

# D 30A

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## RV Air Conditioning Installation Manual



# Preface

In order to ensure the best use effect of the products of the company, improve the reliability, economy and reduce the fault frequency, a scientific and reasonable installation process is particularly important. This manual provides technical guidance for the pre-sale and after-sales service personnel of the company, Please all service personnel implement it carefully. At the same time, this manual can also provide reference for the installation of relevant supporting manufacturers.

## I . Safety precautions

1. Special work clothes and anti-skid shoes must be worn, and slippers, shorts and vests are strictly prohibited for installation operation;
2. Be sure to wear eyeglasses or safety glasses to prevent dust, iron chips and impurities from falling into the eyes when working with the head up;
3. Do not damage the appearance of the body and air conditioning during installation, and clean the compartment after installation;
4. When welding the car body, pay attention to the position of the fuel tank. It is strictly prohibited to operate with an open fire near the fuel tank of the gasoline car;
5. When using AC power supply, pay attention to the electrical safety and ensure reliable line insulation;
6. Refrigerant can produce toxic gas in open fire, which can cause suffocation and death in severe cases; refrigerant injection into the air may freeze the human body, so the protection work must be done. If the refrigerant liquid enters the eye or touches the skin, the following measures should be taken immediately:
  - ① rinse the touched parts with plenty of cold water (do not rub the eyes or skin);
  - ② applies the skin with Vaseline (Harry oil);
  - ③ Go to the hospital immediately for special treatment;
- ④ 7. When the air conditioning is running, if an abnormal noise, vibration or smell is found, stop immediately for inspection, not forced operation;
8. When repairing the circuit, disconnect the main power supply to prevent short circuit from causing fire.
9. Great care should be taken when drilling into the equipment. Because these holes are very likely to reduce the structural strength of the equipment, if these holes are drilled into the electric wires, they may also cause electric shock and fire.
10. Keep your hands away from rotating parts such as fans when the device is running,.

## II. Preparations before the installation

### 1. Determine the installation position of the air conditioning

The air conditioning unit shall be installed on the top of the car, the return air of the unit is inhaled from bottom to up, and the outlet air is discharged into the vehicle from top-down.

### 2. Heat insulation treatment of the car body

The top of the body, skirt, air pipe, air scoop etc. should be heat insulation .The technical requirements shall meet the relevant requirements of the JT / T216-95 thermal insulation performance test of the Ministry of Communications.

Inspection item:

- ①.The thickness of insulation layer around of the body ,roof and engine is more than 30mm;
- ②.The connection of body, roof and air duct frame shall be insulated to avoid the loss of cold due to cold bridge;
- ③.The doors and windows are sealed well;
- ④.All components should be installed as far away from the heat source as possible, and take into the account the convenience of maintenance.

## III. Product features

The air conditioning is mainly suitable for RV, lifting equipment, small ships, mobile communication vehicles, medical service vehicles, mobile police cars, special purpose van and so on.

1. Streamlined appearance design, effectively reduce the wind resistance, compact structure, beautiful, small volume.
2. Large cold volume and air supply volume, to meet the greater space requirements.
3. Air conditioning operation is simple, with an advanced computer board and remote control design, can facilitate the precise control of air conditioning.
4. Low noise, lower than similar products, and long service life.
5. Using the new environmentally friendly refrigerant R 134a, no pollution and no damage to the environment.
6. Use AC220V or AC110V AC or DC12V DC,good economy.

7. The inner air duct is beautiful and generous, the air supply can be adjusted the direction at will to ensure the air supply uniformity.
8. High shock resistance,normal operation in vibration and bumpy sections.
9. Light weight, simple and easy to install.

#### **IV. Unit model selection**

1. Select:

Suitable in most cabins or RV. In order to determine suitability and to ensure the warranty is always valid, the installation in commercial and industrial vehicles must be approved by our technical department .

