



KAC-1



VAN AIR CONDITIONER ASSEMBLY
Installation Manual

Forward

The correct installation is most important to ensure optimum utilities, to improve the reliability economic and reduce the frequency of failure. The principle of the manual is to provide technical instruction on top-installed air conditioner assembly for the technicians before and after sales services. Read and follow the instruction mentioned in the user manual carefully. Moreover, it also provides the installation guideline on matching air conditioner manufacturers.

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1.Safety Precaution

- 1).Wear working suit, working shoes when making operation. Do not wear slippers, short pants or waistcoat when installing the equipment.
- 2).Wear goggle or safety glasses preventing the dust or chips falling into the eyes when looking up.
- 3).Do not damage van body and the surface of the air conditioner. Clean the carriage after installation.
- 4).Pay more attention to the position of oil tank when welding. Do not work near oil tank.
- 5).Check the isolation of the cable connection when connecting to local power supply.
- 6).The refrigerant will produce poisonous gases when there is bright fire. The personnel will suffocate or die when breathing the poisonous gases. The spray of the refrigerant will hurt the body. The protection is the most important before installation. Take the following methods if the refrigerant splashing into the eyes or on the skin: ① Wash eyes or damaged skin with lots of water (do not rub the eyes or skin); ②Apply the Vaseline on the skin; ③ Go to the hospital immediately for special treatment;
- 7).When unit running, if find abnormal noise, vibration or smell, it must shutdown and inspection at once, must not forced service;
- 8).Shut off the power supply when making repair, preventing the fireworks due to short circuit.
- 9).Must be carefully, if it's necessary to drill holes on the van. These holes might reduce the construction strength. Or result electric shock and fireworks when the holes drilled on the wire.
- 10).Keep your hands far away from rotating parts, such as fan when the equipment is running.

2.Technical preparation before installation

1).Positioning the air conditioner

KAC air conditioner assembly should be installed on the top of the van. The air return will be absorbed from the bottom to the top and the vented air will be discharged from the top to the interior of van.

2).Van body isolation

The top van, surrounding, air channel and ventilator must be isolated correctly, comply with the testing requirement of JT/T216-95 issued by transportation department.

Check the following items::

- ①. the isolation thickness of the surrounding and top of van body and engine should

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be higher than $\geq 30\text{mm}$;

- ②. The joints between body, top van and air channel should be isolated, avoiding the loss of cooling;
- ③. Ensure the seal good performance of door and windows of the van;
- ④. The installation of all parts should be far from the heat source and ensure to easily repair and maintenance.

3. Product feature

The unit is suitable for caravan, hoisting equipment, small-scale ships, mobile communication van, medical service van, mobile police car, special purposes van, and so on.

- 1). Clipper-built appearance design, effectively to decrease windage, Compact structure, beautiful, small volume.
- 2). Extra large cooling capacity and air volume, satisfy larger space requirement.
- 3). Easy operation, has advanced computer board and remote control design, convenient and precise to control the unit.
- 4). Low noise, long service life.
- 5). Use new environmental protection refrigerant R410A, no pollution and no damage to the environment.
- 6). Use AC220V or AC110V alternating current, good economics.
- 7). Inner air duct elegant appearance, supply air from front and back, uniform air supply
- 8). Good shock resistance, it can operation normally in shake and bumpy road.
- 9). With heating option, it can use during the winter.
- 10). Light-weight, easy for installation.

4. Assembly Selection

1). Selection:

The unit is suitable installed on trailing car or van. In order to determine the suitability of the warranty and guarantee consistently effective when installed in commercial vehicles and industrial vehicles, must be approved by the company's technology department approved.

