Haier

## Commercial Air Conditioning

# SERVICE MANUAL


## Models

**AD182AMERA**
**AS182AVERA**
**AU182AFERA**

### Features

- High energy efficiency class-A
- Newly designed V-appearance for wall mounted unit
- Two optional control tpyes for duct type unit
- Can be connected with the universal outdoor unit AU182AFERA
- Infrared control type or wired control type
- Central control and full automation, if connected with a central controller
- Low ambient cooling kit (optional) and low ambient heating kit (optional)
- New friendly refrigerant R410a, environment protection
- Advanced technology, DC inverter control function
- Weekly timer (standard)
- Group control function
- Negative ion function for wall mounted unit
- Auto restart function
- Room card function for the unit except for wall mounted unit

**Manual code: SYJS-010-05REV.1** **Edition: 2007-02-03**

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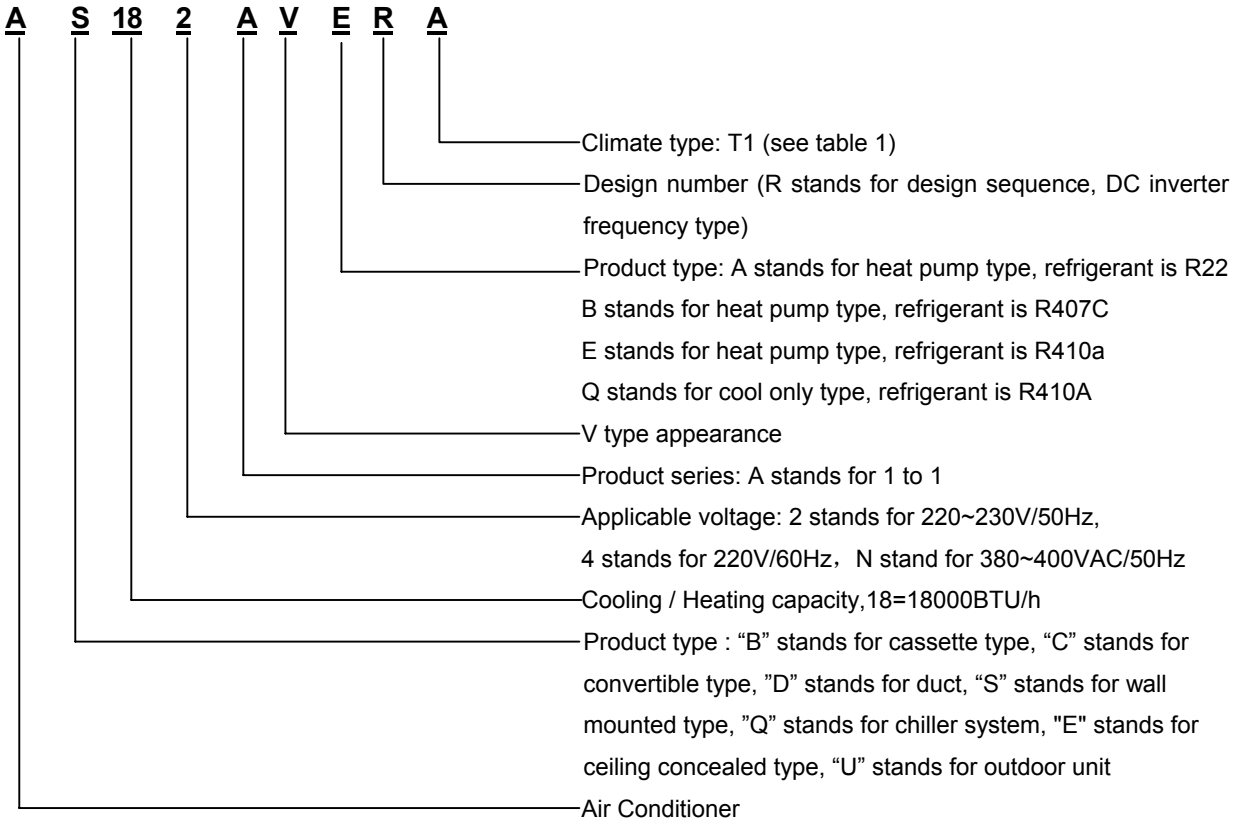
# 1.DESCRIPTION OF PRODUCTS & FEATURES

## 1.1. Products code explanation




## 1.2 Brief Introduction for T1、T2、T3 working condition

| Type of Air Conditioner | Climate type | | |
|---|---|---|---|
| | T1 | T2 | T3 |
| Cooling Only | 18 ℃~43℃ | 10℃~35℃ | 21℃~52℃ |
| Heat pump | -7℃~43℃ | -7℃~35℃ | -7℃~52℃ |
| Electricity Heating | ~43℃ | ~35℃ | ~52℃ |

## 1.3 Operating Range of Air Conditioners

| Temp. / Mode | | | Rated | Maximum | Minimum |
|---|---|---|---|---|---|
| Cooling | Indoor | DB ℃ | 27 | 32 | 15 |
| | | WB ℃ | 19 | 23 | 14 |
| | Outdoor | DB ℃ | 35 | 43 | -5 |
| | | WB ℃ | 24 | 26 | 6 |
| Heating | Indoor | DB ℃ | 20 | 27 | 10 |
| | | WB ℃ | 14.5 | --- | -- |
| | Outdoor | DB ℃ | 7 | 23 | -10 |
| | | WB ℃ | 6 | 18 | --- |

## 1.4 Product features

### Newly designed V- appearance indoor unit

The wall mounted type indoor unit adopts the newly designed V appearance, more fashion, more beautiful.

### Adopt the much friendlier refrigerant R410a

The air conditioner system adopts the greatly friendly refrigerant R410a, which is protective for the ozone layer and is good to avoid the earth getting warmer. Benefit for the environment.

### Adopt the advanced DC inverter technology

The system adopts the advanced DC inverter technology, which can consume less power energy to realize the equal efficiency, saving money for you.

### Smart newly designed infrared remote controller

The unit can be controlled by the newly designed infrared remote controller YR-H49, which can realizes many functions such as heating, cooling, fan, swing, fresh, health, negative ion. Furthermore, the remote controller can be fixed with a remote controller holder.

### Negative ion function

The unit can realize the negative ion generation function, releasing the healthy negative ion into the indoor room. You will feel more comfortable, just like in the nature.

### Auto–restart function (optional)

All indoor units have auto-restart function. When the power supply cut off suddenly, the unit will automatically recover the previous running mode once the power supply is on.

### Low ambient cooling kit (optional)

### Group control function (with a group controller YR-E12)

### Central control function, if connected with a central controller YCZ-A001

### Weekly timing function, if connected with a weekly timer YCS-A001

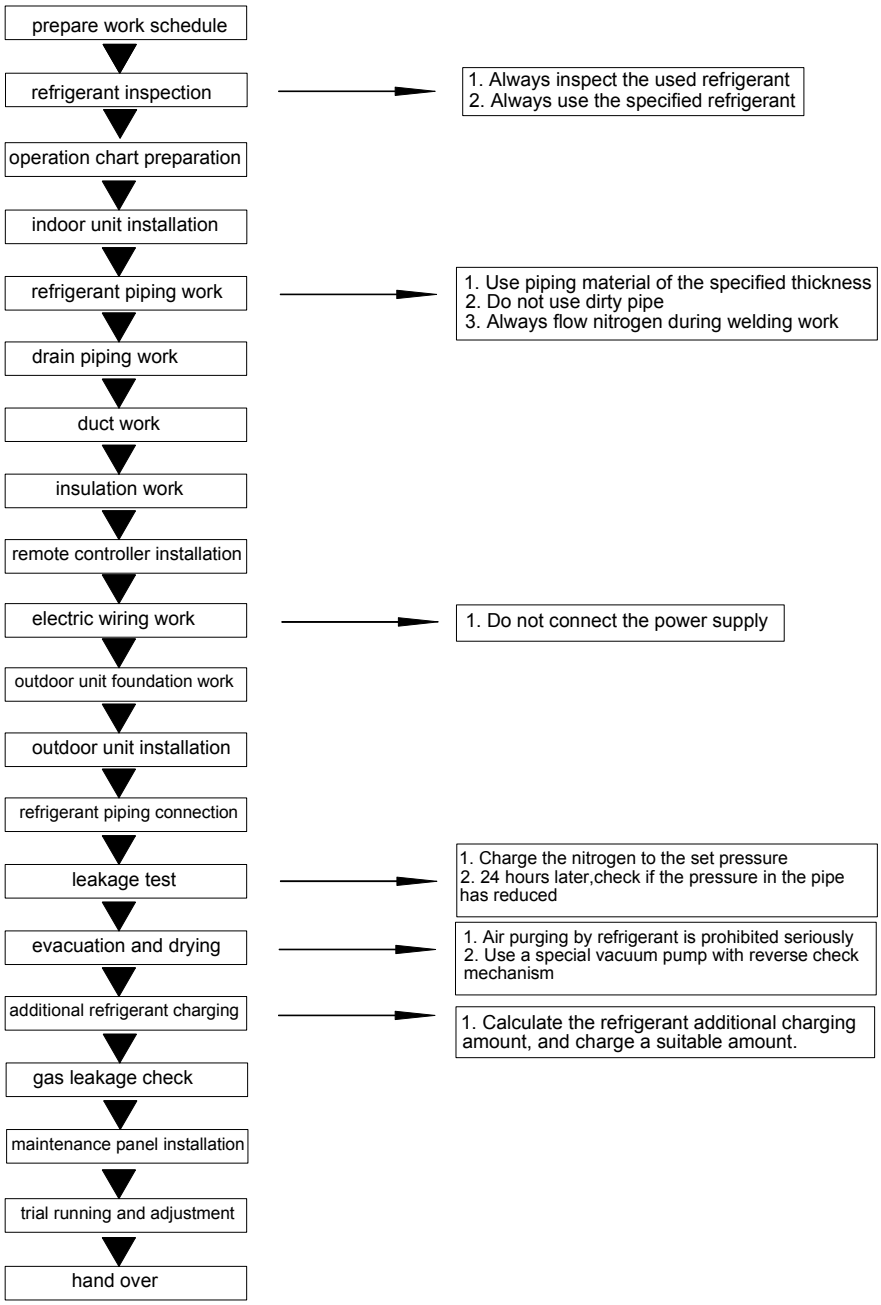
## 1.5 New friendly refrigerant R410A introduction:

### ■R410A

The working pressure of R410A is approximately 1.6 times higher than R22. Because the oil in the refrigerant is different, please do not mix them.

| Refrigerant | R22 (single) | R410A (mixed) | R407C (mixed) |
|---|---|---|---|
| Oil | Mineral oil (SONTEX 200LT) | Synthetic oil (POE oil) | Synthetic oil (POE oil) |
| Pressure ratio | 1 | Approx. 1.6 | Approx. 1.1 |

### ■Operation flow



## ■Piping material

1. Use the correct refrigerant piping and materials for R410A
2. For the pipe wall thickness, see the table below:

| Pipe diameter | Φ6.35 | Φ9.52 | Φ12.7 | Φ15.88 | Φ19.1 |
|---|---|---|---|---|---|
| Pipe wall thickness | 0.8 | 0.8 | 0.8 | 1.0 | 1.2 |

Note: Always observe and comply with the local regulations when installing the refrigerant piping.

## ■Tools

**R410A work requires a number of special tools (* symbol). Since the tools used in R22 work cannot be used for R410A, provide the tools separately.**

| Tool name | Process and application | |
|---|---|---|
| Pipe cutter | Piping cutting | Refrigerant piping work |
| *Flaring tool | Pipe flaring work | |
| *Torque wrench | Flare nut connection | |
| Expander | Expansion at pipe connection | |
| Pipe bender | Pipe bending work | |
| Nitrogen gas | Pipe oxidation prevention | Air tightness test |
| Welder | Pipe brazing | |
| *Gauge manifold | Vacuum evacuation and refrigerant charging operation check | Air tightness test<br>Refrigerant additional charging |
| *Charging hose | | |
| *Vacuum pump (with adapter) | | Vacuum drying |
| Electronic scale | | Refrigerant additional charging |
| Gas leakage detector | Gas leakage test | |

## ■Work precautions

**Refrigerant check:** Before work, check the used refrigerant and prepare materials matched to the refrigerant.

**Refrigerant piping:** Observe the basics of refrigerant piping to avoid the unnecessary problems. In addition, when performing the welding work, seal in the nitrogen gas to the pipes, and prevent it from the oxidation.

**Leak pressure detection:** Perform seal detection and make sure there is no refrigerant leakage.

**Vacuum drying:** If the vacuum pump has not the reverse flow check mechanism, use the pump together with a reverse flow check adapter.

**Additional refrigerant:** Charge a suitable amount of refrigerant with a special R410A gauge manifold and charging hose.

## 2. SPECIFICATION

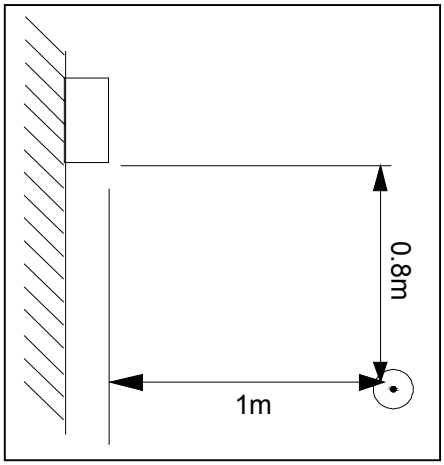
| item | | | | | Model | AU182AFERA/AS182AVERA | |
|---|---|---|---|---|---|---|---|
| Function | | | | | | cooling | heating |
| Capacity | | | | | kW | 5.1（1.8---6.0） | 6.0（2.0---7.1） |
| Sensible heat ratio | | | | | | 0.75 | |
| Total power input | | | | | W | 1580（550---2650） | 1650（600---2650） |
| Max. power input | | | | | W | 2650 | 2650 |
| **EER or COP** | | | | | W/W | 3.23 | 3.64 |
| Dehumidifying capacity | | | | | 10 - ³×m³/h | / | |
| Power cable | | | | | | 4.0×3 | |
| Power source | | | | | N, V, Hz | 1, 220--230, 50 | |
| Running /Max.Running | | | | | A / A | 7.5（3.0---12.0）/12.0 | 7.8（3.2---12.0）/12 |
| Start Current | | | | | A | 3A | 3A |
| Circuit breaker | | | | | A | 25A | 25A |
| Indoor unit | Unit model (color) | | | | | AS182AVERA(WHITE) | |
| | Fan | Type × Number | | | | cross flow*1 | |
| | | Speed(H-M-L) | | | r/min | 1250/1150/1050 | |
| | | Fan motor output power | | | kW | 0.05 | |
| | | Air-flow(H-M-L) | | | m³/h | 760/----- | |
| | Heat exchanger | Type / Diameter | | | mm | inner grooved pipe/φ7 | |
| | | Total Area | | | m² | 0.868 | |
| | | Temp. scope | | | ℃ | 2-7 | |
| | Dimension | External | （L×W×H） | | mm×mm×mm | 870*305*225 | |
| | | Package | （L×W×H） | | mm×mm×mm | 962*312*365 | |
| | Drainage pipe (material , I.D./O.D.) | | | | mm | PVC 16/12 | |
| | Control type (Remote /wired) | | | | | Remote | |
| | Fresh air hole dimension | | | | mm | / | |
| | Electricity Heater | | | | kW | 0 | |
| | Noise level (H-M-L) | | | | dB(A) | 44/---- | |
| | Weight (Net / Shipping) | | | | kg / kg | 12/15 | |
| Outdoor unit | Unit model (color) | | | | | AU182AFERA(WHITE) | |
| | Compressor | Model / Manufacture | | | | TNB175FLBM1/MITSUBISHI ELECTRIC | |
| | | Oil model | | | | MEL56 | |
| | | Oil type | | | | / | |
| | | Oil charging | | | | 670ML | |
| | | Type | | | | scroll type | |
| | Fan | Type × Number | | | | axial×1 | |
| | | Speed | | | r/min | 860±30 | |
| | | Fan motor output power | | | kW | 0.08 | |
| | | Air-flow(H-M-L) | | | m³/h | 2500 | |
| | Heat exchanger | Type / Diameter | | | mm | hydrophilic finned Aluminum foil /φ7 | |
| | | Row / Fin pitch | | | | 3/1.55 | |
| | | Temp. scope | | | ℃ | 43-60 | |
| | Dimension | External | （L×W×H） | | mm×mm×mm | 810*288*680 | |
| | | Package | （L×W×H） | | mm×mm×mm | 960*406*760 | |
| | Drainage pipe (material , I.D./O.D.) | | | | mm | / | |
| | Refrigerant control method | | | | mm/mm | main capillary φ1.6*400mm, sub capillary φ 1.6*200mm | |
| | Defrosting | | | | | AUTO | |
| | Volume of Accumulator | | | | L | 2.5 | |
| | Noise level | | | | dB(A) | 56 | |
| | Type of Four way valve | | | | | STF-0218G | |
| | material of reduce noise | | | | | / | |
| | crankcase heater power | | | | W | 30 | |
| | Weight (Net / Shipping) | | | | kg / kg | 59/66 | |
| PIPING | Refrigerant | Type / Charge | | | g | R410A/1850 | |
| | | Recharge quantity | | | g/m | 35 | |
| | Pipe | Liquid | | | mm | 6.35 | |
| | | Gas | | | mm | 12.7 | |
| | Connecting Method | | | | | flared | |
| | Between I.D &O.D | MAX.Drop | | | m | 15 | |
| | | MAX.Piping length | | | m | 40 | |

| item | | | | | Model | AD182AMERA | |
|---|---|---|---|---|---|---|---|
| Function | | | | | | cooling | heating |
| Capacity | | | | | kW | 5.1（1.8---6.0） | 6.0（2.0---7.1） |
| Sensible heat ratio | | | | | | 0.75 | |
| Total power input | | | | | W | 1580（550---2650） | 1650（600---2650） |
| Max. power input | | | | | W | 2650 | 2650 |
| **EER or COP** | | | | | W/W | 3.23 | 3.64 |
| Dehumidifying capacity | | | | | 10 - ³×m³/h | / | |
| Power cable | | | | | | 4.0×3 | |
| Power source | | | | | N, V, Hz | 1, 220--230, 50 | |
| Running /Max.Running current | | | | | A / A | 7.5（3.0---12.0）/12.0 | 7.8（3.2---12.0）/12.0 |
| Start Current | | | | | A | 3 | 3 |
| Indoor unit | Unit model (color) | | | | | AD182AMERA(WHITE) | |
| | Fan | Type × Number | | | | cross flow*1 | |
| | | Speed(H-M-L) | | | r/min | 1150/1050/860/680R/MIN | |
| | | Fan motor output power | | | kW | 0.05 | |
| | | Air-flow(H-M-L) | | | m³/h | 850/770/680/600(30PA) | |
| | Heat exchanger | Type / Diameter | | | mm | inner grooved pipe/φ9.52 | |
| | | Total Area | | | m² | 0.59 | |
| | | Temp. scope | | | ℃ | 2-7 | |
| | Dimension | External | （L×W×H） | | mm×mm×mm | 1190*450*220 | |
| | | Package | （L×W×H） | | mm×mm×mm | 1281*526*305 | |
| | Drainage pipe (material , I.D./O.D.) | | | | mm | PVC 16/12 | |
| | Control type (Remote /wired) | | | | | wired | |
| | Fresh air hole dimension | | | | mm | / | |
| | Electricity Heater | | | | kW | 0 | |
| | Noise level (H-M-L) | | | | dB(A) | 50/48/45 | |
| | Weight (Net / Shipping) | | | | kg / kg | 24/27 | |
| PIPING | Refrigerant | Type / Charge | | | g | R410A/1850 | |
| | | Recharge quantity | | | g/m | 35 | |
| | Pipe | Liquid | | | mm | 6.35 | |
| | | Gas | | | mm | 12.7 | |
| | Connecting Method | | | | | flared | |
| | Between I.D &O.D | MAX.Drop | | | m | 15 | |
| | | MAX.Piping length | | | m | 40 | |

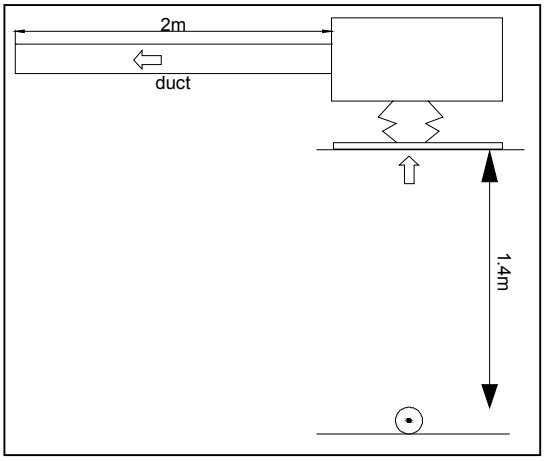
Norminal condition: indoor temperature (cooling): 27℃DB/19℃WB, indoor temperature (heating): 20℃DB
Outdoor temperature(cooling): 35℃DB/24℃WB, outdoor temperature(heating): 7℃DB/6℃WB
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level. The detailed method please refer to the following information:

Installation state: the unit should be placed on the flat floor or be mounted in horizontal direction.
Testing method:

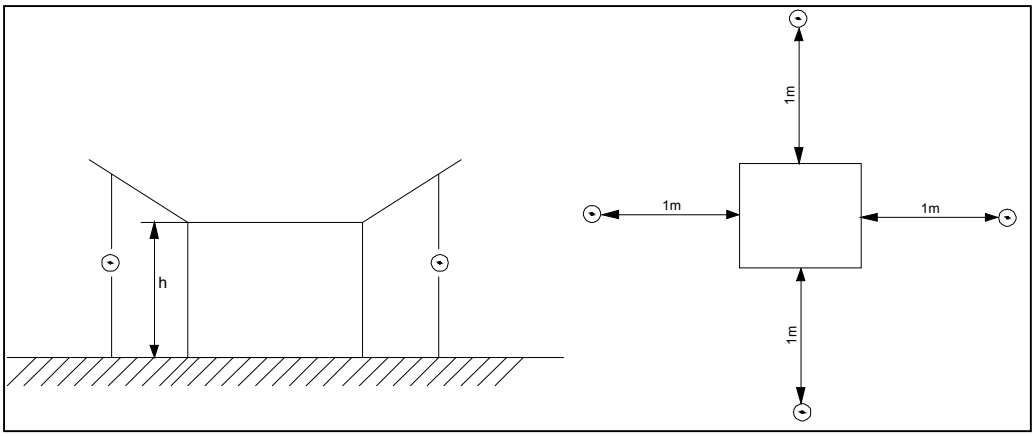
mounting-on-wall unit:




duct unit without auxiliary duct:




outdoor unit:
1.air outlet from side: the noise level is the average sound pressure level measured from front, left, right directions.
2.air outlet from top: the noise level is the average sound pressure level measured from front, back, left, right directions.
measured point:
H ( height to the ground) = (h (unit height) + 1m) /2
and. it is 1m to each side.




Note: ⊙ is the real time analyser position

## 3. Safety precaution

Carefully read the following information in order to operate the airconditioner correctly.

Below are listed three kinds of Safety Cautions and Suggestions.

WARNING! Incorrect operations may result in severe consequences of death or serious injuries.

CAUTION! Incorrect operations may result in injuries or machine damages; in some cases may cause serious consequences.

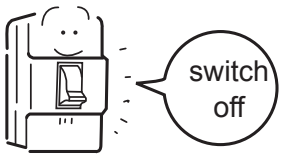
INSTRUCTIONS: These information can ensure the correct operation of the machine.