2. Heat (cold) capacity:

The ability of air conditioning to cool and heat the the entire vehicle is limited by:

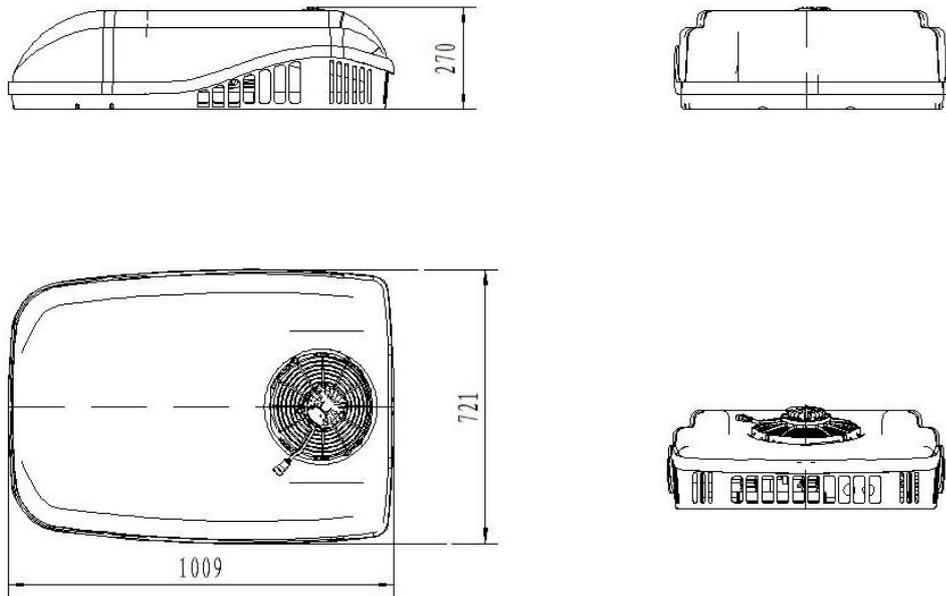
- The size of the car
- Thickness and heat insulation capacity of the car
- Size and type of car windows

The recommended maximum length is 7 meters, which is that the wall thickness is enough and the top has not less than 25mm insulation (foam or wool) .The Windows should have blast-proof film or at least curtains.

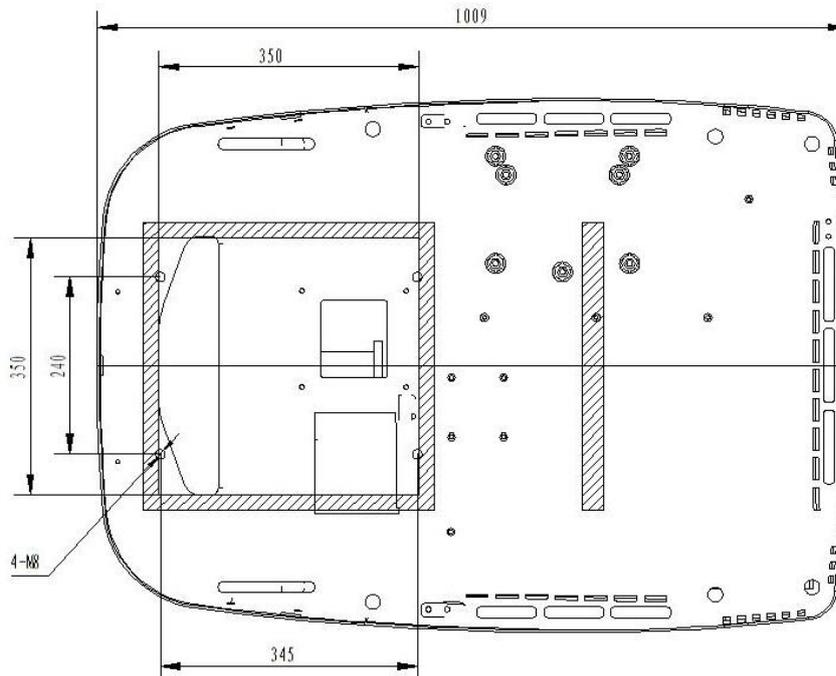
If the car often works in a high temperature environment (104°F), in order to ensure the refrigeration effect, that is, to ensure the installation of the best insulation materials, with double glazing Windows, and is a car not longer than 6 meters.