2). Cooling(heating) capacity:

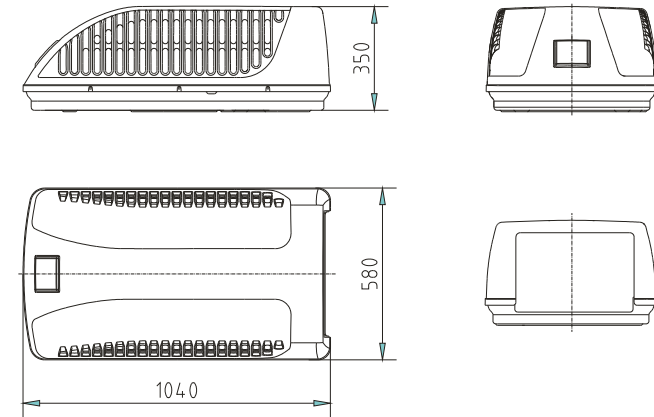
The capability of cooling(heating) of the van depends on:

- ☆ The dimension of the van
 - ☆ The thickness of the wall and isolation
 - ☆ The size of the van windows and types
- The recommend van length is 6 meters,

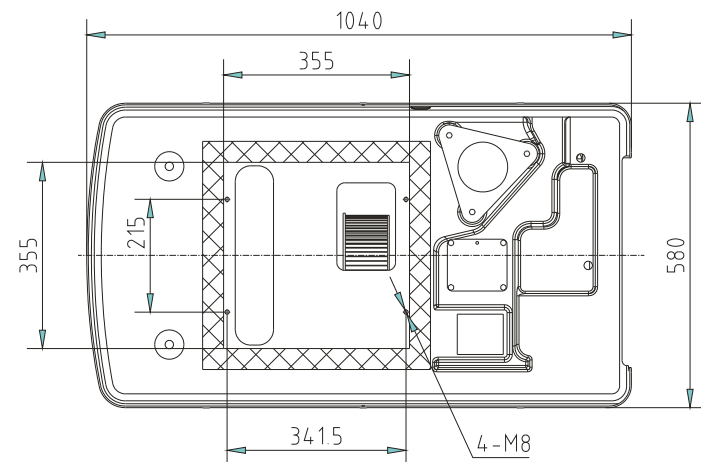
with enough wall thickness and isolation layer no less than 25mm (foam or wool). The windows must have anti-explosion film or curtain. Use the best isolation material and double layer windows since the van is working under high temperature(40°C), ensure the best refrigeration. The total van length will not be longer than 6 meters.

5. Outline Mounting Dimension Drawing

1). Outline dimensional drawing

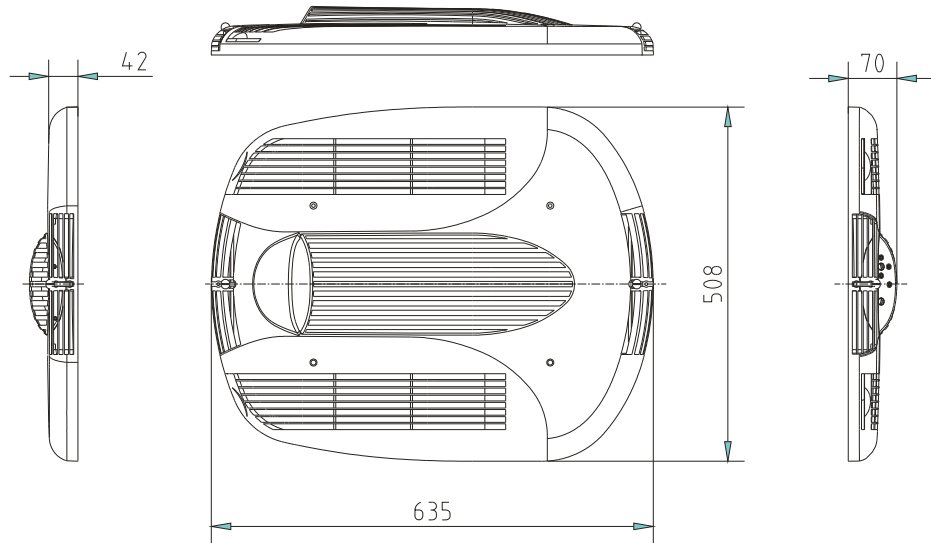


2). Mounting-hole Size drawing



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3). Inner air duct outline dimensional drawing



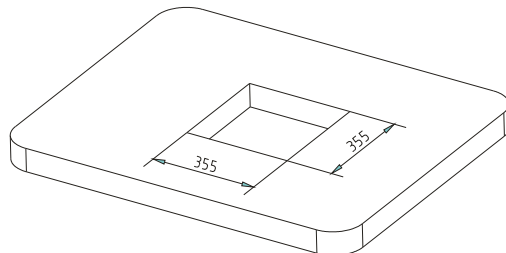
6. Installation instructions

1). Roof strength

There must be enough strength since the KAC-1 air conditioner assembly is about 45kg. The top strength of normal car is not enough except the special vehicles with air conditioning required.