Be sure to conform with the following important Safety Cautions.
The Safety Cautions should be at hand so that they can be checked at any time when needed.
If the conditioner is transferred to the new user, this manual should be as well transferred to the new user.

### WARNING!

- If any abnormal phenomena is found (e. g.smell of firing), please cut off the power supply immediately, and contact the dealer to find out the handling method.

  In such case, to continue using the conditioner will damage the conditioner, and may cause electrical shock or fire hazard.




- After the unit being used for a long time, the base should be checked for any damages.

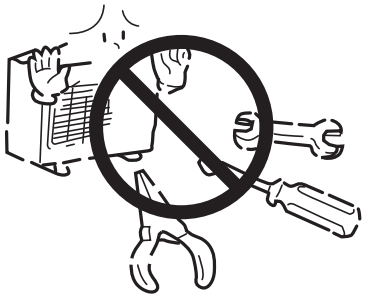
  If the damaged base is not repaired, the unit may fall down and cause accidents.

- Don't dismantle the outlet of the outdoor unit.

  The exposed fan is very dangerous which may harm human beings.

- When the unit needs maintenance and repairment, please call dealer to handle it.

  Incorrect maintenance and repairment may cause water leak, electrical shock and fire hazard.



WARNING!

- Installed electrical-leaking circuit breaker.

  It easily cause electrical shock without circuit breaker.

- Air-conditioner can't be installed in the environment with inflammable gases because the inflammable gases near to air-conditioner may cause fire hazard.

- Please let the dealer be responsible for installing the conditioner.

  Incorrect installation may cause water leak, electrical shock and fire hazard.

- Call the dealer to take measures to prevent the refrigerant from leaking.

  If conditioner is installed in a small room be sure to take every measure in order to prevent suffocation accident even in case of refrigerant leakage.

- When conditioner is removed or reinstalled, dealer should be responsible for them.

  Incorrect installation may cause water leaking, electrical shock and fire hazard.

- Connect earthing wire.

  Earthing wire should not be connected to the gas pipe, water pipe, lightning rod or phone line, in-correct earthing may cause shock.

Earthing

- Nothing or nobody is permitted to placed on or stand on outdoor unit.

  The falling of goods and people may cause accidents.

- Don't operate the air-conditioner with damp hands.

  Otherwise will be shocked.

- Only use correctly-typed fuse.

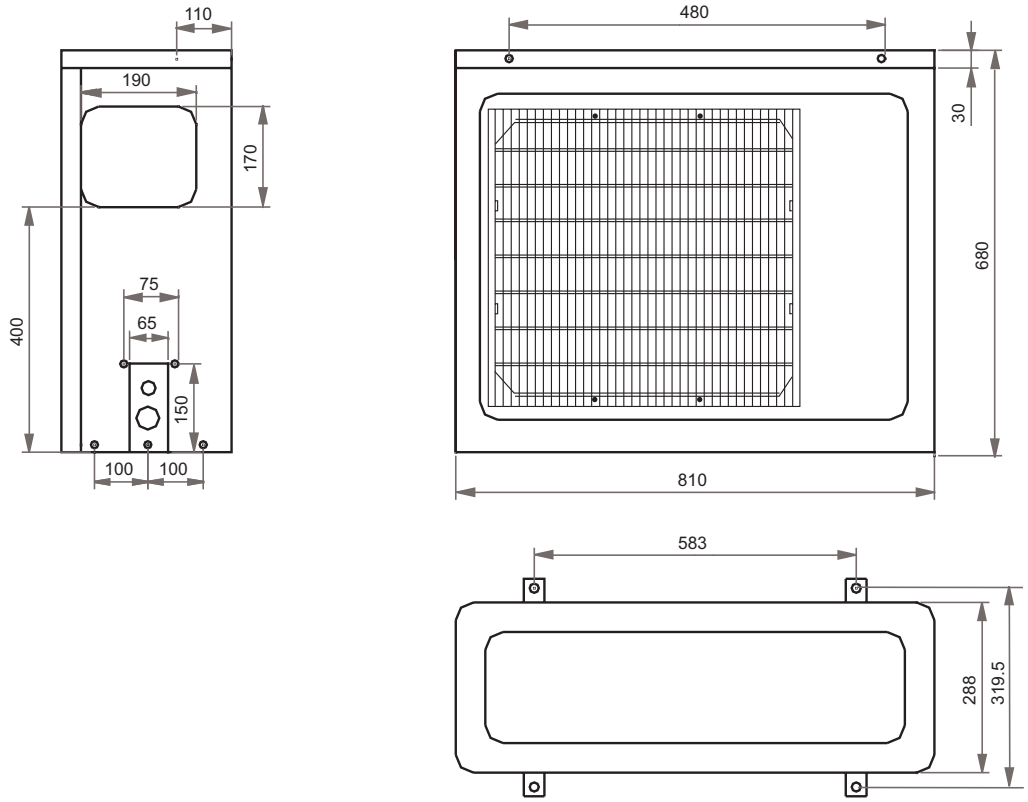
  May not use wire or any other materials replacing fuse, other-wise may cause faults or fire accidents.

- Use discharge pipe correctly to ensure efficient discharge.

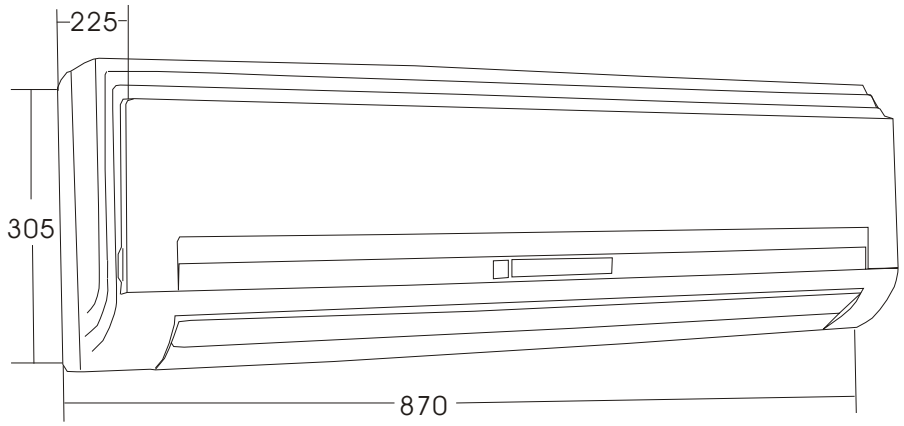
  Incorrect pipe use may cause water leaking.

## 4. Net dimension

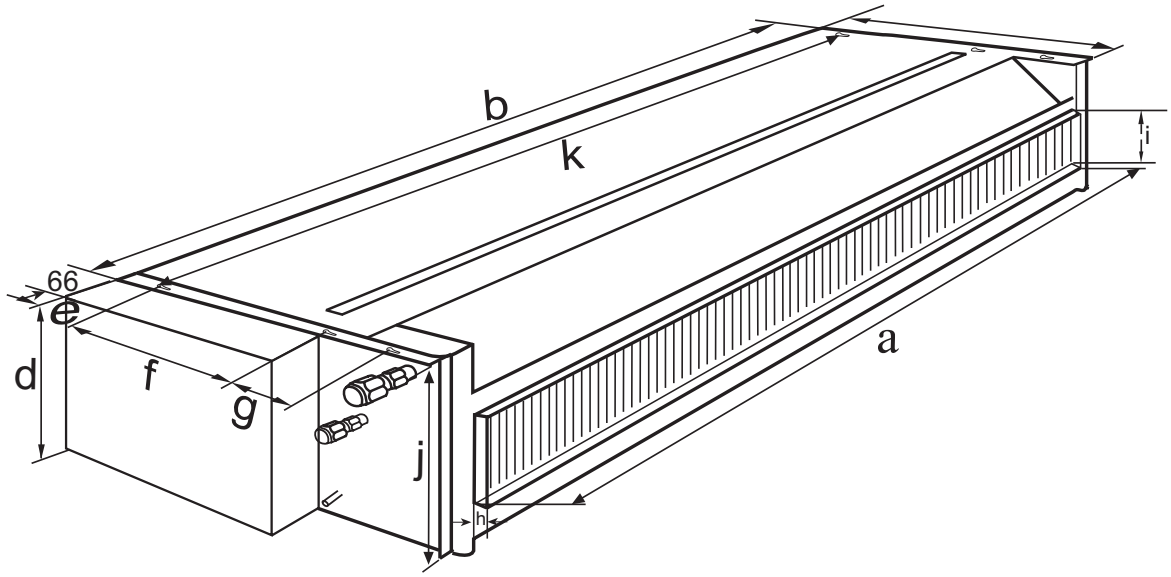
Outdoor unit:




Wall mounted unit:



Ceiling concealed unit:




Installation dimension: (Unit: mm)

| TYPE | a | b | c | d | e | f | g | h | i | j | k |
|---|---|---|---|---|---|---|---|---|---|---|---|
| AD182AMERA | 1062 | 1124 | 450 | 218 | 48 | 227 | 123 | 22 | 97 | 220 | 1097 |

# 5. Installation Instructions

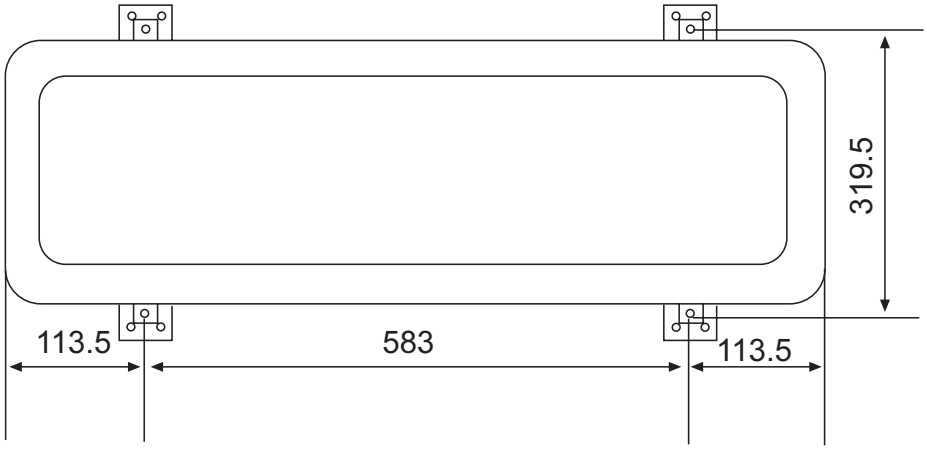
## Installation of Outdoor Unit

### Selection of installation place

- Place strong enough to support unit weight, and will not cause vibration and noise.
- Place where discharged wind and noise do not cause nuisance to the neighbors, and is sufficiently ventilated.
- Place where is less affected by rain or direct sunlight and sea breeze.
- Place with enough space for smooth air flow.
- The unit cannot be installed on an unspecified metal frame (e.g. theft guard net).
- It shall be not less than 2.5m high from the ground if the outdoor unit is installed close to a street.
- Easy for maintenance.

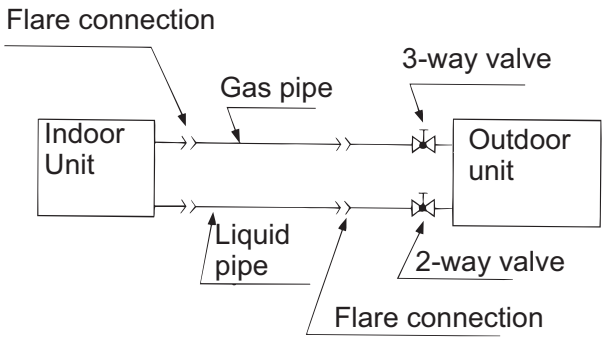
### Fixing the unit

Fix outdoor unit bracket to the wall using anchor bolt (M10).
Fasten the outdoor unit onto the installation bracket with bolt (M10) and nut ,and keep it horizontal.
If installation on the wall or on top of a roof, bracket shoukd be fixed securely to resist earthquake or storms.
Be sure to use rubber pad during installation against unit vibration.
Install the unit in such a way that the angle of inclination is lees than 3 degrees.




AU182AFERA
Installation dimension of outdoor unit (mm)

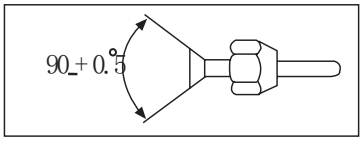
### Piping Connection




(1) Dimension of connecting pipe

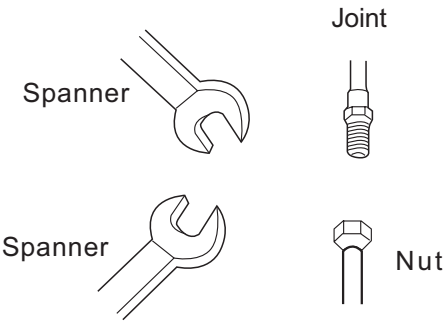
| | |
|---|---|
| Gas pipe | ∅12.7mm |
| Liquid pipe | ∅ 6.35mm |

- Fit the nut on and fasten




(2) The maximum length and drop height of connecting pipe

- The maximum length is 20m
- The maximum drop height is 10m.
- To ensure the efficiency ,Pipes shall be as short as possible.




Cautions for piping connection

- Do not twist or deform the connecting pipe.
- Do not mix dusts.
- The bending radius shall be as large as possible.
- Both gas pipe and liquid pipe shall be heat insulation.
- No leakage in the flare.

(3) Piping connection

- Connecting method

Smear refrigerant oil on the joints of piping and flare.
The bending radius shall be as large as possible.
Align the pipe center when fastening, and tighten the nut, as shown in the figure.
Pay attention to not mix foreign matters such as sands in.

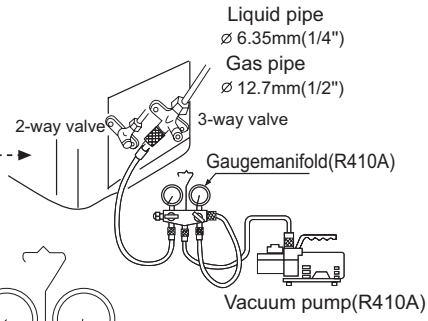
| Diameter of Pipe | Tighten Torque |
|---|---|
| Liquid Pipe 6.35mm | 11.8N. m |
| Gas Pipe 12.7mm | 49.0N. m |

If not aligned ,tighten the nut by force will damage the nut that result in gas leakage

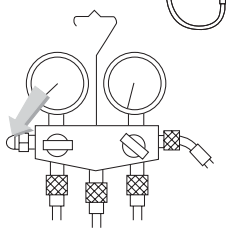
## (4) Purging method ( the refrigerant is R410A)

To use vacuum pump

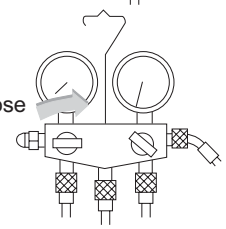
① Detach the service port's cap of 3-way valve, the valve rod's cap for 2-way valve and 3-way's, connect the service port into the projection of charge hose (low) for gaugemanifold. Then connect the projection of charge hose (center) for gaugemanifold into vacuum pump.



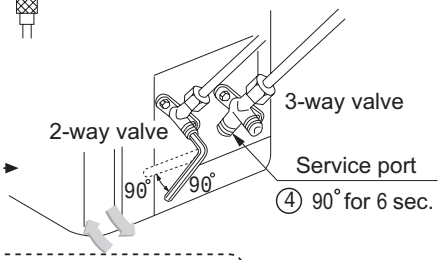

② Open the handle at low in gaugemanifold, operate vacuum pump. If the scale-moves of gause (low) reach vacuum condition in a moment, check ① again.




③ Vacuumize for over 15min. And check the level gauge which should read -0.1 MPa (-76 cm Hg) at low pressure side. After the completion of vacuumizing, close the handle 'Lo' in gaugemanifold and stop the operation of the vacuum pump.
Check the condition of the scale and hold it for 1-2min. If the scale-moves back in spite of tightening, make flaring work again, the return to the beginning of ③.




④ Open the valve rod for the 2-way valve to and angle of anticlockwise 90 degree.
After 6 seconds later, close the 2-way valve and male the inspection of gas leakage.

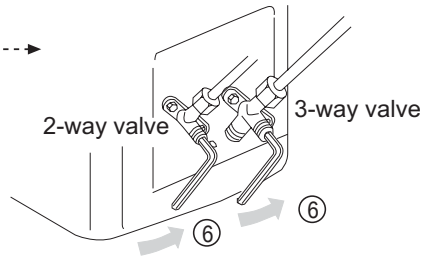



⑤ No gas leakage?

In case of gas leakage, tighten parts of pipe connection. If leakage stops, then proceed ⑥ steps.

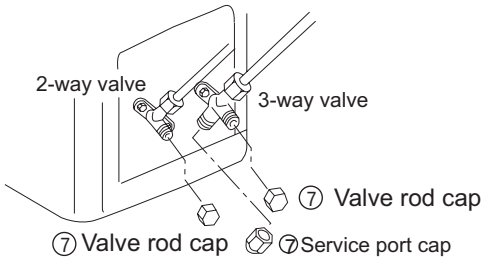
If it does not stop gas leakage, discharge whole refrigerants from the serice port. After flaring work again and vacuumize, fill up prescribed refrigerant from the gas cylinder.

⑥ Detach the charge hose from the service port, open 2-way valve and 3-way. Turn the valve rod anticlockwise until hitting lightly.




⑦ To prevent the gas leakage, turn the service port's cap, the valve rod'd cap for 2-way valve and 3-way's a lottle more than the point where the torque increases suddenly.

⑧ After attaching the each caps, check the gas leakage around the caps.

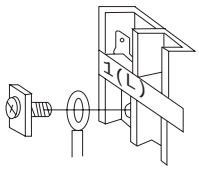



**CAUTION:**

If the refrigerant of the air conditioner leaks, it is necessary to make all the refrigerant out, then charge the liquid refrigerant into air conditioner according to the amount marked on the name plate.

## Electrical Wiring

Cautions: Use copper wire only.
Parameters of connectingline : H05RN-F 4G0.75mm$^2$
Parameters of power supply: H07RN-F 3G2.0mm$^2$
Power supply :1PH,220-230V~,50Hz, connect from outside.

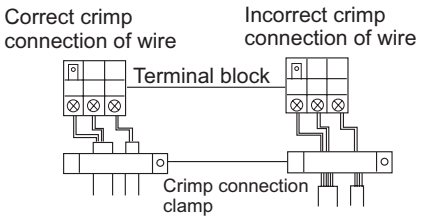


Wiring method of ring terminal

## Wiring methods:

### 1.Wiring method of ring terminal

For connecting line which end is a ring,its wiring method as shown in the right figure: remove wiring screw and pass it through the end ring of connecting line,then connect it to the terminal block and tighten screw.

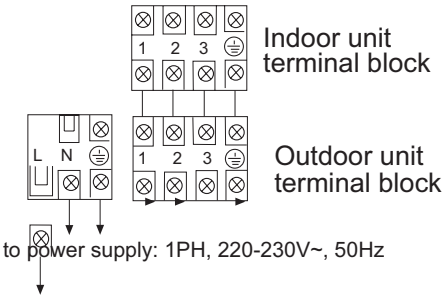



### 2. Wiring method of straight terminal

For connecting line which end is not a ring, its wiring method as follows: loosen wiring screw ans insert the end of connecting line totally into the terminal block,then tighten the screw and pull the connecting line slightly to confirm that it is clamped firmly.

### Crimp connection method of connecting line

After finishing wiring.connecting line must be fastened by wire clamp,which pressed on the external sheath of the connecting line, as shown in the right figure:

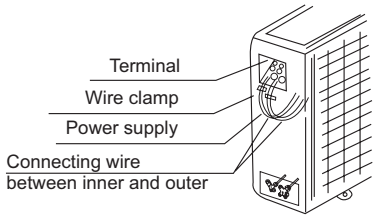



### Wiring of indoor unit

- Open air inlet grill
- Take the leading end of connecting line
- Connect connecting line according to wiring methods and wiring diagram of indoor and outdoor unit
- Fasten connecting line according to crimp connection method of connecting line.
- Reinstall air inlet grill.

## 1.Installation fixing

Fix outdoor unit installation bracket on the wall using a M10 anchor bolt.Fix outdoor unit on the installation bracket firmly using bot(M10) and nut, and keep it on horizontal level.
When installing on the wall or on the roof ,fix the bracket, firmly to prevent earthquake or storm.
Be sure to use rubber-damping cushion to reduce unit vibration.



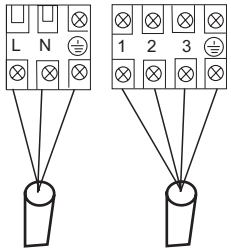

## 2.Installation of drain elbow

Installation of drain elbow.(Only for heat pump type air conditioner, no drain elbow for single cooling type).If use drain elbow,please install as shown in the figure.
Do not use drain elbow in cold place (temperature successively below 0℃)

## 3. Connection of outdoor piping

Connect the connecting pipe according to the piping connection method

## 4.Wiring connection




1.Open the wiring cover and loosen the wiring clamp.
2.Lead the connecting wire out and pass it through the wiring clamp.
3.Connect the connecting wire according to the wiring method and diagram
4. Confirm the ends of wire are connected well, safe and correct.
5. After finishing wiring, press the connecting wire according to the wire crimp connection method and reinstall the cover.

# Other Instructions

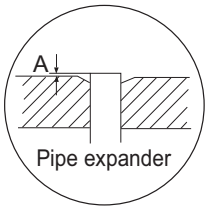
## 1.Configuration of power supply

- Air conditioner must use special power supply system (above 20A), and qualified electrician makes wiring and fixing according to wiring regulations specified in national standard.
- In socket, exactly distinguish earth wire with neutral wire and it is wrong to connect them together.
- A leakage breaker must be installed.
- Parameters of power supply: H07RN-F 3G 2.0mm$^2$
- Connection method is Y-connection .If the power cord is damaged, it must be replaced by professional people of manufacturer or its maintenance department or similar to avoid dangers.

## 2.Pipe cutting and expanding

Must remove burrs if cut pipes with pipe cutter.
Expand flare after insert the pipe expander.

| | Diameter of pipe | Dimension A (mm) |
|---|---|---|
| Liquid pipe | ∅ 6.35mm (1/4") | 0.8~1.5 |
| Gas pipe | ∅ 12.7mm (1/2") | 1.0~2.0 |




| Correct | Incorrect | | | | |
|---|---|---|---|---|---|
|  |  Deflection |  Crack occurs |  Broken |  Incomplete |  Over outward |

## Installation check and test run

Require customers to use air conditioner according to the operation manual.
The items checked during test run,please mark ✓ in ☐

- ☐ No gas leakage on the pipe joint ?
- ☐ How about the thermal insulation of the pipe joint:
- ☐ Is the electrical wiring between indoor and outdoor unit connected to the terminal block firmly?
- ☐ Is the wiring of indoor and outdoor unit secured firmly?
- ☐ Is the drainage hose arranged correct?
- ☐ Is the earthing wire connected firmly?
- ☐ Is the power supply voltage conformed to the electrical regulation?
- ☐ Any noise?
- ☐ Is the display on the control board (LCD) correct?
- ☐ Cooling normal?
- ☐ Does the indoor temperature regulator work normally?
- ☐ For the power supply
  - 1 shall be connected to the live wire.
  - 2 shall be connected to the neutral wire.
  - ⏚ Shall be connected to the earth wire.