## V. Outline of installation dimension drawing

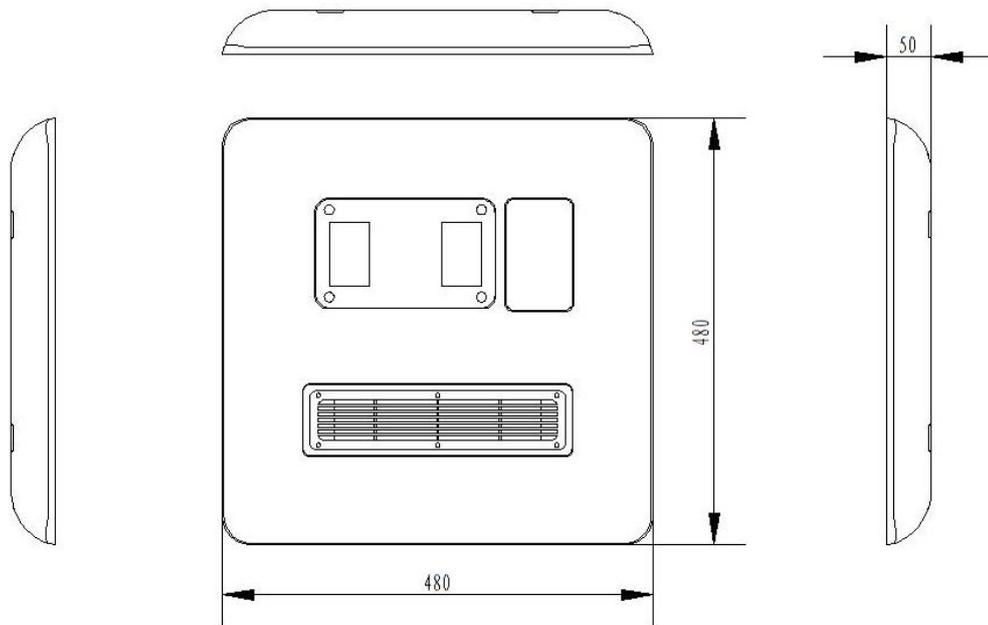
### 1. Outline dimension drawing



### 2. Installation of hole opening dimension drawing



### 3. Outline dimension drawing of the inner air duct



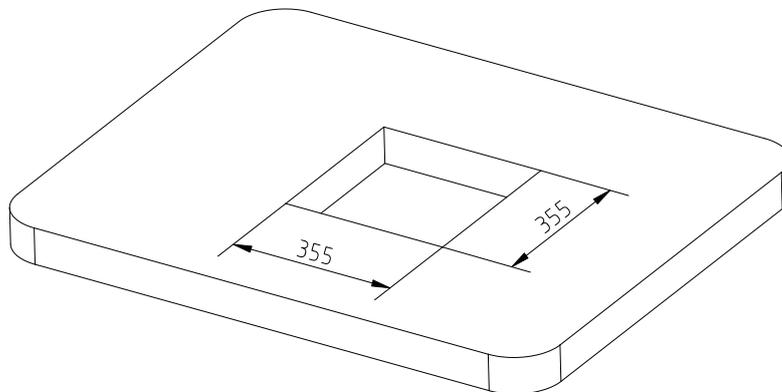
**VI. Unit installation instructions**

**1. Car roof strength**

The weight of air conditioner is about 45KG. Before installation, confirm whether the strength of the installation position can carry the unit, so as not to cause personnel injury and equipment damage.

**2. Open the hole**

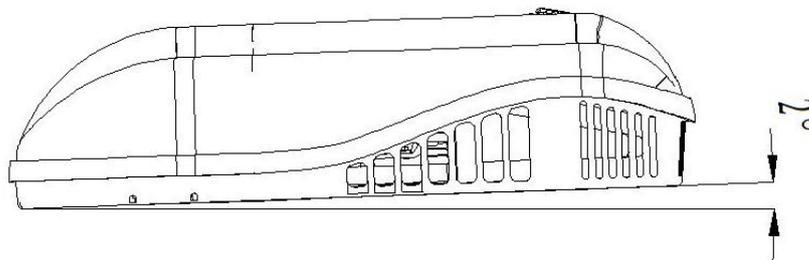
As much as possible to install the unit in the middle and front of the roof to ensure that the outdoor exhaust of the unit is not affected. Open a vent with the size of 355x355mm (please strictly follow this size) and avoid wires, lines and other components before cutting. If necessary, it should be reinforced and sealed around the opening to prevent water leakage and hot air from entering the carriage.