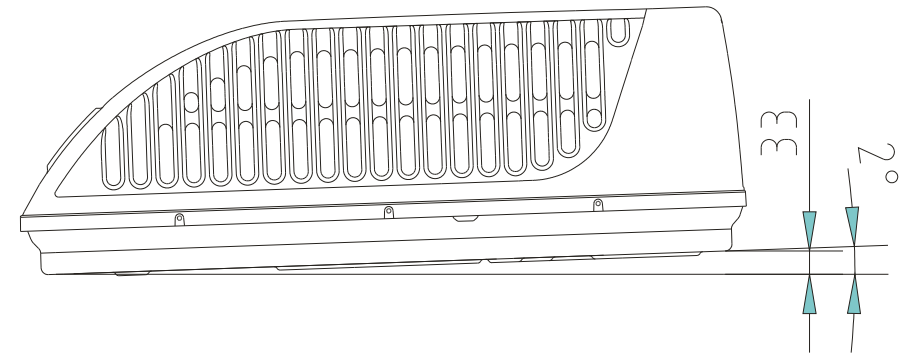
2). Trepanning

Install the unit on the front part of the top van, ensure the unit exhaust air in outdoor unaffected. Trepanning the air vent 355×355mm on top of van (please strict with this dimension), should be keep away from wire, pipeline before cutting. It should strengthening and sealing all around the hole, prevent water leakage and hot air come into the van.



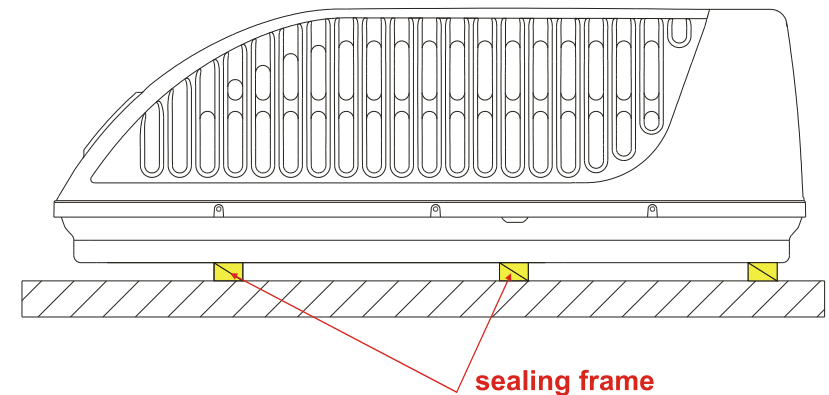
3). Installation Angles requirement

Standard installation is required in the same horizontal plane. If there is angle on top van, the inclined angle will not be larger than 2° , otherwise condensation water normal discharge will be affected. The worse is lead to A/C unit leaking into the van. So, it should use rubber plastic sponge to level up.