## Duct indoor unit (AD182AMERA)

### Installation space

The indoor unit shall be installed at locations where cold and hot air could evenly circulated.
The following locations should be avoided:

Places with rich salt (seaside area).
Places with plenty of gas sulfides (mainly in warm spring areas where the copper tube and braze weld is easy to corrosion).
Locations with much oil (including mechanical oil) and steam.
Locations using organic solvents.
Places where there are machines generating HF electromagnetic waves.
Positions adjacent to door or window in contact with high-humidity external air. (Easy to generate dew).
Locations frequently using special aerosols.

### The following points should be taken care of:

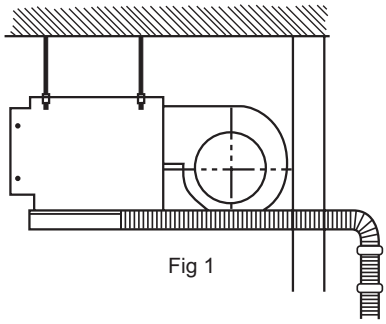


Fig 1

1. Select suitable places the outlet air can be sent to the entire room, and convenient to lay out the connection pipe, connection wire and the drainage pipe to outdoor.
2. The ceiling structure must be strong enough to support the unit weight.
3. The connecting pipe, drain pipe and connection wire shall be able to go though the building wall to connect between the indoor and outdoor units.
4. The connecting pipe between the indoor and outdoor units as well as the drain pipe shall be as short as possible. (See Figure 1)
5. If its necessary to adjust the filling amount of the refrigerant, please refer to the installation manual attached with the outdoor unit.
6. The connecting flange should be provided by the user himself.
7. The indoor unit has two water outlets one of which is obstructed at the factory (with a rubber cap). Only the outlet not obstructed (liquid inlet and outlet side) will be generally used during installation. If applicable, both the outlets should be used together.

Note: The access hole must be provided during installation of indoor unit for maintenance.

### After selecting the installation space, proceed the following steps:

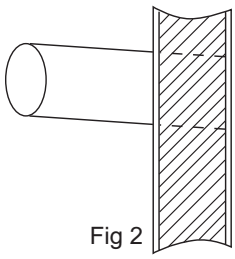
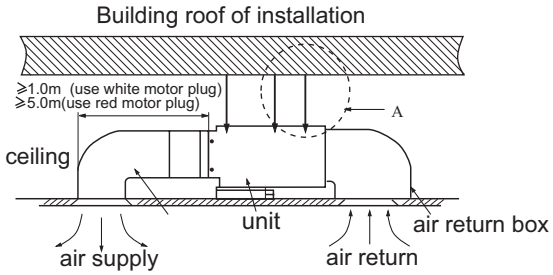
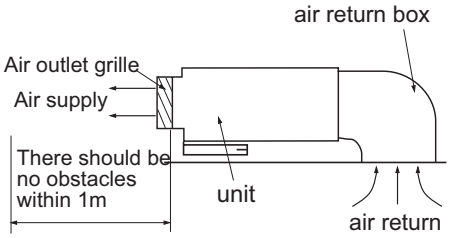


Fig 2

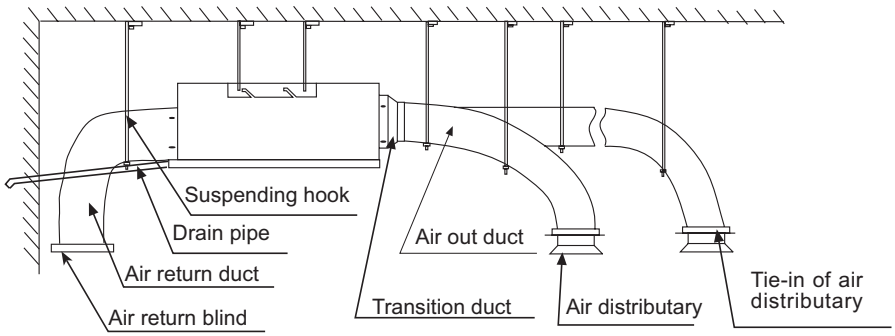
1. Drill a hole in the wall and insert the connecting pipe and wire through a PVC wall-through tube purchased locally. The wall hole shall be with a outward down slope of at least 1/100. (See Figure 2)
2. Before drilling check that there is no pipe or reinforcing bar just behind the drilling position. Drilling shall avoid at positions with electric wire or pipe.
3. Mount the unit on a strong and horizontal building roof. If the base is not firm, it will cause noise, vibration or leakage.
4. Support the unit firmly.
5. Change the form of the connection pipe, connection wire and drain pipe so that they can go through the wall hole easily.

- Each of the air sending duct and air return duct shall be fixed on the prefabricated panel of the floor by the iron bracket.
- The recommended distance between the edge of the air return duct and the wall is over 150mm.
- The gradient of the condensate water pipe shall keep over 1%.
- The condensate water pipe shall be thermal insulated.
- When installing the ceiling Concealed type indoor unit, the air return duct must be designed and installed (as figure shown).



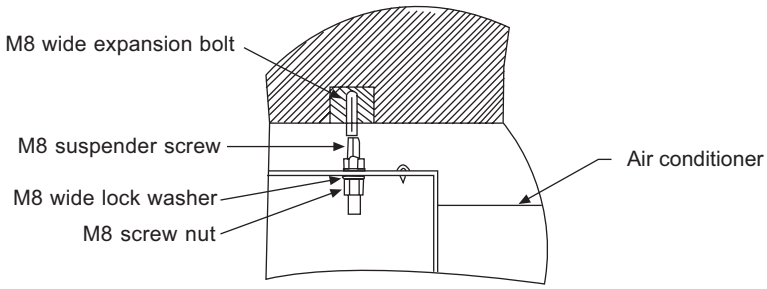




Note: When connecting the short ducts, use the low static terminals, which color is white.
The distance L from the air outlet of the duct to the air outlet of the sir conditioner shall be no more than 1 m.




The sketch map of long duct

Note: When connecting the long ducts, use the middle static terminals, which color is red.
The distance L from the air outlet of the duct to the air outlet of the sir conditioner shal be no more than 5 m.




## Installation of indoor unit duct

### 1. Installation of air sending duct

- This unit uses rounded duct, the diameter of the duct is 180mm.
- The round duct needs to add a transition duct to connect with the air-sending duct of indoor unit,then connect with respective separator. As Fig. 1 shown, all the fan speed of any of the separator's air outlet shall be adjusted approximately the same to meet the requirement for the room air conditioner.

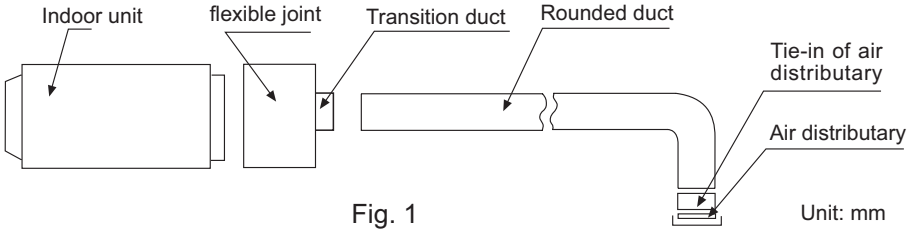



Fig. 1

### 2. Installation of air return duct

- Use rivet to connect the air return duct on the air return inlet of the indoor unit, then connect the other end with the air return blind. As Fig. 2 shown.

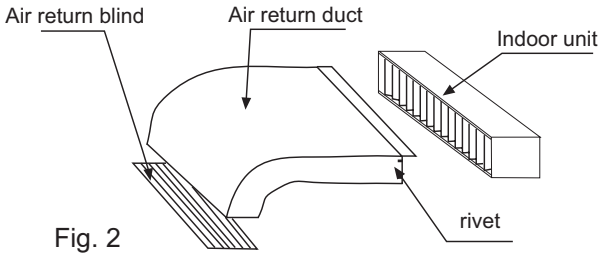



Fig. 2

## 3 Thermal insulation of duct

- Air-sending duct and air return duct shall be thermally insulated. First stick the gluey nail on the duct, then attach the heat preservation cotton with a layer of tinfoil paper and use the gluey nail cap to fix. Finally use the tinfoil adhesive tape to seal the connected part. As Fig. 3 shown.

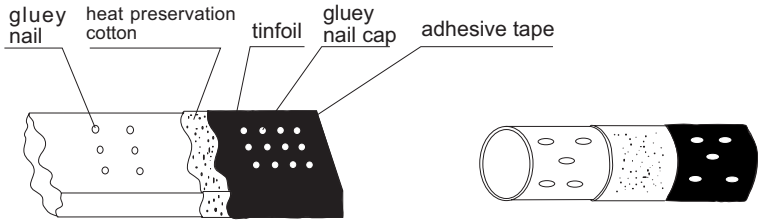



Fig. 3

### Installing the suspension screw:

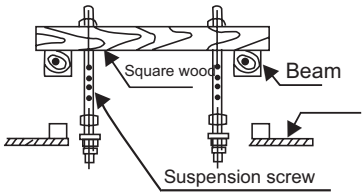
Use M8 or M10 suspension screws (4,prepared in the field)(when the suspension screwheight exceeds 0.9m, M10 size is the only choice).These screws shall be installed as follows with space adapting to air conditioner overall dimensions according to the original building structures.

### Wooden structure

A square wood shall be supported by the beams and then set the suspension screws.

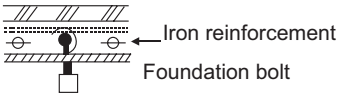
### New concrete slab

To set with embedded parts,foundation bolts etc.




Knife embedded part

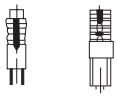
Guide plate embedded part




Pipe suspension foundation bolt

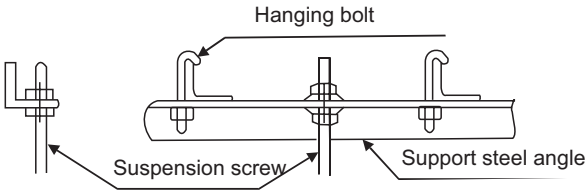
### Original concrete slad

Use hole hinge,hole plunger or hole bolt.



### Steel reinforcement structure

Use steel angle or new support steel angle directly.




### Hanging of the indoor unit

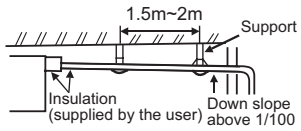
Fasten the nut on the suspension screw and then hang the suspension screw in the T slot of the suspension part of the unit. Aided with a level meter,adjust level of the unit within 5mm.

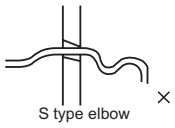
**⚠ Caution**

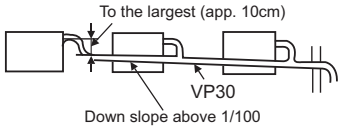
In order to drain water normally, the drain pipe shall be processed as specified in the installation manual and shall be heat insulated to avoid dew generation. Improper hose connection may cause indoor water leakage.

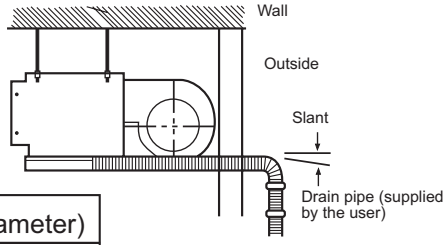
## Requirements

- The indoor drain pipe shall be thermal insulated.
- The connection part between the drain pipe and the indoor unit shall be insulated so as to prevent dew generation.
- The drain pipe shall be slant downwards (greater than 1/100). The middle part shall not be of S type elbow, otherwise abnormal sound will be produced.
- The horizontal length of the drain pipe shall be less than 20 m. In case of long pipe, supports shall be provided every 1.5 – 2m to prevent wavy form.
- Central piping shall be laid out according to the following figure.
- Take care not to apply external force onto the drain pipe connection part.




## Pipe and insulation material

| | |
|---|---|
| Pipe | Rigid PVC pipe VP31.5mm (internal diameter) |
| Insulation | Foamed PE with thickness above 7 mm |

## Hose

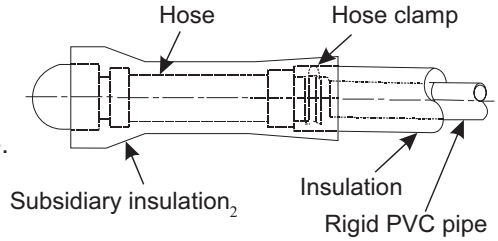
Drain pipe size: (3/4") PVC pipe

The hose is used for adjusting the off-center and angle of the rigid PVC pipe.

- Directly stretch the hose to install without making any deformation.
- The soft end of the hose must be fastened with a hose clamp.
- Please apply the hose on horizontal part

Insulation treatment:

- Wrap the hose and its clamp until to the indoor unit without any clearance with insulating material, as shown in the figure.




## Drain confirmation

During trial run, check that there is no leakage at the pipe connection part during water draining even in winter.

## Allowable pipe length and drop

These parameters differ according to the outdoor unit. See the instruction manual attached with the outdoor unit for details.

## Pipe material and size

| | | |
|---|---|---|
| Pipe material | Phosphorus deoxidized copper seamless pipe ($TP_2$) for air conditioner | |
| Pipe size (mm) | Gas side | Ø12.70 |
| | Liquid side | Ø6.35 |

## Recharge of refrigerant

The refrigerant recharge shall be performed as specified in the installation instructions. The adding procedure shall be aided with a measuring meter for a specified amount of supplemented refrigerant.

## Requirement

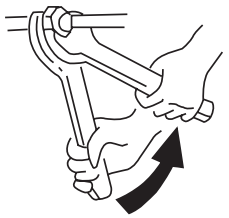
More or less refrigerant will cause compressor fault. The mount of the added refrigerant shall be as specified in the instructions.

## Connection of refrigerant pipe

Conduct flared connection work to connect all refrigerant pipes.

- The connection of indoor unit pipes must use double spanners.
- The installing torque shall be as given in the following table.

| Connecting pipe O.D.(mm) | Installing torque (N-m) |
|---|---|
| Ø6.35 | 11.8 (1.2kgf-m) |
| Ø12.70 | 49.0 (5.0 kgf-m) |



Double-spanner operation

## Vacuum pumping

With a vacuum pump,create vacuum from the stop valve of the outdoor unit.
Emptying with refrigerant sealed in the outdoor unit is absolutely forbidden.

## Open all valves

Open all the valves on the outdoor unit.

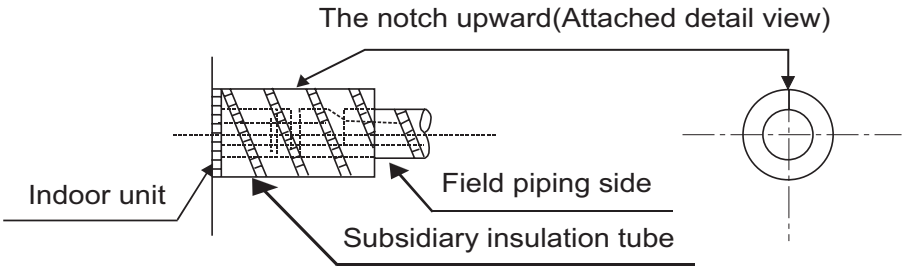
## Gas leakage detection

Check with a leakage detector or soap water that if there is gas leakage at the pipe connections and bonnets.

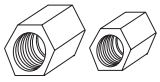
## Insulation treatment

Operate insulation treatment on both the gas side and liquid side of pipes respectively.
During cooling operation,both the liquid and gas sides are cold and thus shall be insulated so as to avoid dew generation.

- The insulating material at gas side shall be resistant to a temperature above 120 degree.
- The indoor unit pipe connection part shall be insulated.




**Accessory as follow:**

| No. | Accessory parts | Qty. |
|---|---|---|
| 1 |  Wire clamp | 2 |
| 2 |  Heat insulation sheathing | 1+1 |
| 3 |  Screw cap | 1+1 |

**INSTRUCTIONS TO INSTALLATION**

- Please read these "Safety Precautions" first then accurately execute the installation work.
- The precautionary points indicated herein are divided under two headings: ⚠WARNING and ⚠CAUTION those points which are related to the strong possibility of an installation done in error resulting in death or serious injury are listed in the ⚠WARNING section. However, there is also a possibility of serious consequences in relationship to the points listed in the ⚠CAUTION section as well.
  In either case, important safety related information is indicated, so by all means, properly observe all that is mentioned.
- After completing the installation, along with confirming that no abnormalities were seen from the operation tests, please explain operating methods as well as maintenance methods to the user of this equipment, based on the owner's manual.
  Moreover, ask the customer to keep this sheet together with the owner's manual.

WARNING

- Please entrust installation to either the company which sold you the equipment or to a professional contractor. Defects from improper installations can be the cause of water leakage electric shocks and fires.
- Execute the installation accurately, based on following the installation manual. Again improper installations can result in water leakage, electric shocks and fires.
- Please install your air conditioner on a wall or any place which can holder the weight of the air conditioner. And it cannot be installed on a non-professional metal structure (such as a burglary-resisting net). Otherwise injury would occur due to a falling of the unit.
- Execute the prescribed installation construction to prepare for earthquakes and the strong airs of typhoons and hurricanes, etc. Improper installations can result in accidents due to a violent falling over of the unit.
- Wiring shall be done with the specified cable and the connection shall be firm and reliable. And the terminal connector shall be fixed firmly and reliably not to let external force exercise on the cables. Any improper connection or fixing would cause heat, fire, and other accidents.
- Wiring shall be done in a correct shape not to make any section rise upward, and accurately install the air conditioner. The cable shall not be clamped by the lid or outer plate. Any improper installation would lead to fire, heat, or other accidents.
- When setting up or moving the location of the air conditioner, do not mix air etc, or anything other than the designated refrigerant (R407C) within the refrigeration cycle, for such mixing would result in rupture and injury caused by abnormal high pressure.
- Always use accessory parts and authorized parts for installation construction. Using parts not authorized by this company can result in water leakage, electric shock, fire and refrigerant leakage.
- The drain pipe must not be placed or connected into the sewage tank where harmful gas such as sulphurous gas and etc would exist, otherwise the harmful gas would enter the room.
- During installation, if the refrigerant is leaked, please immediately take measures of ventilation, otherwise a harmful gas would be generated whenever the refrigerant meets fire.
- After installation, please ensure that the refrigerant is not leaked, because the leakage of refrigerant would produce a harmful gas if it meets fire or heating stoves.
- Don't install the air conditioner where a flammable gas would be probably produced, otherwise in case the flammable gas is leaked and exists around the unit, fire would be caused.
- For the drain pipe, follow the installation manual to insure that it allows proper drainage and thermally insulate it to prevent condensation. Inadequate plumbing can result in water leakage and water damage to interior items.
- The refrigerant gas pipe and liquid pipe shall all be thermally insulated to preserve the temperature. Any improper insulation would make the unit moist and the water would drop onto the floor or wet the indoor items.

## INSTRUCTIONS TO INSTALLATION

### PRECAUTION

- Execute proper grounding. Do not connect the earth wire to a gas pipe, water pipe, lightening rod, or a telephone ground wire.
  Improper placement of earth wires can result in electric shock.
- An electric leakage breaker must be installed, otherwise electric shock or other accidents would occur.
- After completion of the installation, the air conditioner shall be electrified to check for electric leakage.

**Preparation for installation**

Installation Tools

1. Screw Driver (slotted head, cross head, triangle)
2. Steel Saw
3. 60mm Drill
4. Inner Hexagon Spanner
5. Shifting Spanner
6. Spanner
7. Pipe Cutter
8. Pipe Expander
9. Knives
10. Clippers
11. Leakage Checker or Soap Liquid
12. Measuring Tape
13. Scraper or File
14. Refrigeration Oil

**Self-contained Accessories**

| No. | A | B | C | D | E | F |
|---|---|---|---|---|---|---|
| Name of Parts | Non-adhesive Tape | Adhesive tape | Connecting Hose | Heat insulation material | Gypsum powder | Drain hose |

Electrical Requirements

- Power supply voltage: Single Phase 1PH, 220-230V~, 50Hz.
- A specialized power supply wire, which shall be installed by a competent person as per the rules of the national standard.
- Power supply must be grounded effectively.
- An electric leakage breaker shall be installed.
- Layout of power supply wiring shall be Y connection. If the power supply wire is damaged, it must be replaced by the manufacturer or its service center or professional person (the power supply wire shall be self-contained).
- For connection of the power supply plug, L shall be connected with the live wire, N shall be connected with neutral line, ⏚ shall be connected with earth wire.
- Power supply wire parameters:H05RN-F,3 G(1.0-1.5)$mm^2$;
  Signal wire parameters:H05RN-F,2X(0.75-1.5)$mm^2$. (User shall self-provide signal wire )

Note:The signal wire and connection wire should be provided by oneself.
The signal wire must be shielded wire

**INSTRUCTIONS TO INSTALLATION**

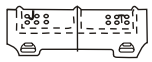
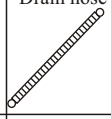
| ⚠ WARNING |
|---|
| BE SURE TO READ THESE INSTRUCTIONS CAREFULLY BEFORE BEGINNING INSTALLATION. FAILURE TO FOLLOW THESE INSTRUCTIONS COULD CAUSE SERIOUS INJURY OR DEATH, EQUIPMENT MALFUNCTION AND/OR PROPERTY DAMAGE.<br>BE SURE TO READ INSTALLATION MANUAL FOR INDOOR UNIT WITH THIS MANUAL. |

## 1.Accessories

Confirm accessories shown below are attached in the bag with this Installation manual.

Accessories Delivered with Your Air Conditioner

Please check if your unit is delivered with the following accessories.

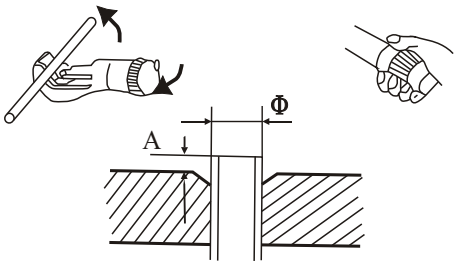
| No. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| Name and shape | Remote controller  | Batteries  | Mounting plate  | Drain hose  | 4×25 screw  | Expansion bushing  | Cement steel nail  | Piping hole cover  | Screw  | Plastic supporting plate  |
| Qty | 1 | 2 | 1 | 1 | 6 | 6 | 8 | 1 | 2 | 1 |

Indoor Unit

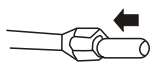
- Install the indoor unit where the weight of the unit can be supported.
- Install the indoor unit where the heat source and steam source are not close and the unit inlet and outlet are not blocked.
- Install the indoor unit where the drainage is easy and the outdoor unit can be easily connected.
- Install the indoor unit where its cold air and hot air can be easily sent to all the comers of the room.
- Install the indoor unit where the power socket is near and there is sufficient space around the indoor unit.
- Install the indoor unit where there is no T.V set, radio set, and wireless appliance underneath, and the sunlight lamp is over one meter away.
- If the remote controller is installed on the wall, the indoor unit shall be ensured to receive the signal while the sunlight lamp is on.

Method for Cutting and Expanding Pipes.
When the pipe is too long or the mouth is damaged, the pipe needs to cut or expanded.