**3. Installation Angle requirements**

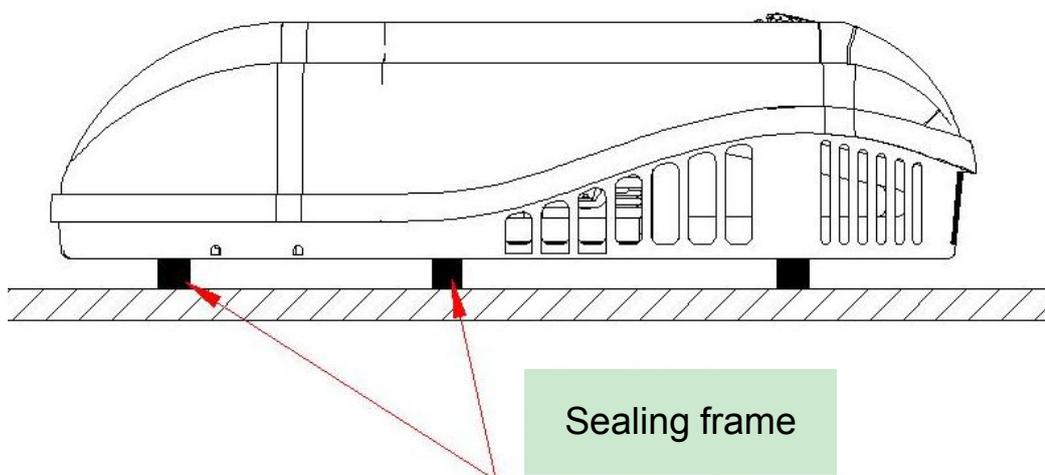
Standard installation is required to be mounted on the same level. If some roof is tilted, the tilt of the installation of air conditioning can not be greater than 2 degrees, otherwise it will

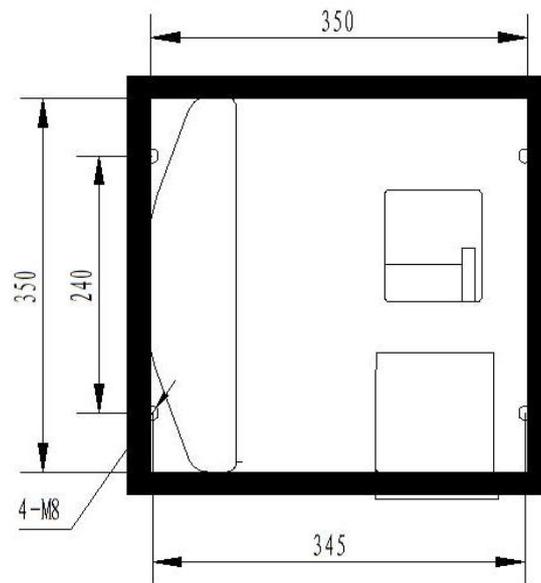
affect the normal discharge of air conditioning condensate, seriously, will lead to air conditioning leakage into the car. So before installation, try to use rubber and plastic sponge board to stick it flat, and then measure the height between the front and rear position of the air conditioning bottom plate and the car roof, to maintain the same size.



#### 4. Install the outdoor unit

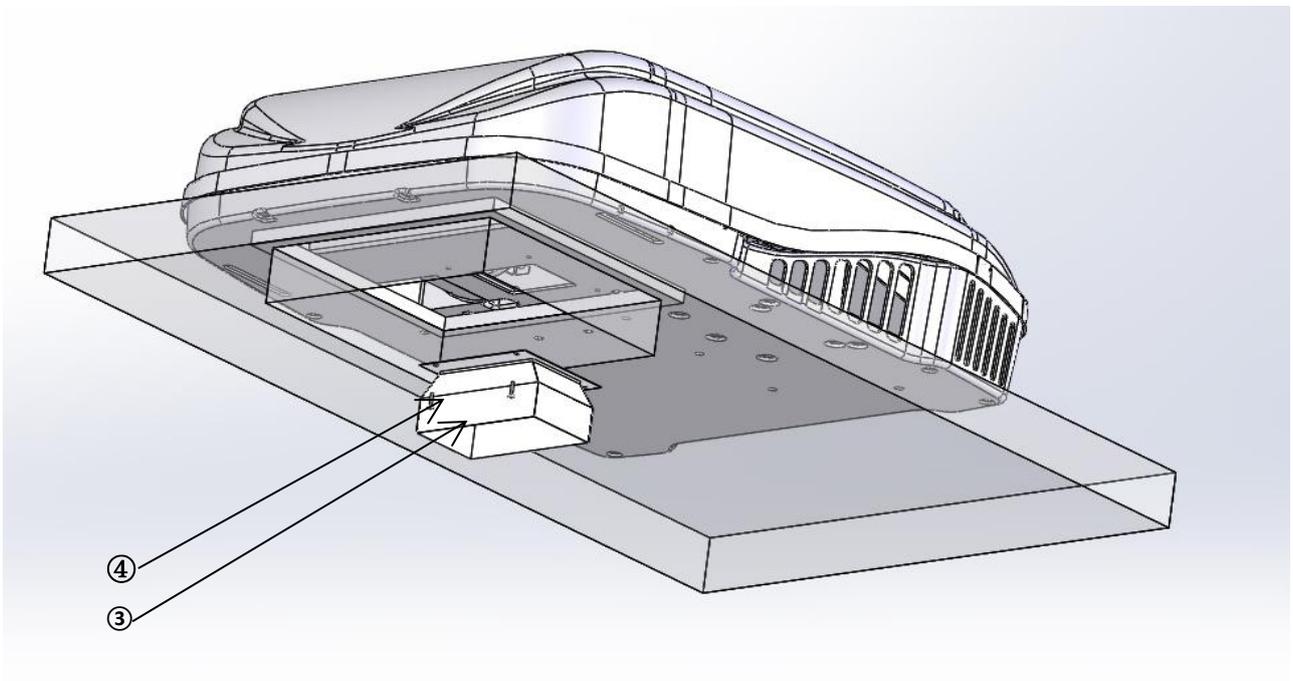
Install the outdoor unit directly on the opening of 355x355 , as shown. The black EVR sealing frame at the bottom of the air conditioner is placed on the opening hole. Inside the compartment, the four M8 mounting holes at the bottom of the air conditioner are evenly symmetrical in front and rear. Seal with sealant for waterproof treatment, especially at the connection , to ensure that the roof does not leak down.