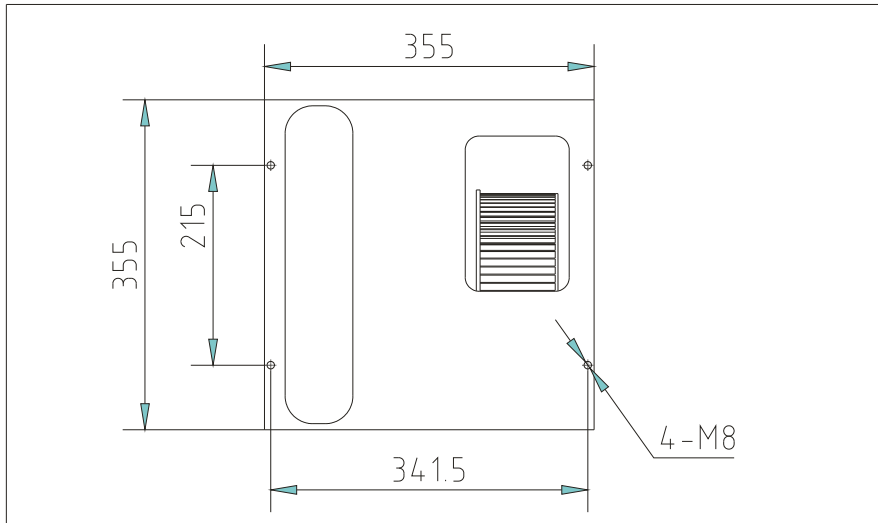


4). Outdoor unit installation

Install the outdoor unit into 355×355 open hole, as shown in the figure. Place the black EVR sealing frame at the bottom of outdoor unit in the open hole, four pcs M8 mounting hole uniform and symmetrical at the bottom of unit inside the van. Use sealant to waterproof processing.

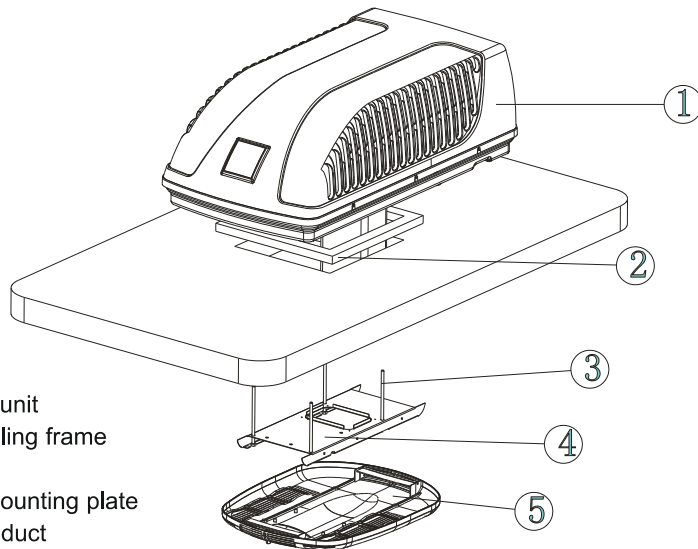


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5). Fixed mounting plate

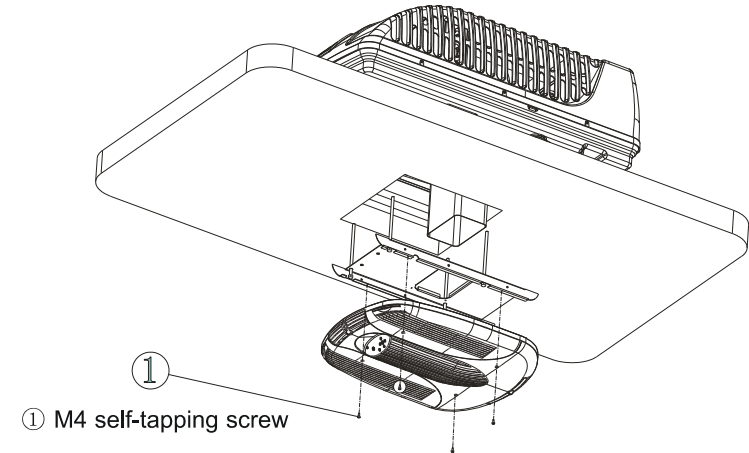
Let the 4 mounting hole of indoor mounting plate and the mounting hole of outdoor unit alignment, use 4*M8 mounting bolt to fasten.



- ① Outdoor unit
- ② EVR sealing frame
- ③ M8 bolt
- ④ indoor mounting plate
- ⑤ inner air duct

6). Fixed inner air duct

Connect the wiring from the outdoor unit with inner air duct connector .Then fixed the guide duct, you can cut it if too long. Inner air duct use four M4 * 15 self-tapping screw fixed.