1.cutting hose 2.Removing burr 3.Put on nut 4.Expand Hose



Hose Expander




Expansion Size

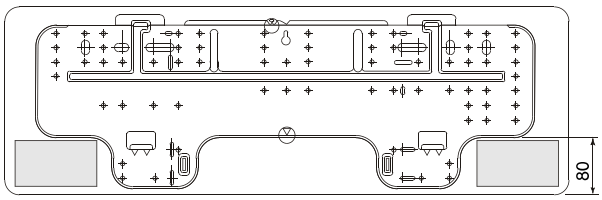
| Hose dia⌀ | Size (mm)A |
|---|---|
| 6.35 mm(1/4) | 0.8-1.5 |
| 12.7 mm(1/2) | 1.0-2.0 |

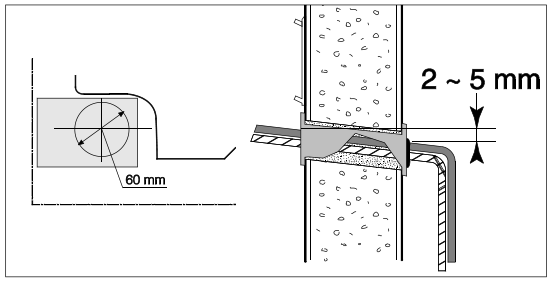
| Correct | Not Correct | | | | |
|---|---|---|---|---|---|
|  |  Tilting |  cracks on expanded mouth |  burr |  incomplete |  too long |

**INSTALLATION PROCEDURE**

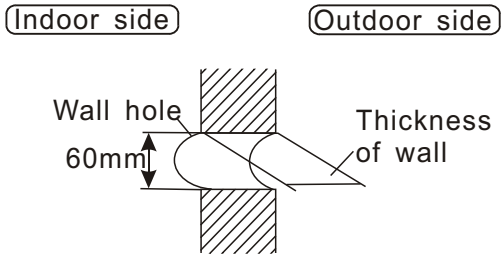
When the mounting plate is first fixed

1. Carry out, based on the neighboring pillars or lintels, a proper leveling for the plate to be fixed against the wall, then temporarily fasten the plate with one steel nail.
2. Make sure once more the proper level of the plate, by hanging a thread with a weight from the central top of the plate, then fasten securely the plate with the attachment steel nail.



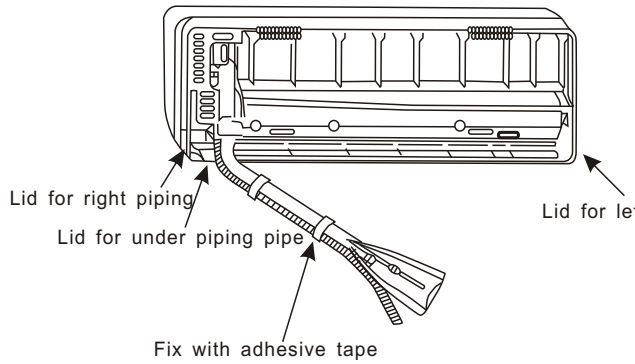

3. Making a Hole on the wall and Fitting the piping Hole cover
- Make a hole of 60mm in diameter, slightly descending to outside the wall.
- Install piping hole cover and seal it off with putty after installation.

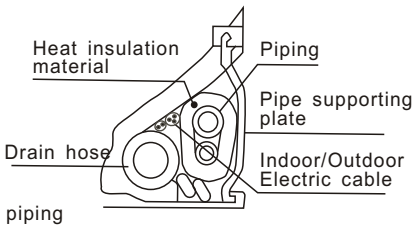



(Section of wall hole) Piping hole pipe

4. Drawing of pipe
   Rear piping
   Draw pipes and the drain hose, then fasten them with the adhesive tape.
   Left Left-rear, piping
- In case of left side piping, cut away, with a nipper, the lid for left piping.
- In case of left-rear piping, bend the pipes according to the piping direction to the mark of hole for left-rear piping which is marked on heat insulation materials.

a. Insert the drain hose into the dent of heat insulation materials of indoor unit.
b. Insert the indoor/outdoor electric cord from backside of indoor unit, and pull it out on the front side, then connect them.
c. Coat the flaring seal face with refrigerant oil and connect pipes.
   Cover the connection part with heat insulation materials closely, and make sure fixing with adhesive tape.




- Indoor/outdoor electric cord and drain hose must be bound with refrigerant piping by protecting tape.

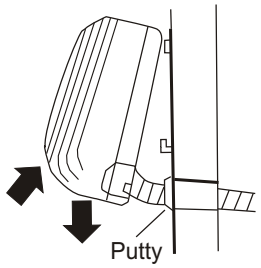
INSTALLATION PROCEDURE

## Other direction piping

- Cut away, with a nipper, the lid for piping according to the piping direction and then bend the pipe according to the position of wall hole. When bending, be careful not to crash pipes.
- Connect beforehand the indoor/outdoor electric cable, and then pull out the connected to the heat insulation of connecting part specially.

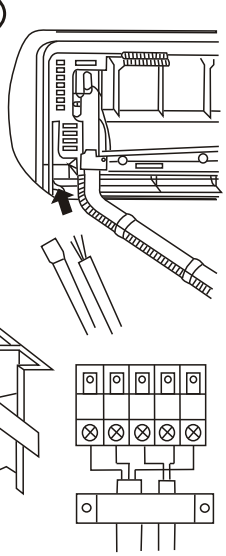
5.Fixing the indoor unit body

- Hang surely the unit body onto the upper notches of the mounting plate. Move the body from side to verify its secure fixing.
- In order to fix the body onto the mounting plate, hold up the body aslant from the underside and then put it down perpendicularly.



**INSTALLATION PROCEDURE**
**ELECTRICAL WIRING**

## When connecting the cord before installing the indoor unit



- Insert the cord from the back side of the unit, then pull it out on the front side.
- Loosen the screws and insert the cord ends fully into terminal block, then tighten the screws.
- Pull the cord slightly to make sure the cords have been properly inserted and tightened.
- After the cord connection, never fail to fasten the connected cord with the wiring cover.

Note: when connecting the cord, confirm the terminal number of indoor and outdoor units carefully. If wiring is not correct, proper operation can not be carried out and will cause defect.



**⚠ CAUTION**

After connecting the piping, check the joints for gas leakage with gas leakage detector.

**HOW TO CONNECT WIRING TO THE TERMINALS**

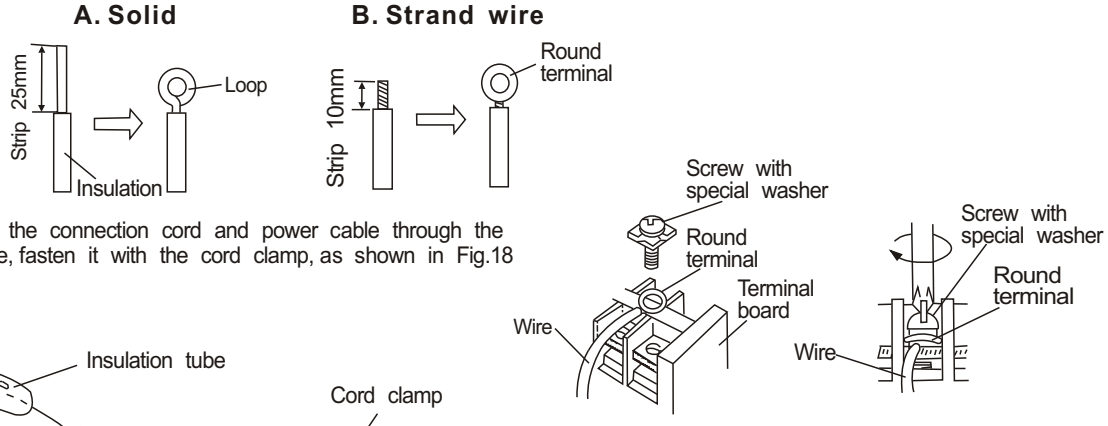
A. For solid core wiring (or F-cable)(Fig.17A)

(1) Cut the wire with a wire cutter or wire-cutting pliers, then strip the insulation to about 25mm of the exposed solid wire.
(2) Using a screwdriver, remove the terminal screw (s) on the terminal board.
(3) Using pliers, bend the solid wire to form a loop suitable for the terminal screw.
(4) Shape the loop wire properly, place it on the terminal board and tighten securely with the terminal screw using a screw driver.

B. For strand wiring (Fig.17B)

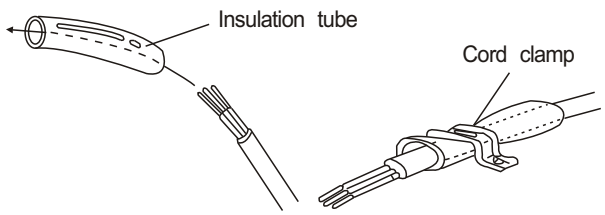
(1) Cut the wire with a wire cutter or wire-cutting pliers, then strip the insulation to about 10mm of the exposed strand wiring.
(2) Using a screwdriver, remove the terminal screw (s) on the terminal board.
(3) Using a round terminal fastener or pliers, securely clamp a round terminal to each stripped wire end.
(4) Position the round terminal wire, and replace and tighten the terminal screw using a screw driver.

**Fig. 17**




After passing the connection cord and power cable through the insulation tube, fasten it with the cord clamp, as shown in Fig.18

**Fig. 18**




Use VW-1, 0.5 to 1.0 mm thick, PVC tube as the insulation tube.

## INSTALLATION CHECK AND TRIAL OPERATION

**Check the Layout of the Drain Pipe and Connection Wires**

The drain pipe should be placed underneath, and the connection wires should be placed upside; and the drain pipe especially the section inside the machine and indoors must be wound up with insulating material to preserve heat. The drain pipe shall be sloped and no concave and convex shall occur along the whole pipe. And the cases as the right figure indicates shall not occur.

**Installation check**

- Is power supply voltage required?
- Is water completely drained to outdoors?
- Are power wire and connection wires between indoor and outdoor units correctly connected?
- Is any gas leaked from the pipe connectors?
- Are series numbers of the terminals on the indoor and outdoor units corresponding to each other? Is the connection section of the auxiliary pipe insulated? Is the indoor unit fixed firmly?
- Is noise big?

**Trial Operation**

The person who has completed this installation shall be requested to conduct a test operation for check:

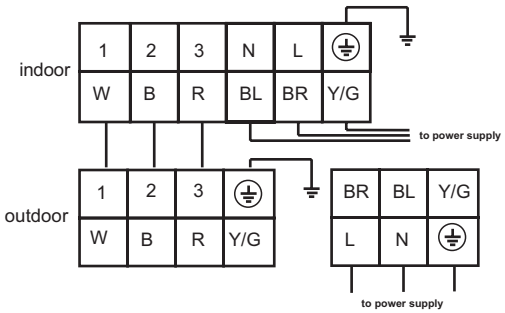
- Is the temperature adjuster working normally?
- Does the location for installation conform to requirements?

Winding up with Protective Plastic Tape

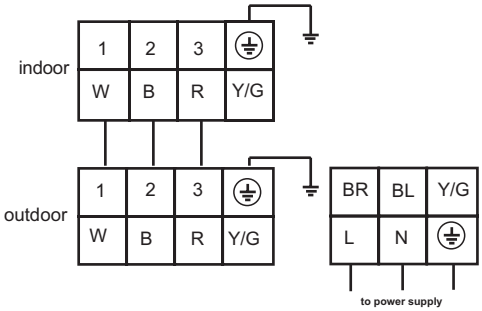
The connection pipes, drain pipe, and the connection wires shall be wound up with PVC tape.
Notes: The connection pipes shall also be wound up with insulating material to preserve the temperature. The airing direction shall be from bottom to top.

## Wiring diagram between I.U.&O.U.

AU182AFERA/AD182AMERA

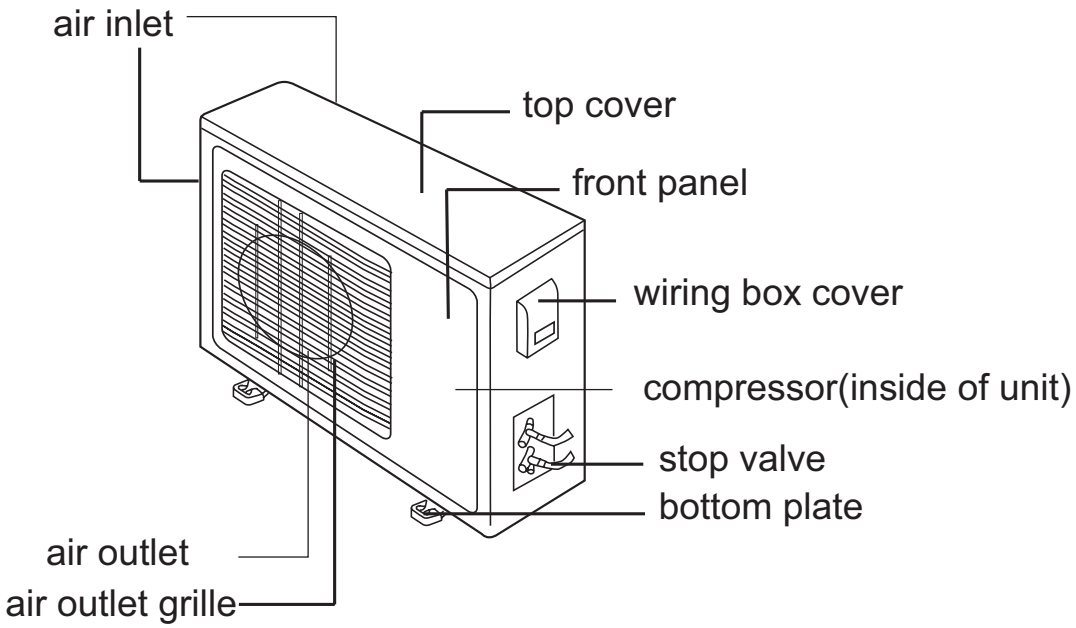



AU182AFERA/AS182AVERA

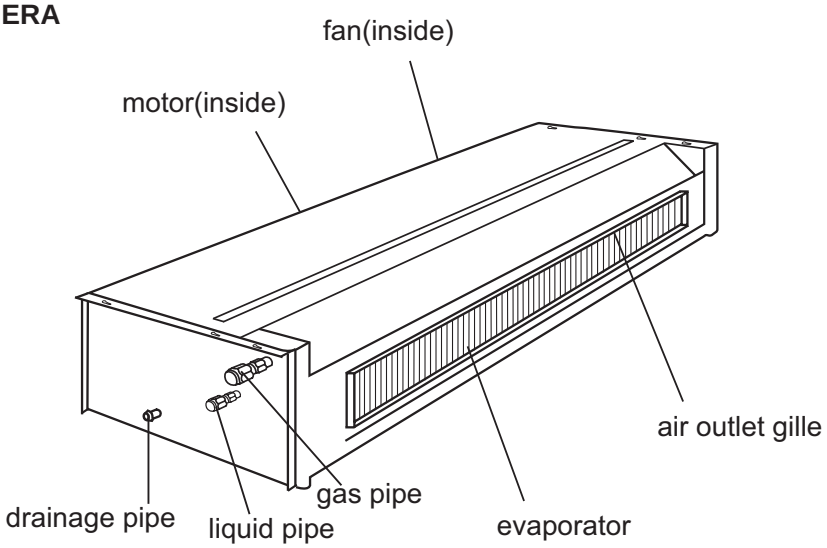


## 6. Parts and Functions

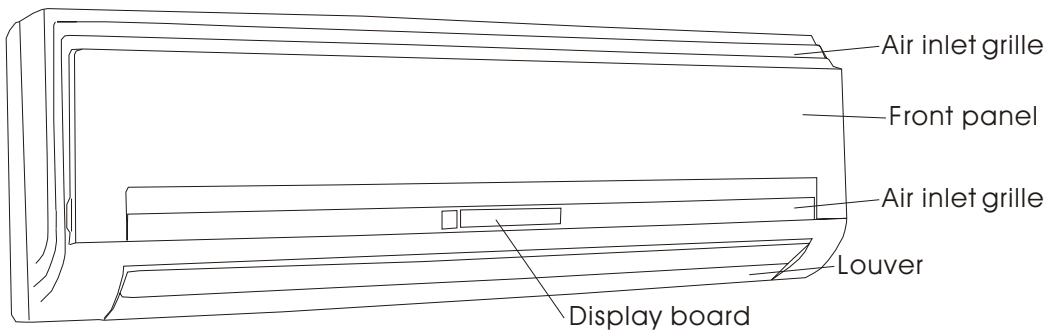
AU182AFERA




**AD182AMERA**

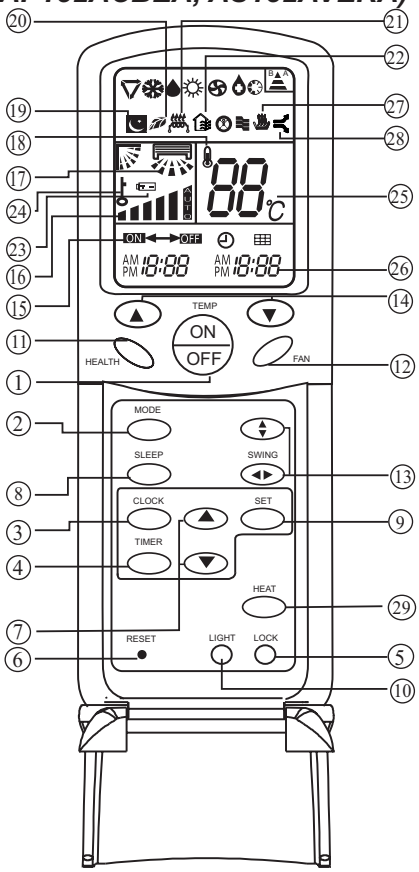



**AS182AVERA**



# 7. Controller functions

## 7.1 *Remote controller YR-H49(used for AP182ACBEA, AS182AVERA)*




①Power ON/OFF

Used for unit start and stop.

② MODE

Used to select AUTO run,COOL, DRY, HEAT and FAN operation.

③CLOCK

Used to set correct time.

④TIMER

Used to select TIMER ON, TIMER OFF, TIMER ON/OFF.

⑤LOCK

Used to lock buttons and LCD display.

⑥ RESET

Used to reset the controller back to normal condition.

⑦ HOUR

Used to set clock and timer setting.

⑧SLEEP

Used to select sleep mode

⑨ SET

Used to confirm Timer and Clock setting.

⑩ LIGHT

Control the light up and go out of the control panel's background light source and control the switch of the buzzer.

⑪HEALTH

Used to set Health operation function

⑫FAN

Used to select fan speed: AUTO, LOW FAN, MED FAN, HIGH FAN.

⑬SWING

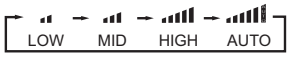
Used to set UP/DOWN air sending and RIGHT/LEFT air sending direction.

⑭ TEMP

Used to set temp.,temp. range:16°C~30°C

⑮Timer ON/OFF display

⑯ Fan speed and air sending direction display




⑰Swing direction display

⑱Room temperature display

⑲Sleep state display

⑳Health display

Display when set Health operation function.

㉑Electric Heating display

㉒Fresh Air state display

㉓Battery Capacity display

Display when the electric power of the battery is insufficient.

㉔Lock state display

㉕Temperature display

Used to display the set temperature and room temperature.

㉖Clock display

㉗Humidifying display

㉘Power/Soft operation display

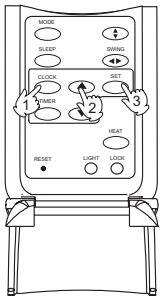
㉙HEAT

Select Auxiliary electric heater

Note: All the above functions will be a little different for the specific models.

## *Operation instructions*

### Clock set



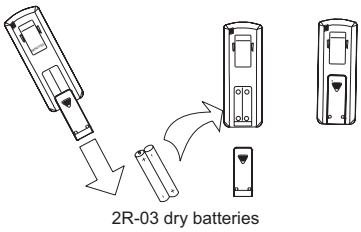
When unit is started for the first time
and after replacing batteries in remote
controller, clock should be adjusted as follows:
Press CLOCK button, "AM"or "PM" flashes.
Press ▲ or ▼ to set correct time. Each press will increase
or decrease 1 min . If the button is kept pressed, time will change quickly.
After time setting is confirmed, press SET, "AM" and "PM"
stop flashing, while clock starts working.

### Remote controller's operation

- When in use, put the signal transmission head directly to the receiver hole on the indoor unit
- The distance between the signal transmission head and the receiver hole should be within 7m without any obsacles as well.
- Don't throw the controller, prevent it from being damaged.
- When electronic-started type fluorescent lamp or change-over type fluorescent lamp or wireless telephone is installed in the room, the receiver is apt to be disturbed in receiving the signal so the distance to the indoor unit should be shorter.

### Loading of the battery

Slightly press " ▼ " and push down the cover.
Load the batteries as illustrated.
2 R-03 dry batteries, (cylinder)
Be sure that the loading is in line with the "+"/"-" pole request as illustrated.
Put on the cover again.




### Confirmation indicator:

In disorderation, reload the batteries or load the new batteries after 5 mins.

Note:The waster batteries should be disposed properly,use two new same-type batteries when loading.

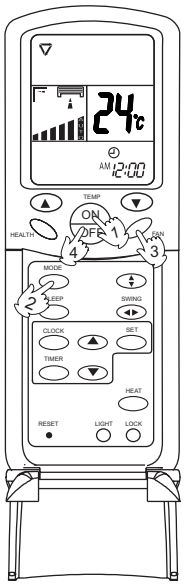
If the remote controller can□t function normally or doesn□t work at all,use a sharp-pointed item to press the reset key.

Hint:Remove the batteries in case unit won□t be in usage for a long period.

If there are any displays after taking-out just need to press reset key.

When throw away the waste batteries, please perform in accordance with the local regulation.

## *Auto Mode*



① Press ON/OFF button
Unit starts running.
The previous status appears on the display
(except. TIMER, SLEEP mode)

② Press MODE button. For each press, operation mode changes as follows:

AUTO → COOL → DRY → FAN → HEAT

Select Auto run,
" ▽ " appears and auto run starts.

③ Select temp. button
Press TEMP button
▲ Every time the button is pressed, temp. setting increases 1℃
▼ Every time the button is pressed, temp. setting decreases 1℃
If the button is kept pressed, setting will increase or decrease quickly.

④ Press FAN,For each press, operation mode changes as follows:

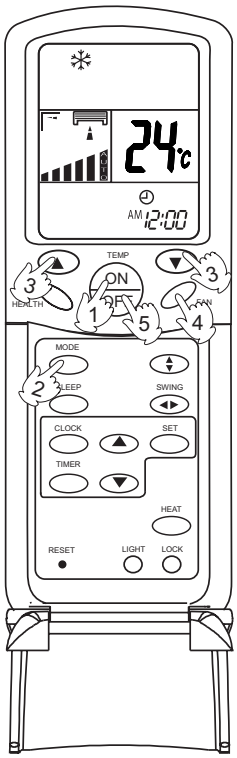
Remote controller → LOW → MID → HIGH → AUTO

Unit runs at the speed displayed on LCD.
When fan speed is AUTO,it is changed automatically according to the indoor temperature.

⑤ Press ON/OFF button
Unit stops running.

Note:
During Auto run operation, temp. setting will be shown in LCD display, unit will select heating, cooling or fan operation according to the room temp.

## *Cooling Mode*




① Press ON/OFF button
Unit starts running.
The previous status appears on the display (except. TIMER, SLEEP mode)

② Press MODE button. For each press, operation mode changes as follows:

Remote controller → AUTO → COOL → DRY → FAN → HEAT

Select cooling operation, Shows"❄"
Cooling operation starts.

③ Select temp. button
Press TEMP button
▲ Every time the button is pressed, temp. setting increases 1℃
▼ Every time the button is pressed, temp. setting decreases 1℃
If the button is kept pressed, setting will increase or decrease quickly.

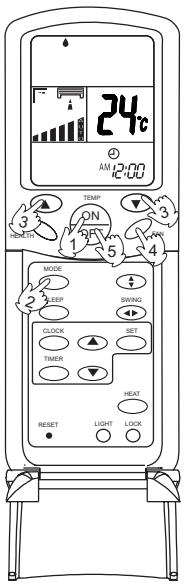
④ Press FAN button. For each press, fan speed changes as follows:

Remote controller → LOW → MID → HIGH → AUTO

Unit runs at the speed displayed on LCD.
When fan speed is AUTO,it is changed outomatically according to the indoor temperature.