### 5. Fixed to the mounting plate of air guide duct

Align the four installation holes on the ③ air guide duct mounting plate with the installation holes of the air conditioning outdoor unit, fix it with the outdoor unit of air conditioning using the ④ four M5 installation bolts



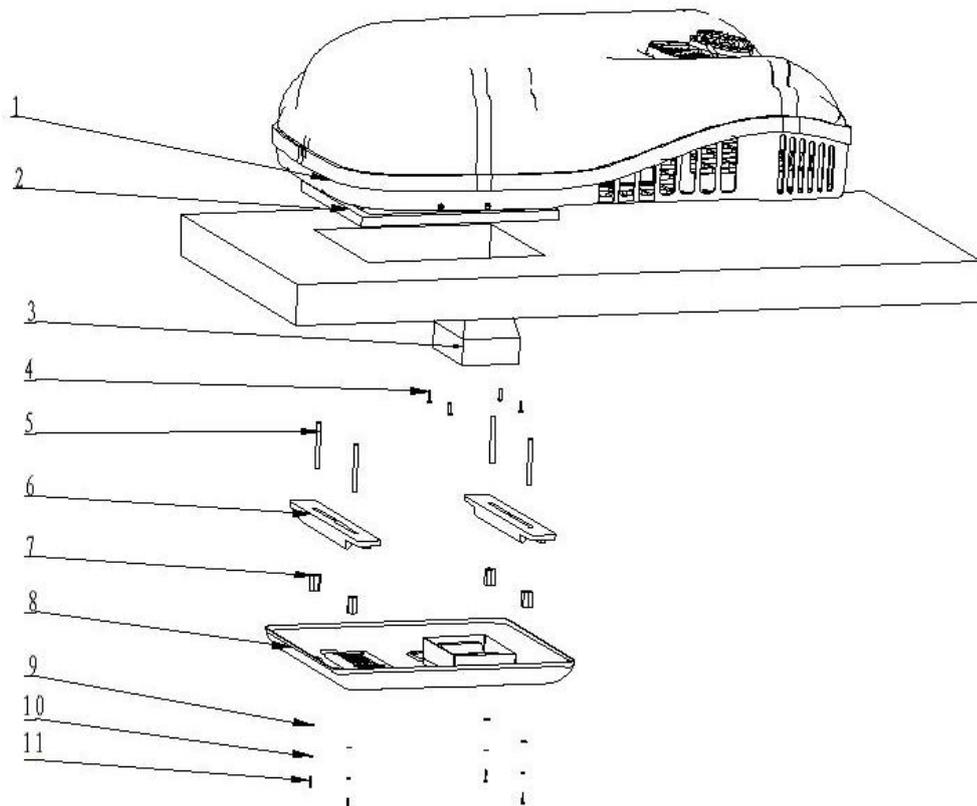
- ⑤. Internal air duct mounting screw
- ⑥. Fixed profile,
- ⑦. Hexagon thread mounting column
- ⑧. Internal wind duct

⑨.M6 Gasket ⑩.M6 gasket

⑪.M6 bolt

### 6. Fix the inside air duct mounting plate

Fix the four M8-holes on the air conditioning outdoor under plate with the ⑤ internal air duct mounting screw first.The ⑥ fixed profile is fixed with the ⑦ hexagon thread mounting column, and the tightness can be adjusted according to the usage situation.