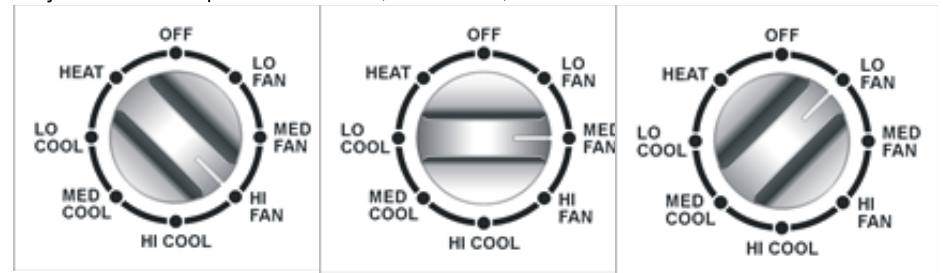
7. Operating instructions

You can choose any of these control panels according to your demand.

1). Turn-knob control panel

1) Ventilation

Adjusted the air speed to LO FAN, MED FAN, HI FAN.



2) Refrigeration

Adjusted to LO.COOL on the control panel of rotary switch, that is low air speed refrigerating status; To make indoor temperature down in a short time, you can adjust the temperature switch to MED .COOL or HI.COOL, HI.COOL is high air speed refrigerating status, and then adjust the temperature to desired temperature. Please wait for 3 min when shutdown and startup.

8. Maintenance of return air filter

Clean the air return filter periodically. Generally speaking, the air return filter will be cleaned once a month. It will be cleaner once a week if it works in a dirty condition. The air return filter is visible. For example, the dark appearance shows the filter is clean, while the gray appearance indicates the air return filter needed to be washed. Open the filter plate with screwdriver and take out the screen. Clean it with suds and dry. Put the filter into the right place.

9. Trouble shooting

1. Air conditioner not refrigerating

Troubles	Possible reasons	Solution
No air after turning on FAN	1. Fuse broken	Check and replace
	2. FAN switch damaged	Check and replace
Not refrigerating	1. Refrigerant filling not enough or leaking	Check the leakage and fill in the refrigerant
	2. Temperature too high	Readjust the temperature control button
	3. Interior temperature sensor broken or defog temperature is unable to reset	Check and replace
	4. VR-tube of temperature controller damaged	Check and replace
	5. Compressor damaged	Check and replace

2. Air conditioner refrigerating not enough

Troubles	Possible reasons	Solution
Refrigerating intermittently	1. Incorrect selection	Resetting air speed and temperature
	2. LP switch protection: refrigerant leakage	Check and repair the leakage and fill in the refrigerant
	3. HI switch protection: refrigerant filling too much, condensation blower damaged, condensation filter dirty and blocked	Discharge the redundant refrigerant slowly. Check and replace the condensation. Clean the blower and condensation core

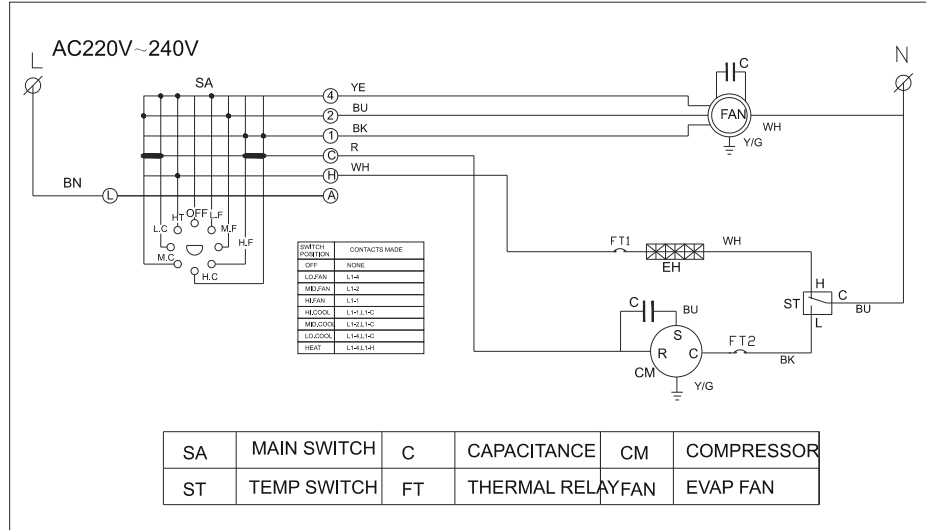
Evaporator air not enough	1. Evaporator filter dust screen blocked or evaporator blade dirty	Clean the filter dust screen or evaporator blade
	2. Air conditioner channel blocked	Clean the channel
	3. Evaporator blower fuse broken or relay damaged	Check and replace
	4. Evaporator blower damaged	Check and replace
	5. Evaporator blower input too low	Check air conditioner circuit and grounding