⑤ Press ON/OFF button
Unit stops running,and when entry this mode for the next time,it will show the previous setting.

## *Dry Mode*



① Press ON/OFF button
Unit starts running.
The previous status appears on the display
(except. TIMER, SLEEP mode)

② Press MODE button. For each press, operation mode changes as follows:

Remote controller → AUTO → COOL → DRY → FAN → HEAT

Select Drying operation shows"💧"
Dry operation starts

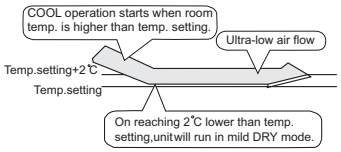
③ Select temp. button
Press TEMP button
▲Every time the button is pressed, temp. setting increases 1℃
▼Every time the button is pressed, temp. setting decreases 1℃
If the button is kept pressed, setting will increase or decrease quickly.

④ Press FAN button. For each press, fan speed changes as follows:

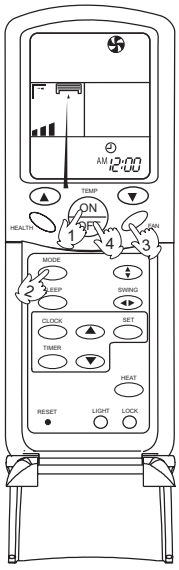
Remote controller → LOW → MID → HIGH → AUTO

Unit runs at the speed displayed on LCD.
In DRY mode, when room temp.becomes 2 C lower than temp. setting,unit will run intermittently at LOW speed regardless of FAN setting.

⑤ Press ON/OFF butto nUnit stops running, and when entering this mode for the next time, it will show the previous setting




## *Fan Mode*



① Press ON/OFF button
Unit starts running.The previous status appears on the display
(except. TIMER, SLEEP mode)

② Press MODE button. For each press,operation mode changes as follows:

Remote controller → AUTO → COOL → DRY → FAN → HEAT

Select Fan operation shows "🌀", Fan operation starts.

③ Press FAN button. For each press, fan speed changes as follows:

LOW → MID → HIGH

Unit runs at the speed displayed on LCD.

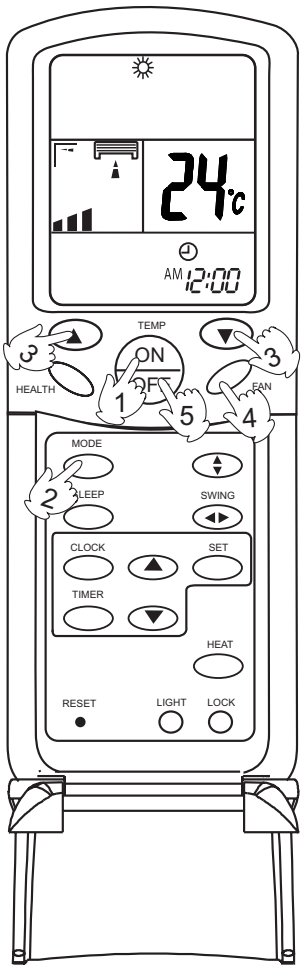
④ Press ON/OFF button
Unit stops running, and when entering this mode for the next time, it will show the previous setting.

Note:
In this mode, temp. can't be selected, temp.setting will not be shown in LCD display.In Fan operation mode, "AUTO" fan speed is not available. Operation cycles are as follows:

LOW → MID → HIGH

## *Heating Mode*

**Note: For cooling only type, this function is invalid.**




① Press ON/OFF button
Unit starts running.
The previous status appears on the display (except. TIMER, SLEEP mode)

② Press MODE button. For each press,operation mode changes as follows:

AUTO COOL DRY FAN HEAT

Select Heating operation " ☼ " appears and Heating operation starts.

③ Select temp. button
Press TEMP button
▲Every time the button is pressed, temp. setting increases 1℃
▼Every time the button is pressed, temp. setting decreases 1℃
If the button is kept pressed, setting will increase or decrease quickly.

④ Press FAN button. For each press, fan speed changes as follows:

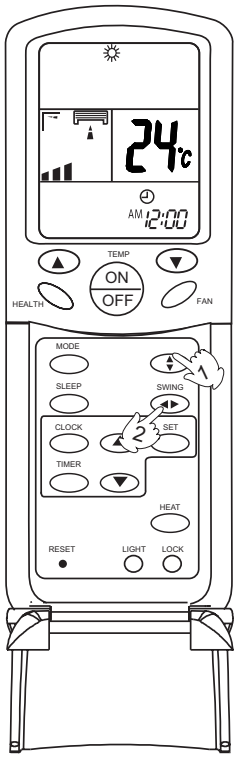
LOW MID HIGH AUTO

In heat mode,warm air will blow out after a short period of time due to cold-draft prevention function.

⑤ Press ON/OFF button
Unit stops running, and when entering this mode for the next time, it will show the previous setting.

## *Air flow adjustment*

Swing louvers
(Vertical louvers)
(Horizontal louvers)

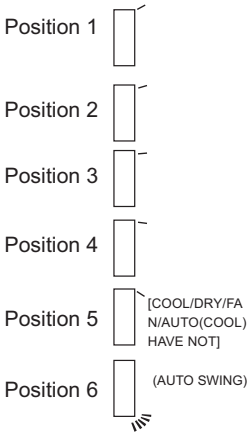



Side from side

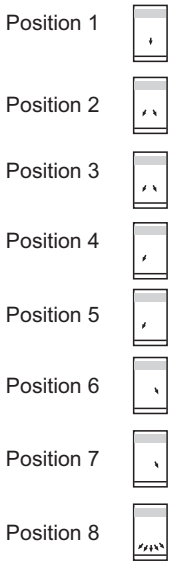
Swing

- Press SWING the vertical louvers move from side to side.

Up and down




Side from side




Fixed position

- Press the SWING again to fix the vertical louvers at your desired position.

Swing

- Press SWING the horizontal louvers move from up to down.

Fixed position

- Press the SWING again to fix the horizontal louvers at your desired position.

Note: Put louvers at up position in cooling and down position in heating mode. This will be helpful to keep an even room temp.

Notice: In cooling or dry operation, don't put horizontal louvers at downward position for a long time, or outlet grill might get frosted. Don't expose your skin to cool or warm air for a long time.

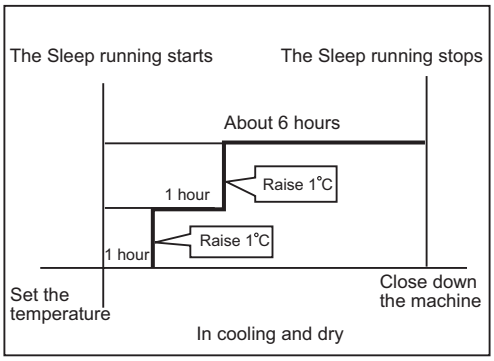
## *SLEEP Mode*

### Remote control unit

Before go to bed, you can press the Sleep button, the air conditioner will operate in comfortable sleep mode to make your sleep more comfortable.

## Usage of the Sleep function

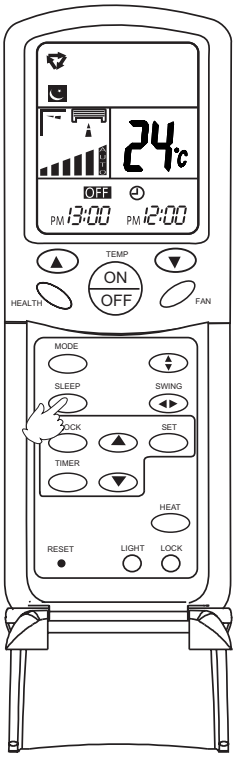
After starting, set the Run mode and press the Sleep button.




## Run mode

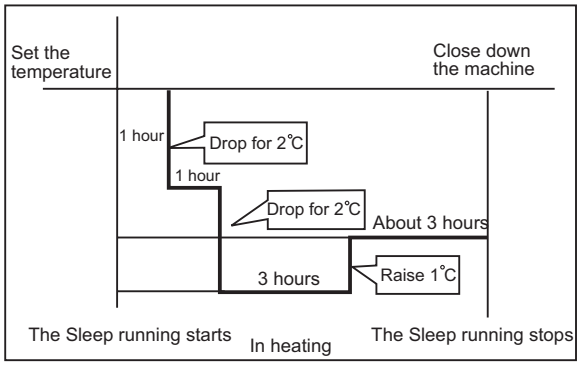
**1. In cooling and dry**

After starting of the Sleep operation, the temperature Will be raised for 1˚C higher than the set temperature 1 hour later,and be raised for 1˚C after another hour. It continues under that condition for 6 hours, then the machine will be switched off. The temperature is higher than the set temperature so as to avoid catching cold in sleeping.




**2. In heating** ( the single-cooling conditioners do not have the function)

After the Sleep running starts, the temperature will drop for 2 C after another one hour. The temperature will raise for 1˚C after 3 hours running under the above temperature, and the conditioner will be closed down after running for 3 hours. The temperature is lower than the set temperature so as to avoid uneasiness in sleeping.




**3. In automatic running**

The conditioner will run under automatically selected working mode of sleeping.

**4. In Fan running**

The Sleep function is invalid.

## Timer on/off operation

Remote control unit

TIMER operation

Set Clock correctly before starting Timer operation (refer to page 2)

You can let unit start or stop automatically at following times: Before you wake up in the morning, or get back from outside or after you fall asleep at night.

TIMER ON/OFF

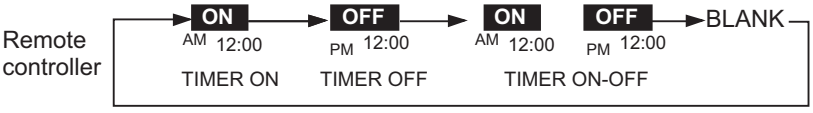
**(1) After unit start, select your desired operation mode.**

Operation mode will be displayed on LCD.

**(2) TIMER mode selection**

Press TIMER button to change TIMER mode.

Every time the button is pressed, display changes as follows:



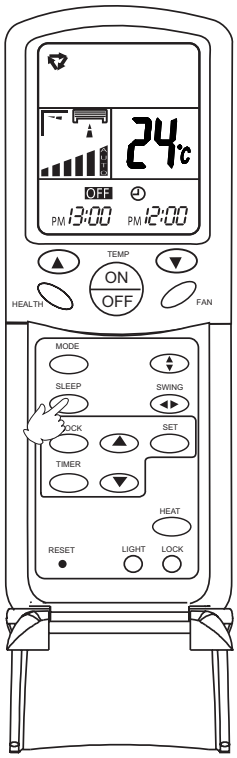

Select your desired TIMER mide (TIMER ON or TIMEROFF) ON or OFF will flash.

**(3) Timer setting**

Press HOUR▲ / ▼ button.

▲Every time the button is pressed, time increases 1 min, If button is kept pressed, time will change quickly.

▼Every time the button is pressed, time decreases 1 min, If button is kept pressed, time will change quickly. Time will be shown on LCD. It can be adjusted within 24 hours.



**(4) Confirming your setting**

After setting correct time, press SET button to confirm, " ON " or " OFF " stops flashing.

Time displayed: Unit starts or stops at x hour x min (TIMER ON or TIMER OFF)

Timer mode indicator on indoor unit lights up.

## To cancel TIMER mode

Just press TIMER button several times until TIMER mode disappears.

## Hints

After replacing batteries or a power failure happens, Time setting should be reset.

Remote controller possesses memory function when use TIMER mode next time, just Press SET button after mode selecting if timer setting is the same as previous one.

# *Timer on-off function*

## Remote controller operation TIMER ON-OFF

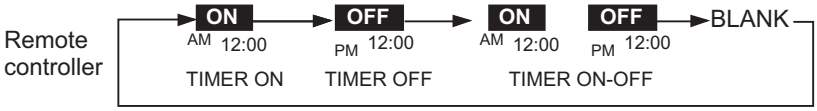
**(1) After unit start, select your desired operation mode.**

Operation mode will be displayed on LCD.

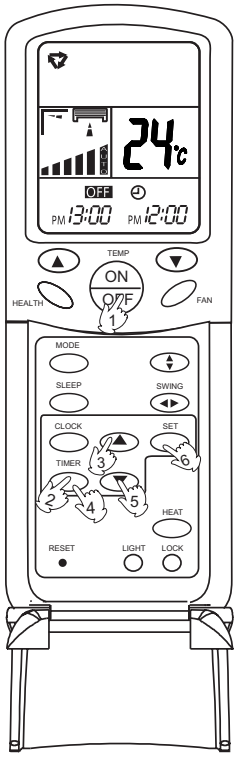
**(2) TIMER mode selection**

Press TIMER button to change TIMER mode.

Every time the button is pressed, display changes as follows:




Select your desired TIMER mide (TIMER ON or TIMEROFF) ON or OFF will flash.



**(3) Timer setting for TIMER ON**

Press HOUR button.

▲ Every time the button is pressed, time increases 1 min. If button is kept pressed, time will change quickly.

▼Every time the button is pressed, time decreases 1 min. If button is kept pressed, time will change quickly.

Time will be shown on LCD.

It can be adjusted within 24 hours.

AM refers to morning and PM to afternoon.

**(4) Time confirming for TIMER ON**

After time setting, press TIMER button to confirm," ON " stops blinking, while " OFF " starts blinking.

**(5) Time setting for TIMER OFF**

Follow the same procedure in "Time setting for TIMER ON".

**(6) Time confirming for TIMER OFF**

After time setting, press SET button to confirm, " OFF " stops flashing.

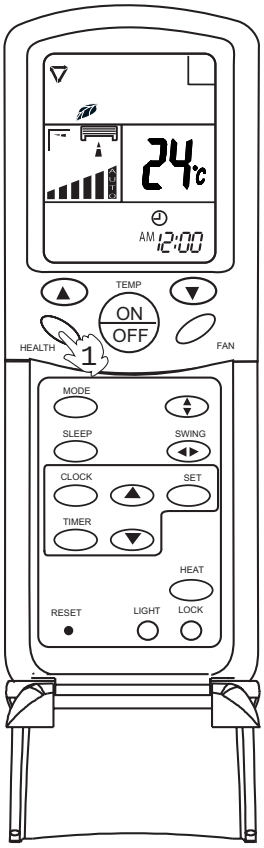
Time displayed: Unit start or stop at x hour x min

## To cancel TIMER mode

Just press TIMER button several times until TIMER mode disappears.

According to the Time setting sequence of TIMER ON or TIMER OFF,either ON-OFF or OFF-ON can be achieved.

## *Health & Fresh Air operation*




*Health operation*

After turning on the unit and set the desired working mode. Press the Health button, the LCD will display " ", the unit begins health operation (start the negative ion generation device). Press the Health button again, the " " displayed on the LCD disappears, health operation is cancelled (turn off the negative ion generation device).

Note: When indoor fan motor does not work, the unit will automatically turn off negative ion generation device.

*About Health operation*

After the start of Health operation, the negative ion generator will generate large amount of negative ion, which can effectively balance the amount of positive & negative ion in the air and has the bacteria-killing and accelerating the dust deposition of the room to make the room air fresh and healthy.

## LIGHT operation:

The remote receiver of wall mounted unit is with the background lamp, press LIGHT button, according to the buzzer state, there are four modes of background lamp as follows:

1. Buzzer works, 5 seconds later, background lamp is off;
2. Buzzer works, background lamp is on constantly;
3. Buzzer does not work, 5 seconds later, background lamp is off;
4. Buzzer works, background lamp is off constantly

The above modes will be changed as repetition.

## *Auto restart function*

**Setting method (to be applied for a necessary situation) :**

**Setting Method:** When the remote controller is on (excluding timer mode and fan mode), press the "SLEEP" button on the remote controller 10 times within 5 seconds, and after the buzzer rings 4 times, the air conditioner will enter the state of auto restart.

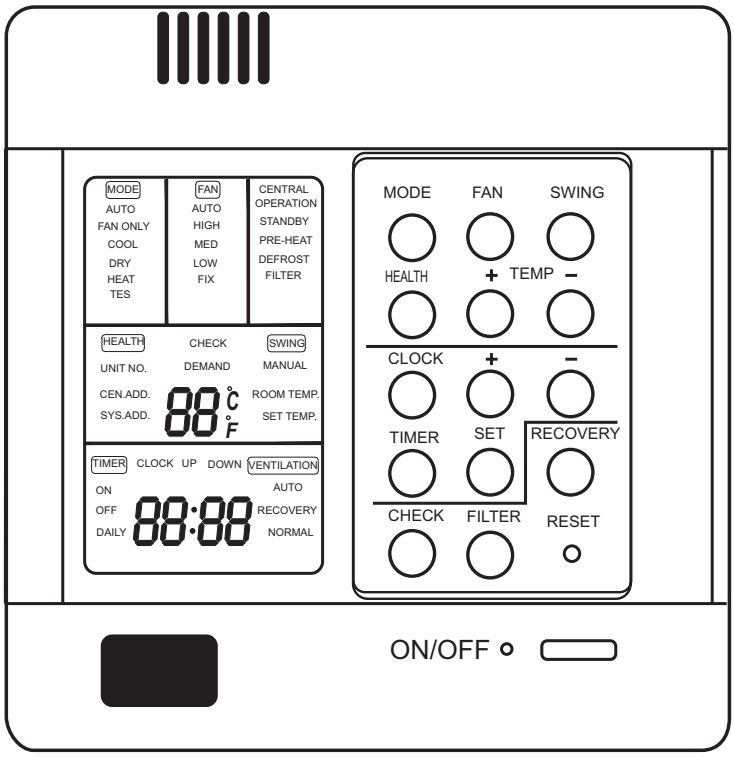
**Cancel Method:** Press the "SLEEP" button on the remote controller 10 times within 5 seconds, and after the buzzer rings 2 timer, the auto restart mode will be cancelled.

**Notes:** When a power failure suddenly occurs during the air conditioner is working after the power failure compensation is set, if the air conditioner will not be used for a long time, please cut off the power supply to prevent its operation from being resumed after the power is supplied again, or press the "Switch On/Off" button after the power comes again.

After the power failure compensation is set, if power failure suddenly occurs while the air conditioner is working, it will resume the previous working state when the power is supplied again.

**If the unit has not the "**SLEEP**" button or function, please realize the function by pressing "SWING" with the same method.**

### 7.2 Wired controller YR-E12




Buttons function：

MODE：used for select indoor operation mode.

FAN：used for select indoor air flow.

SWING：used for setting indoor swing mode.

HEALTH：used for setting indoor health function.

TEMP + -：used for changing set temperature.

CLOCK：used to adjust time.

+、-：stands for time plus/minus, used to adjust time.

TIMER：used to set timer mode.

RECOVERY：used to switch over air-exchanging mode.

CHECK：auto-diagnostic button.

FILTER：filter-cleaned button.

RESET：reset correct mode button.

Display description：

[MODE] [AUTO]：auto operation mode

[MODE] [FAN ONLY]：air-throwing mode

[MODE] [COOL]：Cooling operation mode

[MODE] [DRY]：Dehumidification mode

[MODE] [HEAT]：Heating operation mode

[MODE] [HEAT] [TES]：In heating mode, auxiliary electric heater is running. Only when the unit with auxiliary electric heater is in auxiliary electric heating mode, it will display.

[FAN] [AUTO]：auto fan running

[FAN] [HIGH]：high fan speed
[FAN] [MED]： medium fan speed
[FAN] [LOW]： low fan speed
[FAN] [FIX]： fixed fan speed, it will display only when fixed fan speed is requested to main indoor unit.
[CENTRAL]： central control mode
[OPERATION] ： running mode
[STAND BY] ： waiting mode
[PRE-HEAT] ： pre-heating mode
[DEFROST]： defrosting mode
[FILTER] ： request of filter to be cleaned
[HEALTH]：health function
[UNIT NO.]
[CEN.ADD]：central control address, the address number will display on “88”
[SYS.ADD.]：system address, the address number will display on “88”
[CHECK]：auto-diagnostic, trouble shooting
[DEMAND]：compulsory operation function, when it works, [CENTRAL] will flash
[SWING]：swing mode
[ROOM TEMP.]：indoor ambient temperature
[SET TEMP.]：set admired temperature
[TIMER][ON] ：timer function is on, it will switch over in the sequence below:
[ON][OFF] → [ON][OFF][DAILY] →[ ]
[TIMER][OFF] ：timer function is off
[TIMER][ON][OFF] ：timer function ON-OFF
[TIMER][ON][OFF][DAILY]：timer ON-OFF will switch over in turn daily
[CLOCK]：clock display, the displaying time is the current time of the clock.
[UP]、[DOWN]：indicator of filter elevating
[VENTILATION][AUTO]：auto ventilation mode
[VENTILATION][RECOVERY]：fully heat exchanging ventilation mode
[VENTILATION][NORMAL]：normal ventilation mode

**FAN ONLY OPERATION：**

1）Start up operation: press the button of ON/OFF, the system will start up, and will display [MODE][AUTO]；[FAN][AUTO]；[ROOM TEMP.]+ “24℃”；[CLOCK]+”12：00”.

2） Select MODE: press the MODE button, then you will see in the display section [MODE] switch over in below sequence:[FAN ONLY]→[COOL]→[DRY]→[HEAT]→[AUTO]→[FAN ONLY]. Select [FAN ONLY].

3）Select fan speed: press FAN button, then you see in the display section [FAN] switch over in below sequence: [HIGH]→[MED]→[LOW]→[HIGH]. Select proper fan speed.

4）Power off: press ON/OFF button, indoor unit will be powered off, there are only time and the ambient temperature in the screen.

**AUTO operation, COOLING, HEATING and DEHUMIDIFICATION operation**

1) Start up operation: press the button of ON/OFF, the system will start up, and will display [MODE][AUTO]；[FAN][AUTO]；[ROOM TEMP.]+ “24℃”；[CLOCK]+”12：00”.
2) Select MODE: press the MODE button, then you will see in the display section [MODE] switch over in below sequence:[FAN ONLY]→[COOL]→[DRY]→[HEAT]→[AUTO]→[FAN ONLY]. Select [FAN ONLY].
3) Change set temperature: press TEMP + or – every time, [SET] will display, and set temperature will increase/reduce 1℃（F）.
4) Select fan speed: press FAN button, then you see in the display section [FAN] switch over in below sequence: [AUTO]→[HIGH]→[MED]→[LOW]→[AUTO]. Select proper fan speed.
5) Select [SWING]: press [SWING] button, swing function is valid. Press again, swing function is invalid.
6) Set [HEALTH]: used to set the indoor health function. Press it once, [HEALTH] will display in the display section, then indoor health function is valid. Press it again, [HEALTH] will disappear, then the health function is invalid.
This function is valid only for the unit with health function.
7) Power off: press ON/OFF button, indoor unit is powered off. There are only time and the ambient temperature in the screen.

**Set TIMER operation:**

Adjust clock: when powered on, for the first time to set timer function, the clock will be adjusted.
Press “CLOCK” button, and set the current clock. Now, “CLOCK” will flash at the frequency of 2Hz. Press the clock +/- button; the current clock can be adjusted. Until the proper time comes, press [SET].

**TIMER ON operation:**
Press TIMER button, and keep pressing it, in the display section [TIMER] will switch over in below sequence: [ON]→[OFF]→[ON][OFF] → [ON][OFF][DAILY] →[ ]. Select [TIMER] [ON], then [TIMER] [ON] flashes, press the clock +/- button to adjust the time of TIMER ON, press [SET] button.