### 7. Fixed the air duct

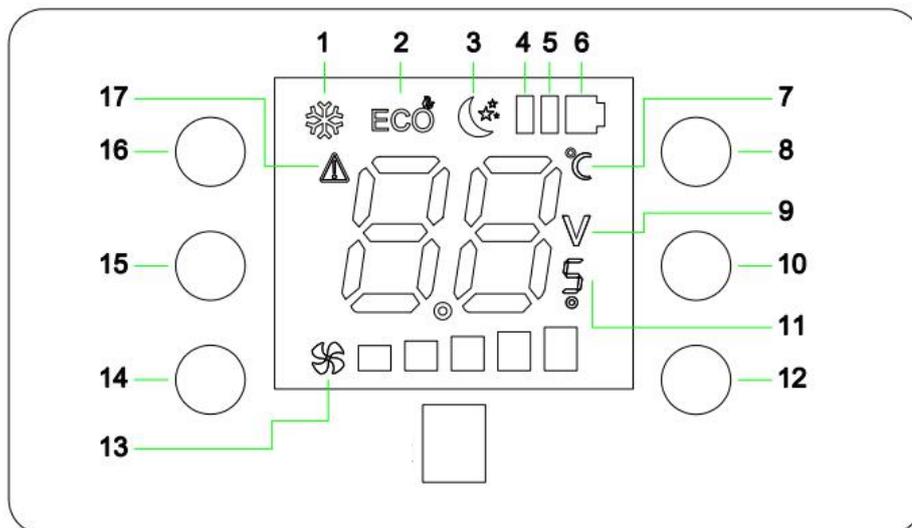
Connect the extended harness of the air duct to the outdoor unit harness.Then fix the ⑧ internal air duct and the mounted air guide duct on the bottom plate of the ③ outdoor unit . fix the four holes in the inner duct with the ⑨⑩⑪ mounting bolts.

## VII. operation instruction

The air conditioner is equipped with the following panel for operation.

### 1. Touch panel

Panel appearance



**①, key function:**

- 16. **Power supply switch:** Short press power on , long press 3 seconds shut off.During the shutdown state, press for 10 seconds all the settings will be restored to the factory settings.
- 15. **Wind speed +:**Increase air supply volume; increase low voltage protection value.
- 14. **Wind speed-:** Reduce air supply volume; reduce low pressure protection value.
- 8. **Mode key:** Cycle switch four modes of wind supply, strong, energy saving, sleep, long press 6 seconds to enter the voltage setting during the powered on .
- 10, **temperature +:** Increase the temperature; increase the low-voltage protection recovery value.
- 12. **temperature-:** reduce temperature; reduce low pressure protection recovery value.

**②. Instructions:**

- 1. Strong mode 2.ECO energy saving mode 3. Sleep mode 4. High power 5. half power 6. Low power
- 7. Temperature 9. Voltage icon 11. decimal point icon 13. Wind speed icon 17. Fault icon

**③, operation instructions:**

- 1. Short press [power switch], power on, long press [power switch], power off
- 2. Press [wind speed +] increase air supply volume by; [wind speed-],reduce wind supply volume
- 3. Set the temperature press the key on [temperature +] and [temperature-].
- 4.Press [mode button] to switch four modes of wind supply, strength, energy saving and sleep.
- 5.Under voltage and recovery value adjustment: long press [mode key] to enter the setting under voltage mode setting, Press [wind speed+] to increase low pressure protection value and press [wind speed-] to reduce low pressure protection value;

Press [temperature +] to increase low pressure protection recovery value and [temperature-] to reduce low pressure protection recovery value

**④, operating mode :**

1. Wind supply mode: the wind speed is adjustable from 1 to 5, the temperature is not adjustable, the green line voltage =0V.

2. Strong mode: press the panel strong icon , wind speed fixed 5 , set 62 °F , green line voltage =19V, wind speed 1-5 adjustable from , temperature 62°F-86°F adjustable, Display and control the indoor temperature.

3. ECO mode: wind speed 1-5 adjustable, temperature 62 °F - -22 °F adjustable, green line voltage <17V, display and control the indoor temperature.

4. Sleep mode: wind speed 1-5 adjustable, temperature set 75 °F , green line voltage <17V, display and control the indoor temperature.

**⑤, fault protection:**

1. Under voltage protection: power voltage is below the set value (default: 21.5V), speed regulating line stops output, power low , red light on.