3. Air conditioner systems not running properly

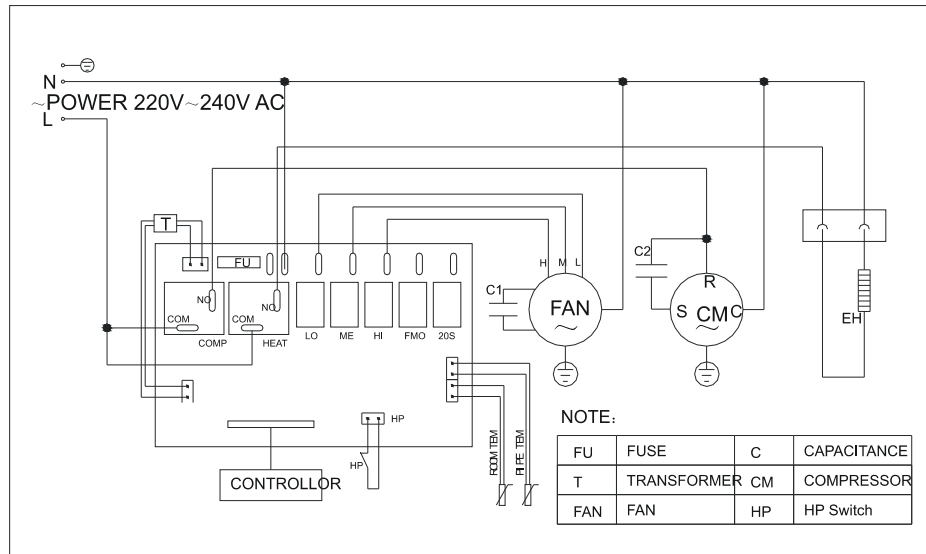
Troubles	Possible reasons	Solution
HP/LP too high	1. Refrigerant too much	Discharge redundant refrigerant slowly
	2. Air enter into the refrigerating cycle	Discharge refrigerant, vacuum and fill in the refrigerant again
	3. Condenser blower fuse broken or blower relay damaged	Check and replace
	4. Condenser blower damaged	Check and replace
	5. Condenser fin dirty, blocked	Clean condenser fin
HP lower LP too low	1. Refrigerant not enough	Check the leakage and fill in the refrigerant
	2. Filter blocked	Replace the filter
	3. Evaporator air return grille blocked or evaporator fin dirty (frost on the evaporator)	Clean grille or evaporator fin
HP lower LP too high	Compressor interior valve damaged	Check and replace compressor
HP higher LP too high	1. Extension valve temperature sensor packing failure	Put the temperature sensor on The pipe, and pack the sensor with isolation
	2. Temperature sensor leakage	Replace the extension valve