**TIMER OFF operation:**
Press TIMER button, and keep pressing it, in the display section [TIMER] will switch over in below sequence: [ON]→[OFF]→[ON][OFF] → [ON][OFF][DAILY] →[ ]. Select [TIMER] [OFF], then [TIMER] [OFF] flashes, press the clock +/- button to adjust the time of TIMER OFF, press [SET] button.

**TIMER ON-OFF operation:**
Press TIMER button, and keep pressing it, in the display section [TIMER] will switch over in below sequence: [ON]→[OFF]→[ON][OFF] → [ON][OFF][DAILY] →[ ]. Select [TIMER] [ON] [OFF]. Firstly, [TIMER][ON] flashes, press the clock +/- button to adjust the time of

TIMER ON, press [TIMER]. [TIMER][ON] will be constant on. Then [TIMER] [OFF] flashes, press the clock +/- button to adjust the time of TIMER OFF, press [SET]. The time sequence of timer on and timer off will determine the mode is [TIMER] [ON] →[OFF] or [TIMER] [OFF] →[ON]. If you want the current time, press [CLOCK] once, current time will display; press again, [CLOCK] will flash, and press [+][-] to adjust the time.
Note: 1. If the two times are same, the timer state which is set later will flash, in this case, timer can not be set.
2. When entering TIMER setting state, if you do not input any button in continuous 10 seconds, the unit will quit from the TIMER mode.

**Cancel TIMER operation:**
In the timer operation state, press [TIMER] button, the unit will quit from the current timer operation state, and the set data will be memorized, then enter the next timer mode.

**[FILTER] function**
When the wired controller receives the filter-cleaned signal from indoor unit, [FILTER] will display. After finishing clean, press **[FILTER]**, the sign [FILTER] disappears, and the controller will send the filter reset signal to indoor unit.
When the sign [FILTER] not display, it is invalid to press **[FILTER]** in short time.

**FILTER ELEVATING function: (only for the unit with elevating function)**
When the filter needs to be cleaned, the panel can be lowered to the admired height by the [FILTER][UP][DOWN] function. Method is below: In power off state, press [HEALTH] for 10 seconds to enter filter elevating set state. In this state, the sign [FILTER] will flash and [UP] [DOWN] will display simultaneously, Press TEMP [+], in timer section [UP] will display, while press TEMP [-], in timer section [DOWN] will display. When it arrives the appropriate position, press [UP], [UP][DOWN] will display simultaneously, filter will stop going down. Press [UP] again, filter will go up. Press [FILTER] button to quit the mode.

**DEMAND operation function:**
By this function, all the indoor units can be made in nominal mode. Set the operation mode in cooling and then shut off the unit. In the stop state, press [ON/OFF] button for 5 seconds to enter cooling trial operation state. If it is in heating mode before shut off the unit, then press [ON/OFF] button for 5 minutes, it will enter heating trial operation state.

In cooling, there will be “LL” in the position where the set temperature displays. In heating, there will be “HH” in the position where the set temperature displays. The wired controller will send the [DEMAND] signal to indoor unit. In the [DEMAND] operation, “COOL” or “HEAT” will display at 1Hz frequency. Indoor fan motor will be fixed at “AUTO” mode. The indoor units in the same group will quit the [DEMAND] in turn.

At this time, only the buttons of [ON/OFF] and temperature [+] [-] are valid. Press [ON/OFF] to quit [DEMAND] mode.

**CENTRAL control function**

When the central controller selects [CENTRAL] mode, the buttons in the wired controller except for [CHECK] will be invalid.

**VENTILATION mode (only for the unit with fresh air function or heat recovery function**)

Press [RECOVERY] button, then the unit will switch over the ventilation mode:
[ ] → [VENTILATION][AUTO] → [VENTILATION][RECOVERY] → [VENTALATION][NORMAL] →[ ], please select appropriate ventilation mode.

**Query indoor malfunction history:**

In the state of power on or power off, press [CHECK] button, enter the malfunction-querying mode of all indoor units in the group. Then [CHECK] and [UNIT NO.] will display, and the actual indoor numbers will be displayed in some sequence (unit number is in decimals). At the same time, in the time region, there will be the current malfunction and the latest time malfunction, the displaying format is [XX：YY], in which XX stands for the current malfunction, if normal, it will display "——"; YY stands for the latest time malfunction. The failure code of every unit will display for 3 seconds. After the failure codes of all indoor units in the whole group are displayed, the mode will quit automatically.

**Clear abnormal state and malfunction history:**

In normal state, press [CHECK] button for 5 seconds to clear abnormal states, at the same time, wired controller will send the data of "clear abnormal state", but the malfunction history still retains.

In normal state, press [CHECK] button for 15 seconds, except for malfunction states, the malfunction history in wired controller will be cleared.

**Query indoor performance state:**

In normal state, press both buttons of [CHECK] and [FILTER] for 5 seconds, in the set temperature region in the screen, [XX] will display, XX is indoor number, which can be selected by pressing [TEMP] [+] [-]. In the timer region in the screen, [YZZZ] will display, in which Y stands for data type, ZZZ stands for the corresponding data. which can be selected by pressing [CLOCK] [+] [-].

| Y | ZZZ | Type |
|---|---|---|
| A | Indoor capacity (W) | Nominal cooling capacity/10, decimal |
| B | Request of indoor capacity（Hz） | Actual value, decimal |
| C | Temperature of indoor ambient temp. sensor TA | Actual value, decimal |
| d | Temperature of indoor gas pipe sensor TC1 | Actual value, decimal |
| E | Temperature of indoor liquid pipe sensor TC2 | Actual value, decimal |
| F | Open degree of indoor PMV | Actual value, decimal |

| | | |
|---|---|---|
| g | Preset | — — — |
| H | Outdoor total capacity | Actual value, decimal |

In check mode, press [CHECK] to quit the check mode, and go into normal running mode.

How to change the function switches?

| No. | Type | State of switch | Function description |
|---|---|---|---|
| J01 | Changeover of Wired controller and central controller | Connected | Central controller |
| | | Cut off | Wired controller |
| J02 | Changeover of type of wired controller | Connected | Set as simple controller |
| | | Cut off | Set as standard controller |
| J06 | Selection of room temp. sensor | Connected | Use the sensor in the wired controller |
| | | Cut off | Use the sensor in the indoor unit |
| J07 | Auto restart after power failure | Connected | Common control |
| | | Cut off | Auto restart after power failure |
| J03 | Display of room temperature | Connected | Yes |
| | | Cut off | No |
| SW01 ① | Changeover of master or slave controller | ON | Set as slave controller |
| | | OFF | Set as master controller |
| SW01 ② | ℃ or ℉ | ON | ℉ |
| | | OFF | ℃ |
| D1 | Shorten time function | Connected | Indoor unit in shorted time function |
| | | Cut off | Common control |
| D2 | Compulsorily defrost | Connected | Send compulsorily defrost signal to indoor unit |
| | | Cut off | Common control |

Note: 1. The switches in grey can be operated after opening the cover of wired controller.
2. Switches or jumper wire must be adjusted when the wired controller is powered off. If the wired controller is powered on, the above operations will be invalid.
3. Shorten time function
In normal operation, D1 is in short circuit, it will enter shorten time mode, and the time will be shortened in the proportion of 60:1. In shorten time mode, LED will flash at the frequency of 0.5 second. Cut off D1, it will quit the shorten time mode and return to the normal operation mode.
4. Compulsorily defrost
In heating mode 30℃ and in High fan speed, D2 is in short circuit, it will enter compulsorily defrost mode; cut off D2, it will quit. It is always be used when in testing to see if the defrost function is good.
5. Lock function

There is no lock function only in the wired controller. But when it is connected with a central controller, if the central controller is set to “central”, the buttons in the wired controller will be invalid, or the buttons will be valid.

**Failure code (for the unit with wired controller YR-E12):**

| For remote type, flash times | Failure code on wired controller | For central control, failure code | Failure description | Reason | Remarks |
|---|---|---|---|---|---|
| 10 | 08 | 21D | Drainage system abnormal | Float switch broken down for more than 25m continuously | ○ |
| 1 | 01 | 01D | Indoor ambient temp. sensor failure | sensor broken down or short circuit for more than 2m continuously | ○ |
| 2 | 02 | 02D | Indoor coil temp. sensor failure | sensor broken down or short circuit for more than 2m continuously | ○ |
| 3 | 4A | 11D | Outdoor ambient temp. sensor failure | sensor broken down or short circuit for more than 2m continuously | ○ |
| 4 | 49 | 12D | Outdoor coil temp. sensor failure (compressor discharging temp. sensor) | Sensor broken down or short circuit for more than 2m continuously | ○ |
| 5 | 48 | 10D | Over-current protection | CT check abnormal 3 times in 30m | ※ |
| 6 | 53 | 14D | High pressure abnormal | High pressure switch acts 3 times in 30m | ※ |
| 7 | 47 | 22D | Power supply abnormal | Fault phase, short of phase, out of balance greatly | ※ |
| 8 | 07 | 06D | Communication between wired controller and indoor abnormal | Communication abnormal for more than 4m continuously | ○ |
| 9 | 06 | 05D | Communication between indoor and outdoor abnormal | Communication abnormal for more than 4m continuously | ○ |
| 11 | 0B | 30D | Outside alarm signal input | Outside signal broken down for more than 10s | ○ |
| 12 | 03 | 20D | Gas pipe temp. | Sensor broken down or | ○ |

| | | | | | |
|---|---|---|---|---|---|
| | | | sensor abnormal | short circuit for more than 2m continuously | |
| 13 | 0D | 31D | Solenoid valve abnormal | Solenoid valve act incorrectly 3 times continuously | ○ |
| 14 | 4C | 15D | Discharging temp. sensor abnormal | Sensor broken down or short circuit for more than 2m continuously | ○ |
| 15 | 05 | 17D | EEPROM abnormal | EEPROM data missing | Run as the default value |
| 16 | 54 | 26D | Pressure abnormal(low pressure) | Low pressure switch acts in normal running | ○ |
| 17 | 50 | 15D | Compressor overheat | the discharging temperature is higher than 120degree | Resumable if lower than 100degree |
| 18 | 0C | 23D | Abnormal mode | Indoor operation mode is different with the running indoor unit. | ○ |
| 19 | 4B | 18D | Outdoor coil B(suction temp sensor—for MRV II) | Sensor broken down or short circuit for more than 2m continuously | ○ |
| 20 | 4D | 15D | Outdoor discharging B(oil temp sensor—for MRV II) | Sensor broken down or short circuit for more than 2m continuously | ○ |
| 21 | 32 | 07D | Power module failure | Power module overheat, or over current, or short circuit | ※ |
| 22 | 54 | 08D | Outdoor DC fan motor failure | | ※ |

○ shows resumable fault, ※ shows it is not resumable fault.

**Setting address method:**

The address setting can be realized by setting indoor PCB.

If you use the group control function, there should be a master unit and 15 sets of slave units. For the master unit, the SW5-3 should be at “ON”. For the slave units, the SW5-3 should be at “OFF”.

Please refer the below table,

| Indoor unit address | SW1-4 | SW1-3 | SW1-2 | SW1-1 |
|---|---|---|---|---|
| 1 | OFF | OFF | OFF | OFF |
| 2 | OFF | OFF | OFF | ON |

| | | | | |
|---|---|---|---|---|
| 3 | OFF | OFF | ON | OFF |
| 4 | OFF | OFF | ON | ON |
| 5 | OFF | ON | OFF | OFF |
| 6 | OFF | ON | OFF | ON |
| 7 | OFF | ON | ON | OFF |
| 8 | OFF | ON | ON | ON |
| 9 | ON | OFF | OFF | OFF |
| 10 | ON | OFF | OFF | ON |
| 11 | ON | OFF | ON | OFF |
| 12 | ON | OFF | ON | ON |
| 13 | ON | ON | OFF | OFF |
| 14 | ON | ON | OFF | ON |
| 15 | ON | ON | ON | OFF |
| 16 | ON | ON | ON | ON |

If you use central control type, SW1, SW2 will be used simultaneously.
Wiring request in central control type: port A-B is connected with indoor port CN16（A-B）through 2-core shield wire. Requirements:

1. Port A connects with port CN16（A）of all indoor units.
2. Port B connects with port CN16（B）of all indoor units.

| Address on central controller | Indoor unit address | SW2-3 | SW2-2 | SW2-1 | SW1-4 | SW1-3 | SW1-2 | SW1-1 |
|---|---|---|---|---|---|---|---|---|
| 1 | 1 | OFF | OFF | OFF | OFF | OFF | OFF | OFF |
| 2 | 2 | OFF | OFF | OFF | OFF | OFF | OFF | ON |
| 3 | 3 | OFF | OFF | OFF | OFF | OFF | ON | OFF |
| 4 | 4 | OFF | OFF | OFF | OFF | OFF | ON | ON |
| 5 | 5 | OFF | OFF | OFF | OFF | ON | OFF | OFF |
| 6 | 6 | OFF | OFF | OFF | OFF | ON | OFF | ON |
| 7 | 7 | OFF | OFF | OFF | OFF | ON | ON | OFF |
| 8 | 8 | OFF | OFF | OFF | OFF | ON | ON | ON |
| 9 | 9 | OFF | OFF | OFF | ON | OFF | OFF | OFF |
| 10 | 10 | OFF | OFF | OFF | ON | OFF | OFF | ON |
| 11 | 11 | OFF | OFF | OFF | ON | OFF | ON | OFF |
| 12 | 12 | OFF | OFF | OFF | ON | OFF | ON | ON |
| 13 | 13 | OFF | OFF | OFF | ON | ON | OFF | OFF |
| 14 | 14 | OFF | OFF | OFF | ON | ON | OFF | ON |
| 15 | 15 | OFF | OFF | OFF | ON | ON | ON | OFF |
| 16 | 16 | OFF | OFF | OFF | ON | ON | ON | ON |
| 17 | 17 | OFF | OFF | ON | OFF | OFF | OFF | OFF |
| 18 | 18 | OFF | OFF | ON | OFF | OFF | OFF | ON |
| 19 | 19 | OFF | OFF | ON | OFF | OFF | ON | OFF |
| 20 | 20 | OFF | OFF | ON | OFF | OFF | ON | ON |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 21 | 21 | OFF | OFF | ON | OFF | ON | OFF | OFF |
| 22 | 22 | OFF | OFF | ON | OFF | ON | OFF | ON |
| 23 | 23 | OFF | OFF | ON | OFF | ON | ON | OFF |
| 24 | 24 | OFF | OFF | ON | OFF | ON | ON | ON |
| 25 | 25 | OFF | OFF | ON | ON | OFF | OFF | OFF |
| 26 | 26 | OFF | OFF | ON | ON | OFF | OFF | ON |
| 27 | 27 | OFF | OFF | ON | ON | OFF | ON | OFF |
| 28 | 28 | OFF | OFF | ON | ON | OFF | ON | ON |
| 29 | 29 | OFF | OFF | ON | ON | ON | OFF | OFF |
| 30 | 30 | OFF | OFF | ON | ON | ON | OFF | ON |
| 31 | 31 | OFF | OFF | ON | ON | ON | ON | OFF |
| 32 | 32 | OFF | OFF | ON | ON | ON | ON | ON |
| 33 | 33 | OFF | ON | OFF | OFF | OFF | OFF | OFF |
| 34 | 34 | OFF | ON | OFF | OFF | OFF | OFF | ON |
| 35 | 35 | OFF | ON | OFF | OFF | OFF | ON | OFF |
| 36 | 36 | OFF | ON | OFF | OFF | OFF | ON | ON |
| 37 | 37 | OFF | ON | OFF | OFF | ON | OFF | OFF |
| 38 | 38 | OFF | ON | OFF | OFF | ON | OFF | ON |
| 39 | 39 | OFF | ON | OFF | OFF | ON | ON | OFF |
| 40 | 40 | OFF | ON | OFF | OFF | ON | ON | ON |
| 41 | 41 | OFF | ON | OFF | ON | OFF | OFF | OFF |
| 42 | 42 | OFF | ON | OFF | ON | OFF | OFF | ON |
| 43 | 43 | OFF | ON | OFF | ON | OFF | ON | OFF |
| 44 | 44 | OFF | ON | OFF | ON | OFF | ON | ON |
| 45 | 45 | OFF | ON | OFF | ON | ON | OFF | OFF |
| 46 | 46 | OFF | ON | OFF | ON | ON | OFF | ON |
| 47 | 47 | OFF | ON | OFF | ON | ON | ON | OFF |
| 48 | 48 | OFF | ON | OFF | ON | ON | ON | ON |
| 49 | 49 | OFF | ON | ON | OFF | OFF | OFF | OFF |
| 50 | 50 | OFF | ON | ON | OFF | OFF | OFF | ON |
| 51 | 51 | OFF | ON | ON | OFF | OFF | ON | OFF |
| 52 | 52 | OFF | ON | ON | OFF | OFF | ON | ON |
| 53 | 53 | OFF | ON | ON | OFF | ON | OFF | OFF |
| 54 | 54 | OFF | ON | ON | OFF | ON | OFF | ON |
| 55 | 55 | OFF | ON | ON | OFF | ON | ON | OFF |
| 56 | 56 | OFF | ON | ON | OFF | ON | ON | ON |
| 57 | 57 | OFF | ON | ON | ON | OFF | OFF | OFF |
| 58 | 58 | OFF | ON | ON | ON | OFF | OFF | ON |
| 59 | 59 | OFF | ON | ON | ON | OFF | ON | OFF |
| 60 | 60 | OFF | ON | ON | ON | OFF | ON | ON |
| 61 | 61 | OFF | ON | ON | ON | ON | OFF | OFF |
| 62 | 62 | OFF | ON | ON | ON | ON | OFF | ON |
| 63 | 63 | OFF | ON | ON | ON | ON | ON | OFF |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 64 | 64 | OFF | ON | ON | ON | ON | ON | ON |
| 65 | 65 | ON | OFF | OFF | OFF | OFF | OFF | OFF |
| 66 | 66 | ON | OFF | OFF | OFF | OFF | OFF | ON |
| 67 | 67 | ON | OFF | OFF | OFF | OFF | ON | OFF |
| 68 | 68 | ON | OFF | OFF | OFF | OFF | ON | ON |
| 69 | 69 | ON | OFF | OFF | OFF | ON | OFF | OFF |
| 70 | 70 | ON | OFF | OFF | OFF | ON | OFF | ON |
| 71 | 71 | ON | OFF | OFF | OFF | ON | ON | OFF |
| 72 | 72 | ON | OFF | OFF | OFF | ON | ON | ON |
| 73 | 73 | ON | OFF | OFF | ON | OFF | OFF | OFF |
| 74 | 74 | ON | OFF | OFF | ON | OFF | OFF | ON |
| 75 | 75 | ON | OFF | OFF | ON | OFF | ON | OFF |
| 76 | 76 | ON | OFF | OFF | ON | OFF | ON | ON |
| 77 | 77 | ON | OFF | OFF | ON | ON | OFF | OFF |
| 78 | 78 | ON | OFF | OFF | ON | ON | OFF | ON |
| 79 | 79 | ON | OFF | OFF | ON | ON | ON | OFF |
| 80 | 80 | ON | OFF | OFF | ON | ON | ON | ON |
| 81 | 81 | ON | OFF | ON | OFF | OFF | OFF | OFF |
| 82 | 82 | ON | OFF | ON | OFF | OFF | OFF | ON |
| 83 | 83 | ON | OFF | ON | OFF | OFF | ON | OFF |
| 84 | 84 | ON | OFF | ON | OFF | OFF | ON | ON |
| 85 | 85 | ON | OFF | ON | OFF | ON | OFF | OFF |
| 86 | 86 | ON | OFF | ON | OFF | ON | OFF | ON |
| 87 | 87 | ON | OFF | ON | OFF | ON | ON | OFF |
| 88 | 88 | ON | OFF | ON | OFF | ON | ON | ON |
| 89 | 89 | ON | OFF | ON | ON | OFF | OFF | OFF |
| 90 | 90 | ON | OFF | ON | ON | OFF | OFF | ON |
| 91 | 91 | ON | OFF | ON | ON | OFF | ON | OFF |
| 92 | 92 | ON | OFF | ON | ON | OFF | ON | ON |
| 93 | 93 | ON | OFF | ON | ON | ON | OFF | OFF |
| 94 | 94 | ON | OFF | ON | ON | ON | OFF | ON |
| 95 | 95 | ON | OFF | ON | ON | ON | ON | OFF |
| 96 | 96 | ON | OFF | ON | ON | ON | ON | ON |
| 97 | 97 | ON | ON | OFF | OFF | OFF | OFF | OFF |
| 98 | 98 | ON | ON | OFF | OFF | OFF | OFF | ON |
| 99 | 99 | ON | ON | OFF | OFF | OFF | ON | OFF |
| 100 | 100 | ON | ON | OFF | OFF | OFF | ON | ON |
| 101 | 101 | ON | ON | OFF | OFF | ON | OFF | OFF |
| 102 | 102 | ON | ON | OFF | OFF | ON | OFF | ON |
| 103 | 103 | ON | ON | OFF | OFF | ON | ON | OFF |
| 104 | 104 | ON | ON | OFF | OFF | ON | ON | ON |
| 105 | 105 | ON | ON | OFF | ON | OFF | OFF | OFF |
| 106 | 106 | ON | ON | OFF | ON | OFF | OFF | ON |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 107 | 107 | ON | ON | OFF | ON | OFF | ON | OFF |
| 108 | 108 | ON | ON | OFF | ON | OFF | ON | ON |
| 109 | 109 | ON | ON | OFF | ON | ON | OFF | OFF |
| 110 | 110 | ON | ON | OFF | ON | ON | OFF | ON |
| 111 | 111 | ON | ON | OFF | ON | ON | ON | OFF |
| 112 | 112 | ON | ON | OFF | ON | ON | ON | ON |
| 113 | 113 | ON | ON | ON | OFF | OFF | OFF | OFF |
| 114 | 114 | ON | ON | ON | OFF | OFF | OFF | ON |
| 115 | 115 | ON | ON | ON | OFF | OFF | ON | OFF |
| 116 | 116 | ON | ON | ON | OFF | OFF | ON | ON |
| 117 | 117 | ON | ON | ON | OFF | ON | OFF | OFF |
| 118 | 118 | ON | ON | ON | OFF | ON | OFF | ON |
| 119 | 119 | ON | ON | ON | OFF | ON | ON | OFF |
| 120 | 120 | ON | ON | ON | OFF | ON | ON | ON |
| 121 | 121 | ON | ON | ON | ON | OFF | OFF | OFF |
| 122 | 122 | ON | ON | ON | ON | OFF | OFF | ON |
| 123 | 123 | ON | ON | ON | ON | OFF | ON | OFF |
| 124 | 124 | ON | ON | ON | ON | OFF | ON | ON |
| 125 | 125 | ON | ON | ON | ON | ON | OFF | OFF |
| 126 | 126 | ON | ON | ON | ON | ON | OFF | ON |
| 127 | 127 | ON | ON | ON | ON | ON | ON | OFF |
| 128 | 128 | ON | ON | ON | ON | ON | ON | ON |

## Electrical functions of wired controller:

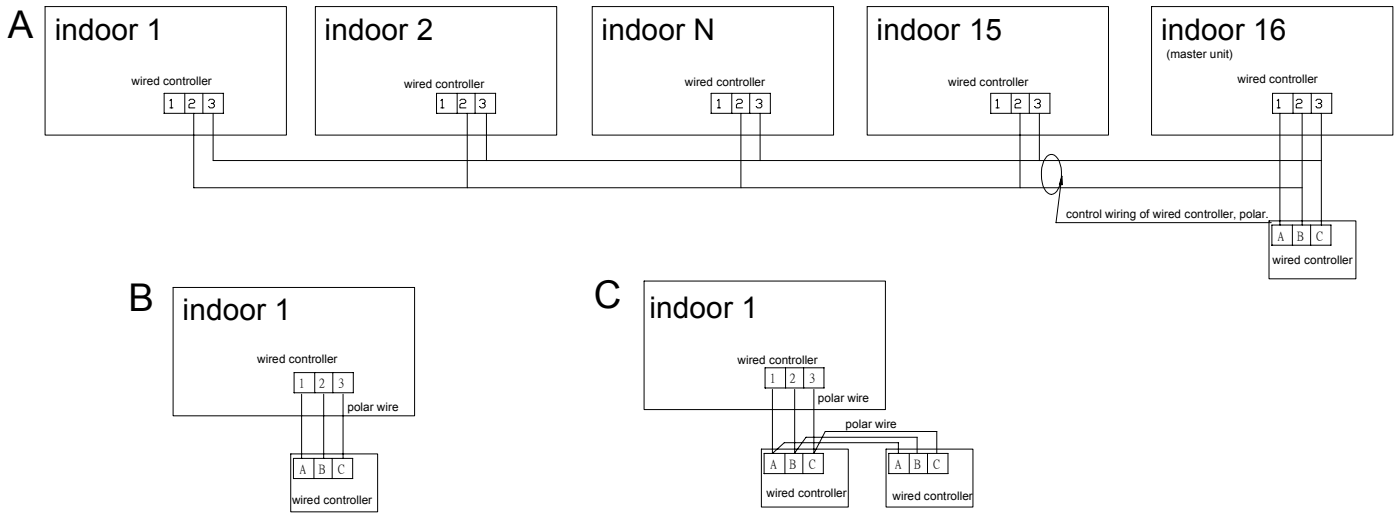
1.Function difference between master wired controller and slave one:

| Contrastive items | Master wired controller | Slave wired controller |
|---|---|---|
| Function | All of functions | Only with below functions: ON/OFF, MODE, FAN SPEED, SET TEMP., SWING |

2. Function difference between simple wired controller and the standard one:

| Contrastive item | Standard wired controller | Simple wired controller |
|---|---|---|
| Function | With all functions | Only can control ON/OFF, MODE, FAN, TEMP.,SWING. |
| Master/Slave selection | Can be either of Master and Slave controller | Only can be Master controller |

3. Wiring connections of wired controller:




There are three methods to connection wired controller and the indoor units:

A. One wired controller can control max. up to 16 sets of indoor units, and 3 pieces of polar wire must connect the wired controller and the master unit (the indoor unit connected with wired controller directly), the others connect with the master unit through 2 pieces of polar wire.