2. Over voltage protection: power voltage is higher than 30V, the speed regulating line stops output, power high, red light on.

3. Temperature protection: the temperature probe is short circuit or open circuit, the speed regulating r line stops output, display EC.

4. Fan protection: the internal fan short circuit or open circuit, the speed regulating line stops output, display EF.

5. The panel receives a fault from the controller, the red fault light flashes and displays the following fault code:

- 12: Controller overcurrent protection.
- 13: Controller blocking protection.
- 14: controller Under voltage protection
- 15: controller damage or wiring short circuit
- 16: Controller over voltage protection.
- 17: controller is continuously blocked and stopped.
- 18: Outdoor fan failure.
- 19: The pressure switch is disconnected.
- 20: Compressor temperature protection.
- EE: Controller failure

5) remote control appearance



**VIII. Return air filter grill maintenance**

Clean the return air filter grill regularly, usually once a month, but weekly in dirty environments. The return air filter grill can be observed by the naked eye whether is dirty or not. If in the black or light gray appearance, please clean it.

When cleaning, take out the filter grill directly, clean with warm soapy water, dry, and put back .

**IX. Common faults and troubleshooting methods**

**1. air conditioning not refrigeration**

<b>Common faults phenomenon</b>	<b>Faults reason</b>	<b>Troubleshooting method</b>
Turn on the air volume switch ,air conditioning does not supply air	1. wiring fuse damage	Check and replace
	2. Air volume switch is damaged	Check and replace

Do not refrigeration	1. refrigerant Insufficient or leakage	Check and repair the leakage parts, and recharge the refrigerant
	2. Temperature setting is too high	Readjust the temperature
	3. The interior temperature control sensor (thermistor) is open circuit or defrosting temperature control is not reset	Check and replace
	4. The thermostat regulator tube is damaged	Check and replace
	5. Compressor damage	Check and replace

## 2. Air conditioner refrigeration, but not enough

Common faults phenomenon	Faults reason	Troubleshooting method
sometimes cooling sometimes not	1. Improper selection of air-conditioning control	Reset the air volume and carriage temperature
	2. Low-voltage switch protection: refrigerant leakage	Check and repair the leakage parts, and recharge the refrigerant
	3. High-voltage switch protection: excessive refrigerant , the condensing fan damage, and the condenser coil is blocked by dust	Slowly release the excess refrigerant, repair and replace the condenser fan, and clean the condenser coil
evaporator air volume is insufficient	1. The evaporator return air filter grill is blocked by dust or the evaporator fins are blocked by dirt	Clean filter grill or the evaporator fins

	2. Air conditioning air duct is blocked	Clean the air duct
	4. The evaporation fan fuse is fused or the relay is damaged	Check and replace
	5. Evaporation fan is damaged	Check and replace
	6. The input voltage of the evaporation fan is low	Check the air conditioning wiring and grounding

