooling only units don't have the function of heating or electric heating. When the remote controller turns to such function buttons, the units will not result such effect. Please don't turn the remote controller to such buttons.

## Remote controller inside



1. **“ON/OFF”** button
  - \* Press this button, the unit will be started or stopped, which can clear the timer or sleeping function of last time.
2. **“MODE”** button
  - \* Press this button, the running mode will change as below:
 

AUTO → COOL → DRY → HEAT → FAN
  - \* **Note: cooling only unit has no heating function.**
3. **“FAN”** button
  - \* Press this button, speed will change as below:
 

Low → Mid → High → Auto
4. **“TURBO”** button
  - \* Set turbo on or off (the characters of turbo will appear or disappear) by pressing this key under cooling or heating mode.
  - \* Once energized, the unit will be defaulted to be turbo off.
  - \* This function can not be set under auto, dry or fan mode, and characters of turbo won't appear.
5. **“TIMER”** button
  - \* On the status of the unit on, press this button to set timer off. On the status of the unit off, press this button to set timer on.
  - \* After press this key, press ^ / v button to adjust time (press ^ / v button to change timing value quickly); press this key again to fix the time, then remote controller will send out the signal immediately.
6. **“SLEEP”** button
  - \* Press the **SLEEP** button, the remote controller screen shows sleeping mode set.
  - \* The air-conditioner runs in sleeping mode for 8 hours and quit sleep mode, recover back to former mode.
  - \* The unit will turn off automatically if the timing mode are running out of time.
  - \* **Note: press the MODE or ON/OFF button, the remote controller clears sleeping mode away.**

7. "LIGHT" button

- \* In display mode, press button once, shut off display, press it again, LCD will show setting temperature  
It's convenient for users who are not adapt to noctilucence

8. "E.HEAT" button(only for hot pump type)

- \* In heating mode, press this button, the mode of operation is shifted into supplementary electric heating. (optional)

9. "▲ /▼" button

- \* When press ▲ button, the setting temperature will be increased by 1℃.When press ▼ button, the setting temperature will be decreased by 1℃.
- \* The temperature will be changed quickly by pressing the button continuously and setting temperature range is 16℃ to 32℃.

10 "≡" & "≡" button(SWING↕ and SWING↔ )

- \* Press this button to open up/down(left/right) swing function, press it again, fix louver position.
- \* Up/down(left/right) setting is only valid in this mode, it will not affect louver position in other modes.
- \* Up/down(left/right) swing has memory function, it can keep primary setting when turn off then turn on or switch from other modes to primary mode.

11."CLOCK" button: press this button to enter thecurrent time settings,press "▼"and" ▲" accordingto the current temperature , after the completion of the set and then click the button again to confirm the completion of the clock set.

12."energy saving 26℃" button: In start on status, press the energy saving button to immediately enter the cooling mode and set the temperature to 26 degrees to run.

★ Fix batteries



- 1.Slide open the cover according the direction indicated by arrowhead.
- 2.Put into two brand new batteries (7#), position the batteries to right electric poles (+&-).
- 3.Put back the cover.

★ Automatic operation mode

- 1.Press the ON/OFF button, the air-conditioner starts to operate.
- 2.Press the MODE button, select the automatic operation mode.
- 3.Press the FAN button, you can select fan speed.You can select fan speed from LOW, MID, HIGH, AUTO.
- 4.Press the button again, the air-conditioner stops.

★ Cooling/Heating operation mode  
(cold wind type has no heating function)

- 1.Press the ON/OFF button, the air-conditioner starts to operate.
- 2.Press the MODE button, select the Cooling or Heating operation mode.
- 3.Press the "△" or "▽" button, set the temperature, temperature can be set at 1℃ difference range from 16-32℃.

4. Press the FAN button, you can select fan speed. You can select fan speed from LOW, MID, HIGH, AUTO.
5. Press the button again, the air-conditioner stops.

### ★ Fan operation mode

1. Press the ON/OFF button, the air-conditioner starts to operate.
2. Press the MODE button, select the Cooling or Heating operation mode.
3. Press the FAN button, you can select fan speed. You can select fan speed from LOW, MID, HIGH.
4. Press the button again, the air-conditioner stops.

**Remark: In the circulation operation mode, to set the temperature is noneffective.**

### ★ Drying operation mode

1. Press the ON/OFF button, the air-conditioner starts to operate.
2. Press the MODE button, select the Dry operation mode.
3. Press the “△” or “▽” button, set the temperature, temperature can be set at 1℃ difference range from 16-32℃.
4. Press the FAN button, you can select fan speed. You can select fan speed from LOW, MID, HIGH.
5. Press the button again, the air-conditioner stops.

#### Note:

**This manual introduces function for all of the remote control, maybe you press one button without any reaction, well, the air-conditioner you bought hasn't this function.**

## ⚠ Warning

Installation Caution of DC 48V Off Grid Air Conditioner

#### About Electrical:

1. DC circuit breaker is required to install between solar panel and solar charger, between solar charger and battery, between solar charger and air conditioner.
2. The solar panel system must be grounding, and install the lightning protection device.
3. When you connect the main power to the air conditioner, please pay more attention on the polarity. The “+” on the air conditioner connect with positive “+” on the solar charger, and “-” on the air conditioner connect with negative “-” on the solar charger. If wrong connection, the control circuit of air conditioner will be burnt.
4. When you do the indoor & outdoor unit wiring connection, please strictly connect by using the provided connectors.
5. Some units has the air switch on the outdoor unit, before turn on the air conditioner, please make sure it is ON.
6. The max. voltage from solar panel to solar charger is 100VDC, and the min. voltage not less than 56VDC.
7. The series connection voltage of battery is 48VDC. For example, the 12VDC battery, you need 4x12VDC to be series connected.

#### About installation:

1. After connect the indoor and outdoor unit with copper pipe, please vacuum the air from indoor unit and copper pipe on the outdoor unit air valve, the vacuum time not less than 15 minutes, the vacuum pressure display to be -0.1MPa.
2. The outdoor unit installation must be horizontal, or the angle of inclination less than 5°

#### About Air Conditioner:

The Air Conditioner Setting temperature should no less than 20℃.