B. One wired controller controls one indoor unit, and the indoor unit connects with the wired controller through 3 pieces of polar wire.

C. Two wired controllers control one indoor unit. The wired controller

connected with indoor unit is called master one, the other is called slave one. Master wired controller and indoor unit; master and slave wired controllers are all connected through 3 pieces of polar wire.

3. Communication wiring:

The wired controller is equipped with special communication wiring in the accessories. 3-core terminal (1-white 2-yellow 3-red) is connected with the terminal A、B、C of wired controller respectively.

The communication wiring is 4 meter long; if the actual length is more than it, please distribute wiring according to below table:

| Communication wiring length（m） | Dimensions of wiring |
|---|---|
| <100 | 0.3mm$^2$X3-core shielded wire |
| ≥100 and <200 | 0.5mm$^2$X3-core shielded wire |
| ≥200 and <300 | 0.75mm$^2$X3-core shielded wire |
| ≥300 and <400 | 1.25mm$^2$X3-core shielded wire |
| ≥400 and <600 | 2mm$^2$X3-core shielded wire |

※ One side of the shielded sheet of communication wire must be earthed.

# 8. Electrical Control Functions

## 8.1. Outdoor electric control functions

8.1.1 Outdoor running frequency and the control procedure

8.1.1.1 Compressor startup

Every time compressor is from OFF to ON, no matter how is the indoor target frequency, compressor running frequency must be stay at 40Hz and 60Hz for 1 minutes (At outdoor discharging temp. overhigh protection and compressor overcurrent protection, the frequency will be reduced), and then rise up to the target frequency. After the unit is in normal, the above procedure is not available.

Note: If the startup frequency for the first time is over 40Hz or 60Hz, it will stay at 40Hz and 60Hz for 1 minute. If the frequency is not over 60Hz, it will only stay at 40Hz for 1 minute. The other conditions will not be limited.

8.1.1.2 Heating mode, cooling mode and dehumidification

After performing the compressor startup procedure, the unit will run according to the indoor frequency.

2 minutes later, the unit will compensate the running frequency due to the relative condition.

8.1.1.3 Compressor frequency rising/reducing speed

Rapid rising/reducing frequency speed 1----1Hz/second

Slow rising/reducing frequency speed 1----1Hz/10 seconds

8.1.2 Outdoo motor control

Note: When the outdoor motor needs to change the class, there will be 20-second interval to avoid the fan speed changing frequently.

8.1.2.1 Fan motor speed class has 7 steps, the rotation and class is as follow:

| Class-0 | Class-1 | Class-2 | Class-3 | Class-4 | Class-5 | Class-6 | Class-7 |
|---|---|---|---|---|---|---|---|
| stop | 500 | 550 | 630 | 680 | 720 | 820 | 860 |

8.1.2.2 Blowing remain heat after compressor shuts off

In cooling mode, when compressor shuts off, outdoor motor will enter speed Class-5 automatically, and will shut off after blowing remaining heat for 30 seconds.

8.1.2.3 Outdoor motor control in cooling/dry mode

- Speed range: class 1-7
- Fan motor locked rotor: When fan motor is requested to work, if fan speed is measured to be below 50RPM and keep for 15 seconds, the compressor will stop, but 3 minutes later, it will re-start up again. If within 20 minutes, the condition occurs 3 times, the unit will stop and alarm.
- When compressor starts up, the unit will adjust automatically in 3 minutes according to the outdoor air inlet temperature, and 3 minutes later, the unit will adjust according to the outdoor ambient temperature and compressor running frequency.

Fan speed chart in 3 minutes after compressor starts up:

| Ambient temp. | ~10 | 10~25 | 25~ |
|---|---|---|---|
| Cool, dry | Class-3 | Class-5 | Class-7 |
| heat | Class-7 | Class-5 | Class-3 |

Fan speed chart in 3 minutes after compressor starts up due to the ambient temp. and running frequency:

| Compressor frequency in cooling | | F<25Hz | 25HZ<=45Hz | 45<=F |
|---|---|---|---|---|
| Tao | Over 28℃ | Class-3 | Class-5 | Class-7 |

| | | | | |
|---|---|---|---|---|
| | Below 28℃ | Class-1 | Class-3 | Class-5 |

| Compressor frequency in heating | | F<25Hz | 25Hz≤F<45Hz | 45≤F |
|---|---|---|---|---|
| Tao | Over 15℃ | Class-2 | Class-4 | Class-5 |
| | Below 15℃ | Class-3 | Class-5 | Class-7 |

8.1.2.4 Outdoor fan speed control when selecting AC motor

- Selecting AC motor or DC motor depends on EEPROM.
- Blowing remaining heat: compressor shuts off, fan motor will run at low speed for 30 seconds and then stop.
- Fan speed chart in 3 minutes after compressor starts up:

| Ambient temp. | ~10 | 10~25 | 25~ |
|---|---|---|---|
| Cool, dry | Low speed | High speed | High speed |
| heat | High speed | High speed | Low speed |

- Fan speed chart in 3 minutes after compressor starts up due to the ambient temp. and running frequency:

| Compressor frequency in cooling | | F<25Hz | 25Hz<=F<45Hz | 45Hz<=F |
|---|---|---|---|---|
| Tao | Over 28℃ | Low speed | High speed | High speed |
| | Below 28℃ | Low speed | Low speed | High speed |

| Compressor frequency in heating | | F<25Hz | 25Hz≤F<45Hz | 45Hz≤f |
|---|---|---|---|---|
| Tao | Over 15℃ | Low speed | Low speed | High speed |
| | Below 15℃ | Low speed | High speed | High speed |

**8.1.3 4-way valve control**

- The 4-way valve control in defrosting: refer to the defrosting procedure.
- 4-way valve control in other modes:
  In heating mode, 4-way valve will open in 10 seconds before compressor starts up. When compressor not startup or in non-heating mode, 4-way valve will close to ensure the compressor has stopped for at least 2 minutes.

**8.1.4 Outdoor defrosting control**

A. Enter condition

In heating mode, compressor is running for 10 minutes contineously, or has run for 45 minutes in all (when defrosting is over or entering the cooling mode, the counter will be cleared), by measuring the defrosting sensor TE and outdoor ambient temp. sensor TA, if for 2 minutes the below conditions can be met contineously, system will enter defrosting mode:

$$TE \leqslant C \times TA - \alpha$$

Herein: C: TA＜0℃, C=0.8

TA≥0℃, C=0.6

α =5:

Entering defrost temperature: -15℃≤C×TA－α≤-5℃

B. Defrost interval time

- When the value of C×TA－α is in the range of -15℃≤C×TA－α, two defrosting interval is 45 minutes.
- When the value of C×TA－α is in the range of C×TA－α <-15℃, two defrosting interval is 65 minutes.

C. Defrost procedure

- At the beginning of defrost, compressor will firstly stop for 1 mintue, outdoor fan runs, and 50 seconds later, 4-way valve is OFF.
- When compressor starts up, outdoor motor stops and compressor frequency will go up to the target frequency 90Hz.
- In defrosting, the compressor current, compressor discharging protections are valid. If in defrosting, compressor stops because of the protection or the failure, 3 minutes later, it will resume, and if it still in defrosting time, the unit will still defrost. The compressor will start up due to the principle of startup in defrosting. If contineously the compressor can not start up for 3 times, the unit will deal with the malfunction and quit the defrosting. If in defrosting there is failure, the failure time will not be included in the defrosting time.
- In defrosting, only after the compressor min. running time is over 2 minutes, the system can quit the defrosting.

The defrosting frequency will not limited by the running frequency, after entering defrosting,the compressor will not stay at 60Hz and directly go to the target frequency 90Hz.

The quit condition will not change.

D. Quit condition

In any of the below conditions can be met, the defrosting mode will turn into heating operation.

(1): Outdoor heat exchanger temperature is over 10℃ for 80 seconds contineously.

(2): Outdoor heat exchanger temperature is over 14℃ for 20 seconds contineously.

(3): Defrost operation for 10 minutes contineously.

E. If the quit condition can be met, the unit will perform:

Compressor stops, and outdoor motor runs. 50 seconds later the 4-way valve is close, then 60 seconds later, compressor will perform as startup procedure.

F. In defrosting period and in 6 minutes after defrosting, the low pressure is shielded.

G. In defrosting, if receiving the shutoff signal sent from indoor unit, outdoor unit will not deal with it until the defrosting is over.

**8.1.5 PTC output control**

- When outdoor unit is electrified, PTC output is 0, 10 seconds later, it is 1.
- After compressor stops for 10 minutes contineously, PTC output is 0.
- When getting the compressor-start signal, firstly PTC output is 1, 5 seconds later, compressor will start up.

**8.1.6 Electric heater control**

When shutoff, the electric heater will be controlled by the ambient temperature: below 12℃, working; over 17℃, stop.

When the unit switched on, electric heater will not work.

**8.1.7 Time shorting function**

If the time shorting port is in short circuit, the unit will perform a 1/60 time shorting control.

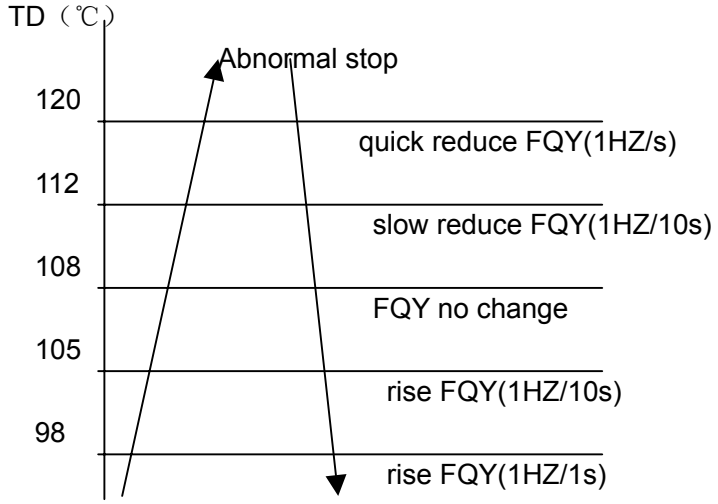
**8.2. Additional functions**

8.2.1 The interval between compressor stop to startup again is 3 minutes, which can protection compressor. If being electrified for the first time, compressor will start up only when the valve opens to the normal operation angle.

8.2.2 TD high temperature protection

As long as the unit is running, the TD discharging overheat protection will work, but the discharging sensor failure will alarm 4 minutes later after compressor starts up.

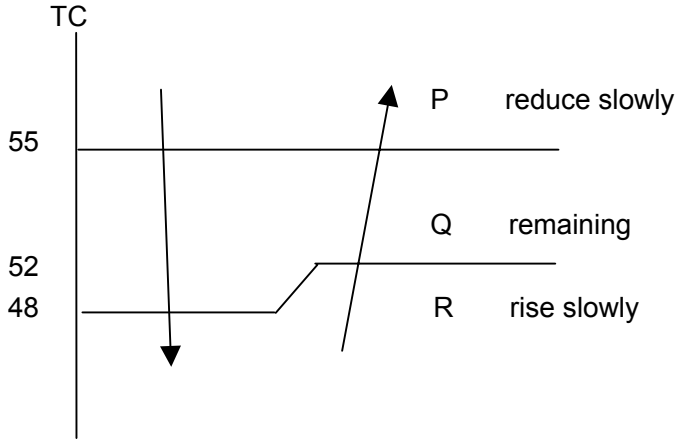
Measure sensor value: measure for 100 times (The program performs for one period needs 5 ms, every time the system will take samples for 8 times, and make an order for them, taking out 2 average values in the middle, and make an average value.).




TD>120℃ and keeps for 20 seconds, discharging temperature over high protection will work, the unit will stop and alarm(outdoor indicates, not sending to indoor). If TD>98℃, the unit will resume. If within 30 minutes, the TD overhigh protection occurs 3 times, the unit will stop and alarm (sending to indoor), it can not resume automatically.

8.2.3 In heating indoor TC high temperature protection

Indoor heat exchanger temperature will check the indoor coil temperature, if it is over 55℃, the unit will reduce the compressor motor speed to perform the indoor heat exchanger temperature overhigh protection. If it is below 48℃, the unit will resume to be normal.




P: reduce at the speed of 1Hz/10s

Q: remain the previous value

R: rise at the speed of 1Hz/10s

8.2.4 Overcurrent protection(realised by power module)

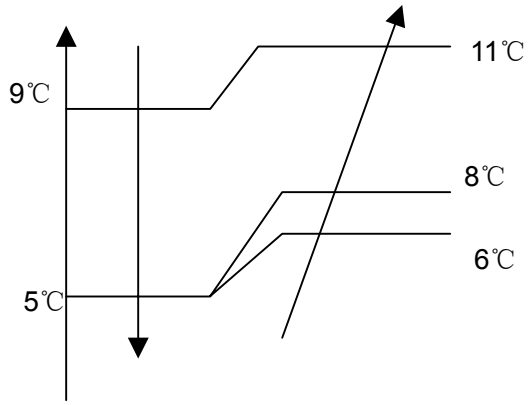
●In the course of compressor startup, if current is over 21A and keeps for 4 seconds, compressor will stop and the unit alarms. 3 minutes later, compressor will re-start up, if in 10 minutes, it occurs for 3 times, the unit will stop and alarm.

●Overcurrent reducing frequency protection

When currentn is over 13.9A, compressor will reduce frequency at 1HZ/s, and will stop until it is below 12A, then rise frequency at 1HZ/20s; when current is below 12A, it will resume the target frequency.

Remarks: Power module frequency limited point: 88℃, if the frequency reduces down to 86℃, but if it is up to 90℃, the unit will stop and alarm.

8.2.5 Indoor heat exchanger anti-freezed protection




When $T_C$ 〈 5℃, compressor frequency will reduce at 1HZ/10s

When $T_C$ begins to rise up, and 6〈=$T_C$〈=8℃, compressor frequency will remain

When 9℃≤$T_C$, the frequency will rise up at 1HZ/10s

When 12℃≤$T_C$, the frequency will rise up at 1HZ/s

8.2.6 Outdoor temperature limitation

Cool: When outdoor temperature is below 15℃, in cooling, compressor frequency will be limited below 50Hz, and outdoor fan speed is compusorily Class-1.

Heat: When outdoor temperature is over 20℃, in heating, compressor frequency will be limited below 50Hz, and outdoor fan speed is compulsorily Class-1.

If the above is AC motor, the compulsory fan speed will be low speed.

8.2.7 Rated operation

- Rated cooling:

When receiving the indoor rated operation command, the unit will enter rated cooling operation.

- Rated heating:

When receiving the indoor rated operation command, the unit will enter rated cooling operation. When receiving the indoor min. heating operation command, the unit will enter min. heating operation.

In rated operation period, the frequency can be adjusted by manual. Once being adjusted by manual, the unit will not receive the indoor frequency.

8.2.8 Outdoor compulsory operation

- Compulsory cooling operation

Put the first bit of dip switch on the indicator board at ON, the unit will enter compulsory cooling operation, as follow:

| Compressor startup | Current, discharging protection and failure treatment | Operation before the base open angle | 3 minutes later after compressor is running | Manual adjustment |
|---|---|---|---|---|
| normal | normal | Normal | 1: fixed base open angle<br>2: fixed running frequency 60HZ<br>3: fixed outdoor motor speed: class-7 | 1: angle adjusted by hand<br>2: frequency adjusted by hand<br>3: fan speed adjusted by hand |

- Compulsory heating operation

Put the second bit of dip switch on the indicator board at ON, the unit will enter compulsory heating operation, as follow:

| Compressor startup | Current, discharging protection and failure treatment | Operation before the base open angle | 3 minutes later after compressor is running | Manual adjustment |
|---|---|---|---|---|
| normal | normal | Normal | 1: fixed base open angle<br>2: fixed running frequency 50HZ<br>3: fixed outdoor motor speed: class-7 | 1: angle adjusted by hand<br>2: frequency adjusted by hand<br>3: fan speed adjusted by hand |

8.2.9 High pressure switch

3 minutes later after compressor starts up, the system will check the pipe pressure. If the pipe pressure is over high and high pressure switch acts for over 30 seconds, the compressor and outdoor motor will stop, 3 minutes later, the unit will resume. If in 30 minutes the unit stops for 3 times because of overhigh pressure, the system will alarm, then compressor will not start up again; when being electrified after being powered off, the protection will be cancelled.

2.10 Low pressure switch

When compressor stops, if low pressure switch acts for 30 seconds contineously, the unti will alarm. The failure will be sent to indoor unit, it will resume due to the pressure signal.

When compressor starts up, in 3 minutes, low pressure switch will be shielded.

When compressor is running, the unit will check pipe pressure, when pipe pressure is over low and low pressure switch acts for 30 seconds, compressor and outdoor motor stop, the unit will alarm, and compressor will not start up; when being electrified after being powered off, the protection will be cancelled.

In defrosting or in 6 minutes after defrosting is over, low pressure switch will be shielded.

8.2.11 Failure code and troubleshooting

- Alarm lamp is off when no failure

**Ensure that alarm indicating time is over 2 minutes and 50 seconds.**

(1): Resumable alarm, and will be sent to indoor unit.

(2): Resumable alarm, but if in 30 minutes it occurs 3 times, it can be resumed only when being

electrified after being powered off.

| Failure code | Emission code | Outdoor indicator display | Failure description | Corresponding outdoor CBD failure |
|---|---|---|---|---|
| 01 | 01 | 00001 | Power module | IPM protection |
| 02 | 02 | 00010 | DC fan motor failure | DC fan motor failure |
| 03 | no | 00011 | Communication failure | Outodor alarms, not sends to indoor. If no communication in 4 minutes, outdoor shuts off and alarm, the failure can be resumable. |
| 04 | 04 | 00100 | Compressor discharging temperature too high | Discharging temp. over 117℃, it will confirm 3 times in 30 minutes and then send signal to indoor. |
| 05 | 05 | 00101 | Over current | AC current overhigh protection or current transducer broken down. |
| 06 | 06 | 00110 | Outdoor ambient temp. sensor failure | Resumable, if sensor is disconnected, alarm will occur and keeps for 3 minutes, then resumes due to signal. |
| 07 | 07 | 00111 | Outdoor coil temp. sensor failure | Outdoor defrosting sensor, discharging sensor abnormal |
| 08 | 08 | 01000 | High pressure switch failure | Acts 3 times in 30 minutes |
| 09 | 09 | 01001 | Discharging temp. sensor failure | Alarm 4 minutes later after starting up, discharging temperature abnormal |
| 10 | 10 | 01010 | Power supply over high/low voltage | Pre-set for 50Hz |
| 11 | No | No | Overload in heating | No send signal to indoor |
| 12 | No | No | No | No send signal to indoor |
| 13 | No | No | No | No send signal to indoor |
| 14 | 14 | 01110 | Outdoor EEPROM failure | Outdoor EEPROM failure |
| 15 | 1 | 01111 | Power module failure | Compressor blocked |
| 16 | 1 | 10000 | Power module failure | Compressor heavy vibration |
| 17 | 1 | 10001 | Power module failure | Abnormal compressor startup |
| 18 | 18 | 10010 | Power module failure | Compressor running faulty |
| 19 | 19 | 10011 | Power module failure | Detecting circuit abnormal |
| 20 | 1 | 10100 | Power module failure | Compressor broken down |
| 21 | No | 10101 | Compressor suction temp. too high—for the unit with EEV | 10 minutes later after startup, measure TS over 40℃ for 5 minutes |
| 22 | No | 10110 | Communication failure between outdoor PCB and the module | Not communicate for 4 minutes contineously, it will alarm |
| 23 | 1 | 10111 | Module malfunction | Module temp. over high |

| | | | | |
|---|---|---|---|---|
| 24 | 24 | 11000 | Low pressure switch failure | Low pressure switch acts for 30 seconds contineously |
| No | No | No | Temperature cutoff protection | |

1）Indoor pipe temp. is abnormal, outdoor default cooling temp. : 5℃, heating temp.: 40℃. The above temperatures are normal.

2）In defrosting, and in 3 minutes after defrosting is over, if sensor is abnormal, there will not alarm.

8.2.12 Backup operation

Outdoor TC failure treatment: outdoor LED alarms, but the failure code will not be sent to other place, the outdoor default TC is as follow: cooling temperature, 5℃; heating temperature, 40℃.

8.2.13 Special functions

1) Power operation

When receiving the Power operation signal from indoor, the unit will operate as the set frequency by EEPROM. Fan speed will depend on the ambient temperature and the frequency. When the Power signal is cancelled by indoor, the Power operation will stop.

2) Soft operation

When receiving the Soft operation signal from indoor, the unit will operate as the set frequency by EEPROM. Fan speed will depend on the ambient temperature and the frequency. When the Soft signal is cancelled by indoor, the Soft operation will stop.

3) Time shorting operation

When receiving the time shorting signal, the unit will perform the 1/60 time shorting operation.

4) Compulsory cooling operation

When receiving the compulsory cooling signal from indoor unit, the unit will execute the compulsory cooling operation at the frequency sent from indoor. Only discharging temperature protection and current protection are valid, all the other protections are invalid.