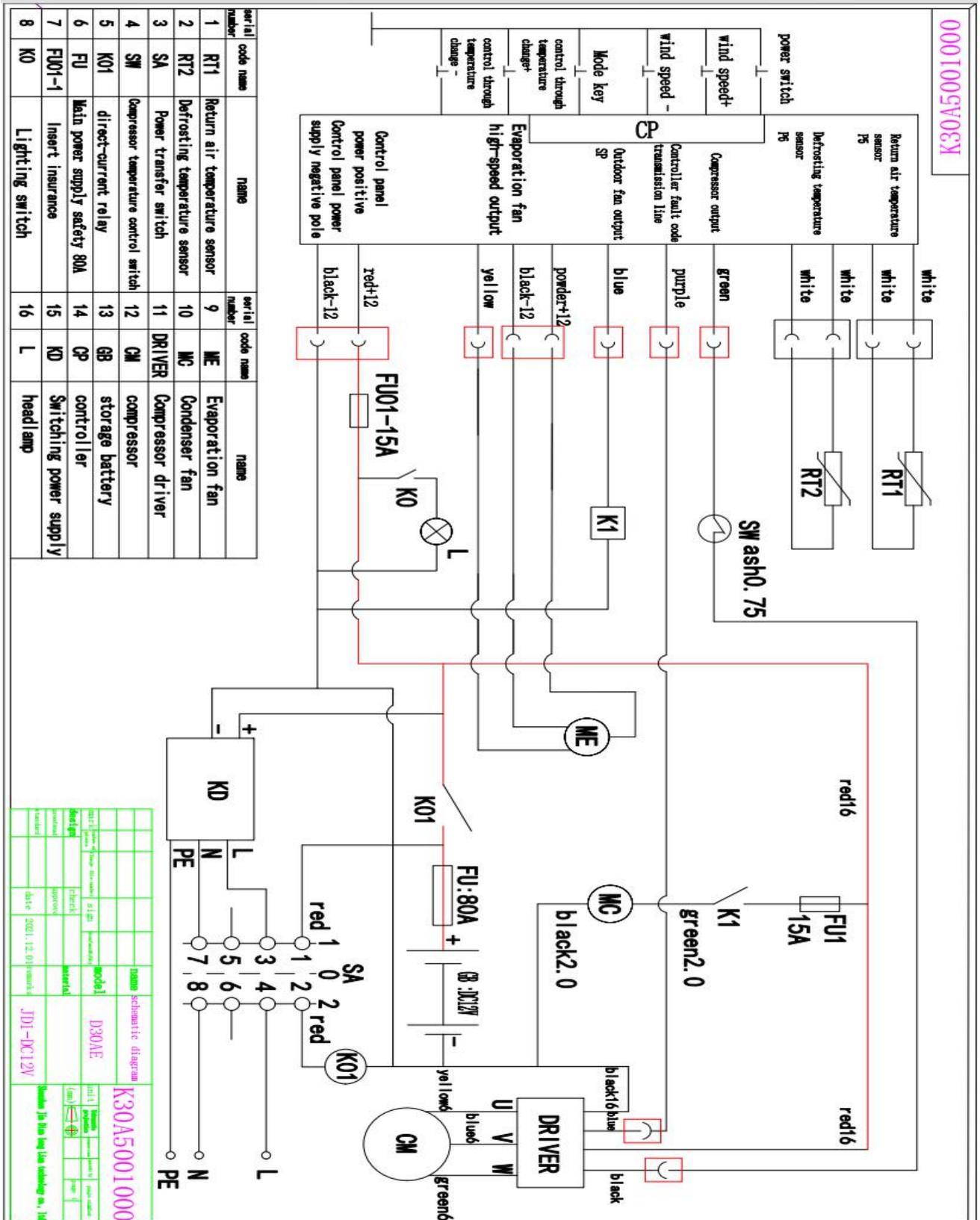
### 3. The air-conditioning system is in poor operation

Common faults phenomenon	Faults reason	Troubleshooting method
High pressure and low pressure are both too high	1. Excessive refrigerant	Slowly release the excess refrigerant
	2. The air enters into the refrigeration cycle	Remove the refrigerant, vacuum and fill the refrigerant
	3. Condensate fan fuse fuse or fan relay is damaged	Check and replace
	4. The condensate fan is damaged	Repair, replacement
	5. Condensed fins are blocked with dirt	clean the condenser fins
High pressure is slightly low and low pressure too low	1. Insufficient refrigerant	Check the leakage site and fill with the refrigerant
	2. Evaporator fins are dirty and blocked (the evaporator has frost)	clean the evaporator fins
High pressure is slightly low, low pressure is too high	compressor Internal valve plate is damaged	Repair and replace the compressor

## X. Electrical schematic diagram

According to the different control panel, the schematic diagram is also different, there are mainly one kind of electrical schematic diagram. During electrical repair, view the appropriate schematic diagram according to the fitted panels.

### 1. Touch-type panel



**Attached 1**

Technical parameter sheet	
Model	D30A
Refrigerating capacity	10200BTU
Power	110VAC or 12VDC
Consumed power	750W
Running current	60A
Refrigerant	R 134a /700g
Evaporative air volume	450m <sup>3</sup> /h
outline size (long * width * height)	1009*721*270mm
Unit weight	74kg

- Refrigeration condition: indoor dry ball temperature 80.6°F , wet ball temperature 67.1°F  
Outdoor dry ball temperature is 95 °F and wet ball temperature is 80.6°F .
- The company reserves the right to change the product design for improving the performance of the product without prior notice

**Attached 2**

Customer information:

Name \_\_\_\_\_

Address \_\_\_\_\_

\_\_\_\_\_ zip code \_\_\_\_\_ telephone \_\_\_\_\_

Date of purchase \_\_\_\_\_

Model of unit \_\_\_\_\_

Serial number \_\_\_\_\_

Install \_\_\_\_\_

Place of purchase \_\_\_\_\_

Address \_\_\_\_\_

\_\_\_\_\_ zip code \_\_\_\_\_ telephone \_\_\_\_\_