10. Electrical schematic diagram

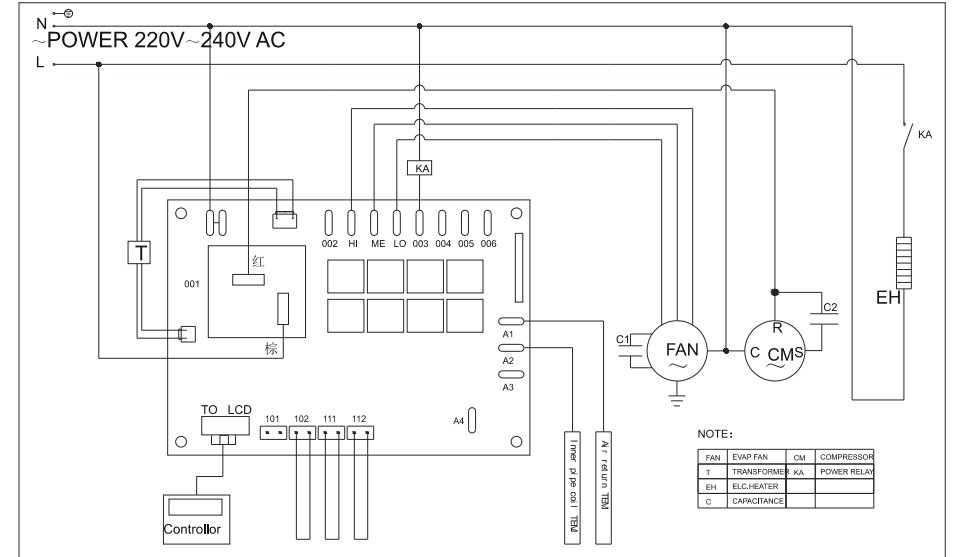
1. Turn-knob control panel



2. Touching-type control panel



3. Drive-by wire control panel



4. Touching-type control panel, with four-way valve heating

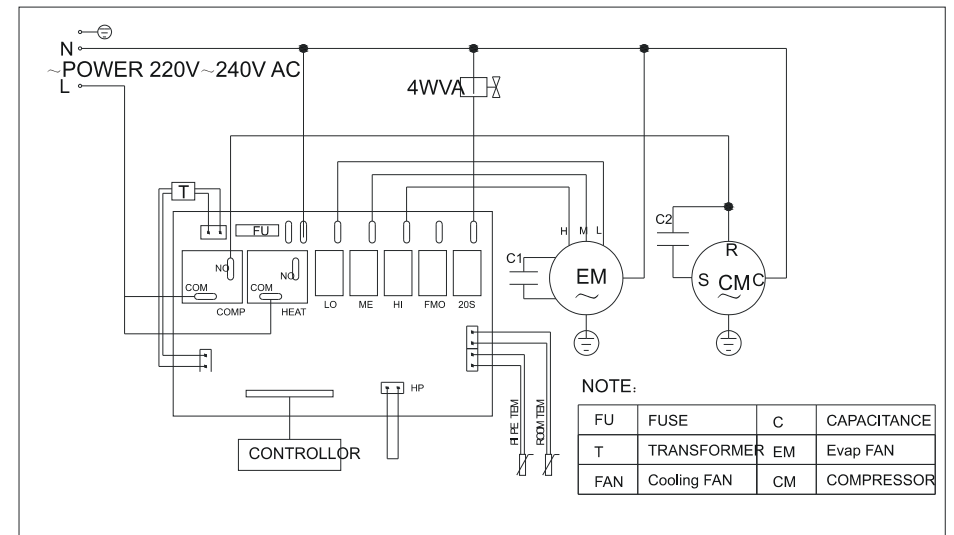


Table 1

Technical Parameters	
Mode;	KAC-1
Refrigerating capacity	3500W
Heating capacity	2000W
Power supply	220-240VAC,50Hz,1PHASE
Consumed power	1460W
Running current	6.6A
Refrigerant	R410A/700g
Evaporator Air Volume	650m ³ /h
Dimensions (L*W*H)	1040*580*350mm
Unit weight	45kg

- Refrigerating conditions:
Indoors dry ball 27.C, wet ball 19.5.C;
Outdoors dry ball 35.C, wet ball 27.C.
- KINGTEC keep the right on products changing without notification in advance.

Customer Info

Name.....

Address.....

.....P.C.Phone.....

Purchase Date.....

Model.....

S/N:.....

Install:

Purchase Place.....

Address.....

.....P.C.Phone.....