5) Manual defrosting

When receiving the manual defrosting signal from indoor, the unit will enter the defrosting operation immediately. The interval between two manual defrosts is at least 3 minutes. If the communication protoco has not the set, this function is not available.

6) Rated operation

When receiving the rated operation signal from indoor, the unit will operate at the frequency and fan speed set by EEPROM, meanwhile, all the protections are valid.

8.2.14 Outdoor indicator

Five-indicator combination shows the failure code.

4-bit dip switch: the normal position is OFF.

First bit: ON, compulsory cooling. Normal state is OFF.

Second bit: ON, compulsory heating. Normal state is OFF.

Third bit: ON, backup operation (outdoor ambient temp.). Normal state is OFF.

Fourth bit: ON, DC fan motor (OFF, AC fan motor), it will be adjusted due to the actual fan motor.

## Wall mounted unit electric functions:

1. Temperature adjustment function

1.1 In this function, outdoor running frequency depends on the indoor temperature and the set temperature.

1.2 In auto mode, indoor fan speed will be changed according to the request of temperature adjustment.

1.3 In heating operation, indoor fan speed will be controlled according to the coil temperature.

1.4 Defrosting

In heating mode, outdoor transfers the defrosting signal to indoor unit, then indoor unit will enter defrosting mode until outdoor transfers defrost-cancelling signal, then indoor unit will enter heating mode. In defrosting, there is no over load protection.

1.5 Air flow limitation

When compressor is running, the air flow of indoor fan motor and the limited frequency are as follow:

| | Frequency-limited variable | Limited frequency |
|---|---|---|
| Air flow (Med) | FQLIMMD | 90Hz |
| Air flow (Low) | FQLIMLO | 52Hz |
| Healthy mode | FUPHEAL | 30Hz |

2. Indoor fan motor control

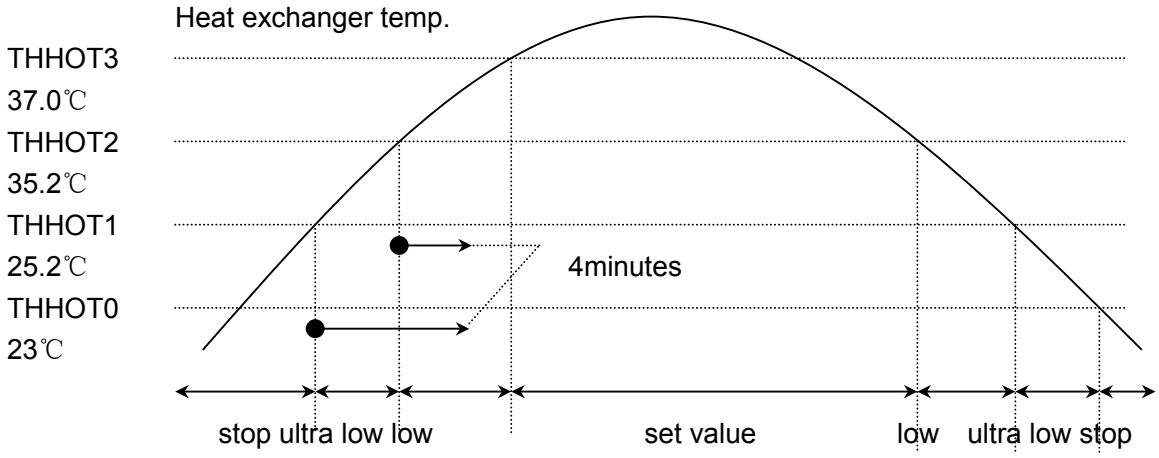
2.1 If air flow is adjusted by hand, the target rotation is (High+Low)/2.

If air flow is adjusted automatically, the target rotation is (Auto High+Auto Low)/2, it will not be counted if being below 10rpm.

2.2 Heat operation

2.2.1 Hot start up

In heating, anti-cold air control is as the following chart:




According to the heat exchanger temperature, fan motor will be controlled due to the above chart.

1) When heat exchanger temp. rises up, adjust the fan speed due to the heat exchanger temp.

If heat exchanger temp. is below 35.2℃, fan speed is ultra low (When being electrified for the first time, enter heating mode or defrosting is over, if heat exchanger temp. is below 25.2℃, fan motor stops; if higher than 25.2℃ and lower than 35.2℃, fan speed is ultra low);

If heat exchanger temp. is between 35.2℃ and 37℃, fan speed is low;

If heat exchanger temp. is higher than 37℃, fan motor will run at set speed.

2) When heat exchanger temp. reduces, adjust the fan speed due to the heat exchanger temp.

If heat exchanger is below 35.2℃ and over 25.2℃, fan speed is low;

If heat exchanger is below 25.2℃, fan speed is ultra low, and remain the state (When being

electrified for the first time, enter heating mode or defrosting is over, if heat exchanger temp. is below 25.2℃ and over 16℃, fan speed is ultra low; if heat exchanger temp. reduces below 23 ℃, fan motor speeds.).

3) When heat exchanger temp. rises, fan speed will be ultra low and low state, if 4 minutes later, heat exchanger temp. can not enter the last period, fan speed will rise up to the last speed. When up to the set speed, fan speed will stay at this state for 4 minutes and then adjust fan speed due to the heat exchanger temp.

4) When heat exchanger temp. reduces, if fan speed is low for over 4 minutes, the fan motor will go back to the set speed.

2.2.2 3-minute protection when compressor stops

1) After compressor stops (thermostat is OFF), if coil temperature is below 25.2℃, indoor motor stops; if coil temperature is over 25.2℃, fan motor will be in low speed, after the fan time is over 50 seconds, if coil temperature is over 28℃, fan motor will be in low speed; if coil temperature is below 23℃, indoor motor will stop.

2) If the unit is shutoff by remote controller, indoor motor will stop after running at ultra low speed for 10 seconds.

2.2.3 Compressor restart up

After hot startup, the fan speed is the state set by remote controller.

When in Auto Fan mode, the air flow depends on the temperature.

2.2.4 In defrosting, after running at low speed for 20 seconds, fan motor stops. After defrosting is over, if compressor stops, indoor motor will stop too. When compressor re-starts up, air flow can be set at High, Med, Low according to the heat exchanger temperature.

2.3 Cooling operation

When in Auto Fan mode, the air flow will be confirmed according to the temperature.

2.4 Dry operation

2.4.1 If compressor is OFF, and in 3-minute standby:

1)Compressor stops, fan motor will stop too.

2)If 3-minute protection is over, fan is in ultra low state.

3)After 3-minute standby state, compressor will run.

2.4.2 If compressor is ON:

Fan motor will run at the set speed.

When in auto fan mode, the air flow will be adjusted due to the temperature.

3. Power operation (depend on the remote controller, not available for this model)

1) Power operation will keep for 15 minutes.
2) The unit stops or 15 minutes later, the power operation will stop.
3) If changing the operation modes, the power operation will stop.
4) If at soft mode or TIMER ON function works, the power operation stops.
5) In Auto mode, the Power/Soft function can work. In cooling mode, the unit will run at Cooling Power/Soft mode. In heating mode, the unit will run at Heating Power/Soft mode. In Fan mode, there is no Power/Soft function.

3.1 Power heating operation

1) Adjust the set temperature, can modulate the temperature.
2) Air flow is Auto Med speed.
3) In defrosting, outdoor unit will not the communication signal of power operation.
4) After Power operation works for 15 minutes, within 10 minutes, compressor can not be OFF, excluding the failure condition.

3.2 Power cooling operation

1) Modulate the set temperature.
2) Air flow is Manual High speed.
3) After compressor is running, in 3 minutes, the unit will not make low load protection.

3.3 Not available for Fan, Dry mode.

4. Soft operation

The indoor unit will send the Soft operation signal to outdoor.

4.1 Soft heating

When compressor is running, air flow is SSLO.

When compressor stops, in 20 seconds, air flow is SSLO, and then turn into ultra low.

4.2 Soft cooling

Air flow is SSLO.

4.3 Not available for Fan, Dry mode.

5. Negative ion function

1) When receiving the command, if fan motor is running, the negative ion generator will work to realize the negative ion emission function.
2) If fan motor stops, the negative ion generator is OFF.
3) When negative ion generator is OFF, at this time, if you set the negative ion function, when fan motor begins to runs again, the negative ion generator will be ON automatically.

6. TIMER operation

1) Count the time according to the difference between TIMER CLOCK and the present CLOCK time.
2) When TIMER function works, the TIMER lamp on the indicator board is ON.
3) TIMER OFF

When TIMER OFF is set, the indication on the panel will not change (background lamp is OFF), the timer icon will display. When timer clock arrives, the operation will stop.

4) TIMER ON

When TIMER ON is set, the indication on the panel only displays the TIMER icon(background lamp is OFF), When timer clock arrives, the unit will run at the set state.

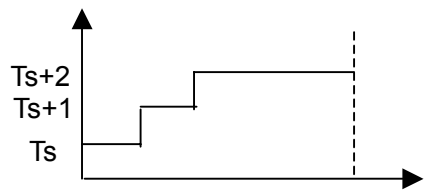
5) TIMER ON/OFF

The operation will be performed as the set state.

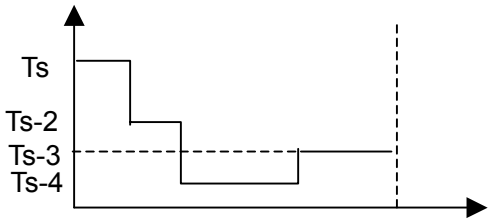
7. SLEEP operation

Sleep function: energy saving function at night, TIMER lamp will be ON.

7.1 Standard sleep function: in cooling or dry mode, after running at SLEEP mode for 1 hour, the set temperature will rise 1℃, another 1 hour later, the set temperature will rise another 1℃; the unit continues running for 6 hours, then the unit will stop.




7.2 Standard sleep function: in heating mode, after running at SLEEP mode for 1 hour, the set temperature reduces 2℃, another 1 hour later, the set temperature will reduce 2℃, and another 3 hours later, the set temperature rises 1℃; the unit continues running for 3 hours, then the unit will stop.




7.3 Non-standard SLEEP function: the sleep function can realize 1~8 hours sleep mode when being combined with the TIMER function.

1） When in Auto mode, the unit will make SLEEP operation due to the setting.
2） After setting SLEEP function, the clock can not be adjusted.
3） If sleep time is no more than 8 hours, when the time arrives, the unit wil shut off.
4） If sleep function is set after setting TIMER OFF function, the unit will execute as the SLEEP function.
5） If SLEEP function is set, the TIMER function can not be set.
6） If sleep function is set after setting TIMER ON function, the sleep function only can be set befroe the TIMER ON time arrives.
7） After setting sleep function, press CLOCK button to check the clock; press TEMP button to display the set temperature, and press again to change the set temperature.

8. Auto operation

Full auto operation

If the unit is at Auto mode, the system will adjust the operation mode according to the temperature difference between the set temperature and the room temperature. Below Tr stands for room temperature, Ts stands for room temperature.

If entering Auto mode for the first time, the unit will execute as follow:

Tr≥Ts-3℃ select cooling mode
Tr＜Ts-3℃ select heating mode

After entering Auto mode, the operation mode can be changed between cooling and heating: if the unit is in cooling mode at present, when the compressor arrives the stop temperature, the compressor stops; after compressor stops for 15 minutes, the unit will check the temperature again, at this time, if Tr＜Ts-3℃, the unit will enter heating mode, or it will still be in cooling mode; if the unit is in heating mode at present, when the compressor arrives the stop temperature, compressor will stop, afte compressor stops for 15 minutes, the unit will check the room temperature, if Tr＞Ts+3℃, the unit will enter cooling mode, or it will still be in heating mode.

In this mode, TIMER mode and SLEEP mode are available. In cooling mode, the unit will be in COOL SLEEP; in heating, the unit will be in HEAT SLEEP.

Fan blade can swing or be fixed on one position, and fan speed can be set at High, Med, Low or Auto.

9. Trial running

The frequency is 58Hz, and the unit is in cooling mode, fan speed is High.

After the trial running time is 30 minutes, the unit will shut off.

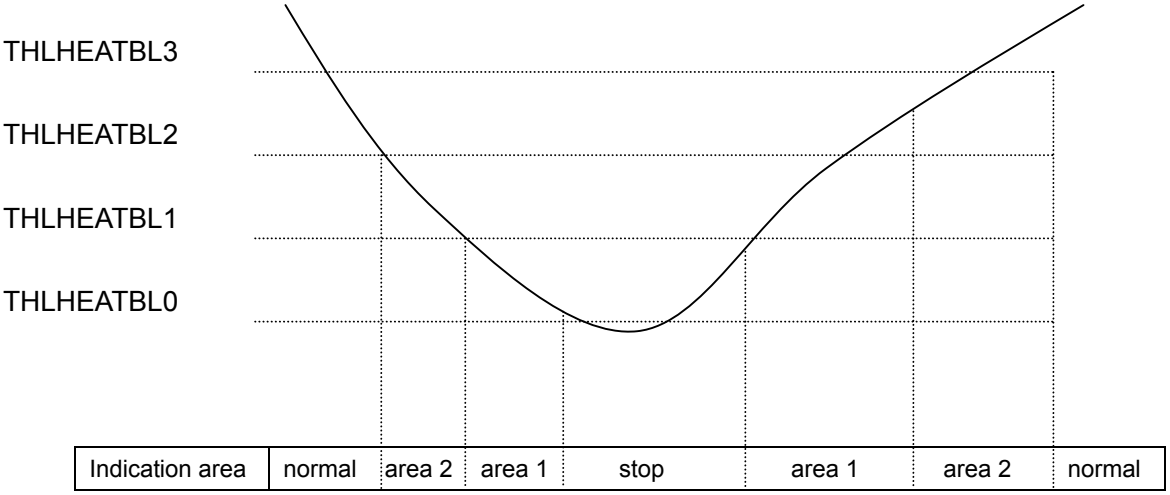
In trial running, the unit will quit this state if receiving the remote signal.

There is no low load protection.

10. Low load protection

In cooling/dry mode, make the low load protection due to the heat exchanger temperature.

heat exchanger temp.

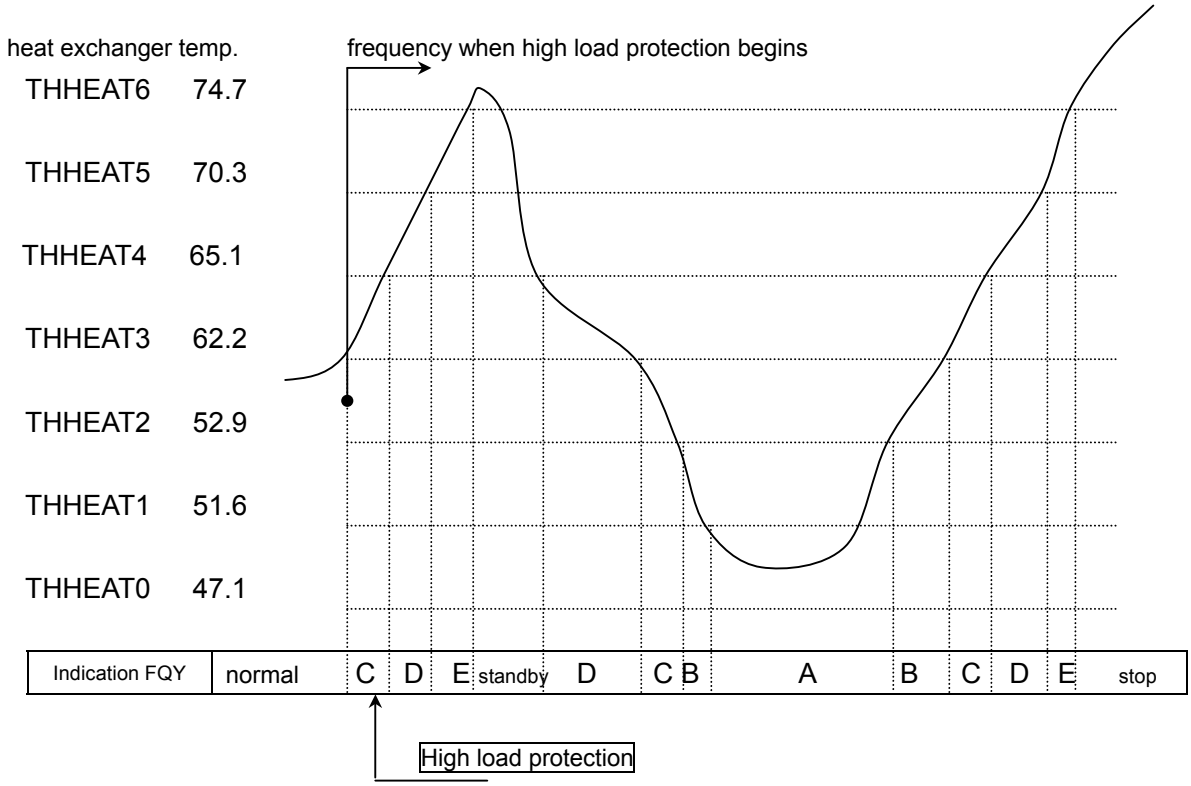



In trial running, the low load protection is ignored.

After compulsory cooling begins for 1 minute, for 3 minutes, the low load protection is cancelled temporarily. (THLH[3，2，1，0]= 7℃ ，4.6℃，2.2℃，-0.5℃)

11. High load protection

In heating mode, make high load protection due to the heat exchanger temperature.




When the heat exchanger temperature is not up to "THHEAT[2]", the temperature will resume the control of normal temperature area.

| Temp. point | Temp. | FQY point | FQY |
|---|---|---|---|
| THHEAT3 | 62.6 | FQHHEAT2 | 70 |
| THHEAT4 | 65.1 | FQHHEAT3 | 40 |
| THHEAT5 | 70.3 | FQHHEAT4 | 30 |
| THHEAT6 | 74.4 | Stop | |

12. Temperature cutoff protection

In cooling mode, every time compressor runs for 1 minute after startup, the unit will check the indoor coil temperature, when Tg>Tr＋5, the unit will shut off for 3 minutes, and then re-start up; if it the temperature cutoff protection has occurred for 3 times contineously, the unit will stop and alarm.

In heating mode (except for defrosting), every time compressor runs for 1 minute after startup, the unit will check the indoor coil temperature, when Tg＜Tr－5, the unit will shut off for 3 minutes, and then re-start up; if it the temperature cutoff protection has occurred for 3 times contineously, the unit will stop and alarm (in defrosting and in 2 minutes after defrosting is over, the unit will not measure temperature).

13. EEPROM control

When outdoor being electrified, if parameter of EEPROM is different from the data of check sum, EEPROM will be abnormal.

Once indoor receives the EEPROM abnormal signal from outdoor, the unit will display EEPROM abnormal.

At this time, control and emergency operation will not be received. Only power off the unit, the failure can be resumed.

14. Failure record

If there is no failure code record, nothing displays.

Failure code will be over automatically 10 seconds later.

According to the switch or the stop signal of remote controller, the failure record will be over.

For the unit with EEPROM, the failure record will be saved after power supply is reset.

15. Special functions

15.1 Auto-restart

a. Entering condition: In 7 seconds press the SLEEP button for 10 times, the buzzer sounds 4 times. At the same time, the present state will be saved in EEPROM.

b. After entering the auto-restart state, the indoor will execute as follow:

The indoor unit will run at the state set by the remote controller and the emergency set state, and the present state will be saved in indoor EEPROM. The outdoor will run at the state set on the panel and this state will be saved in EEPROM.

After entering the auto-restart, if being electrified after being powered off, the outdoor unit will send the signal of the present operation and auto-restart signal to indoor panel. When panel receives the feedback information, it will remain the auto-restart state.

c. Quit condition: in 7 seconds press SLEEP button 10 times, the buzzer will sound 2 times.

d. If in auto-restart state, set TIMER, and SLEEP functions, when being electrified after being powered off, the unit memory will be OFF state.

15.2 Rated operation

15.2.1 Rated cooling

a. High speed at cooling, the set temperature is 16℃, press temp. “-“ and SET button simultaneously, after the buzzer sounds 2 times, enter the condition.
b. In this condition, the unit will execute as follow: entering the rated frequency operation; on the panel there will be cooling mode; in communication, there is rated indication.
c. Quit condition: once receiving the remote signal, the unit will quit the rated operation and then turn into remote control state.

15.2.2 Rated heating

a. High speed at heating, the set temperature is 30℃, press temp. "+" and SET button simultaneously, after the buzzer sounds 2 times, enter the condition.
b. In this condition, the unit will execute as follow: entering the rated frequency operation; on the panel there will be heating mode; in communication, there is rated indication.
c. Quit condition: once receiving the remote signal, the unit will quit the rated operation and then turn into remote control state.

16. Failure code

Failure code displayed on the indoor LCD:

| Failure code | description | Remark |
|---|---|---|
| E1 | Indoor room temperature sensor failure | Indoor room temp. sensor in short circuit, or open circuit, it can resume due to the signal. |
| E2 | Indoor coil temperature sensor failure | Indoor coil temp. sensor in short circuit, or open circuit, it can resume due to the signal. |
| E4 | EEPROM wrong | Being electrified to test E2 check sum, or E2 is broken down. |
| E7 | Communication failure between indoor and outdoor | Communication failure alarms for 4 minutes contineously, it can resume due to the signal. |
| E14 | Indoor fan motor failure | Indoor fan motor wrong wiring or indoor fan motor abnormal. |
| E18 | Temperature cutoff protection | Outdoor 4-way valve response abnormal. |
| F1 | Module failure | Outdoor module abnormal |
| F2 | Outdoor DC motor failure | Outdoor DC motor abnormal |
| F4 | Compressor overheat / discharging temperature protection | Compressor discharging temperature over high protection |
| F5 | Module over current / current transducer failure | |
| F6 | Outdoor ambient temp. sensor abnormal | Outdoor ambient temp. sensor in short current or open circuit |
| F7 | Outdoor suction/defrosting temp. sensor abnormal | Outdoor suction/defrosting temp. sensor in short circuit or open circuit |
| F8 | High pressure abnormal | High pressure too high |
| F9 | Low pressure abnormal | Low pressure abnormal |
| F10 | No AC power supply | |
| F11 | Outdoor PCB EEPROM abnormal | Being electrified to test if the E2 check sum is correct or failure |
| F13 | Communication failure between outdoor PCB and module | |
| F14 | Compressor discharging temp. sensor failure | Outdoor compressor discharging temp. sensor in short circuit or open circuit |
| F15 | Compressor running faulty | Resumable |
| F16 | Running state-detecting circuit failure | Outdoor DC compressor running state-detecting circuit failure, or compressor abnormal, resumable |

17. Emergency switch

17.1 In OFF state, press emergency switch for below 5 seconds contineously, the unit will begin

emergency operation as Auto mode.

17.2 In OFF state, press emergency switch for over 5 seconds and below 10 seconds contineously, the unit will begin trial running in cooling mode (30 minutes later quit the trial running).

17.3 In OFF state, press emergency switch for over 10 seconds and below 15 seconds contineously, the unit will show the previous failure.

17.4 In OFF state, press emergency switch, there will be Auto operation on the panel.

17.5 In OFF state, press emergency switch for less than 15 seconds, the unit will not receive the remote signal. If over 15 seconds, the unit will in OFF state, and can receive the remote signal.

17.6 In running, press emergency switch, the unit will shut off.

17.7 If abnormal condition occurs, press emergency switch, the unit will shut off.

17.8 When failure code displays, press emergency switch, the failure code will not display.

17.9 In running, when the unit is normal or abnormal, or failure code occurs, press emergency switch contineously, at this case, the unit can receive the remote signal.

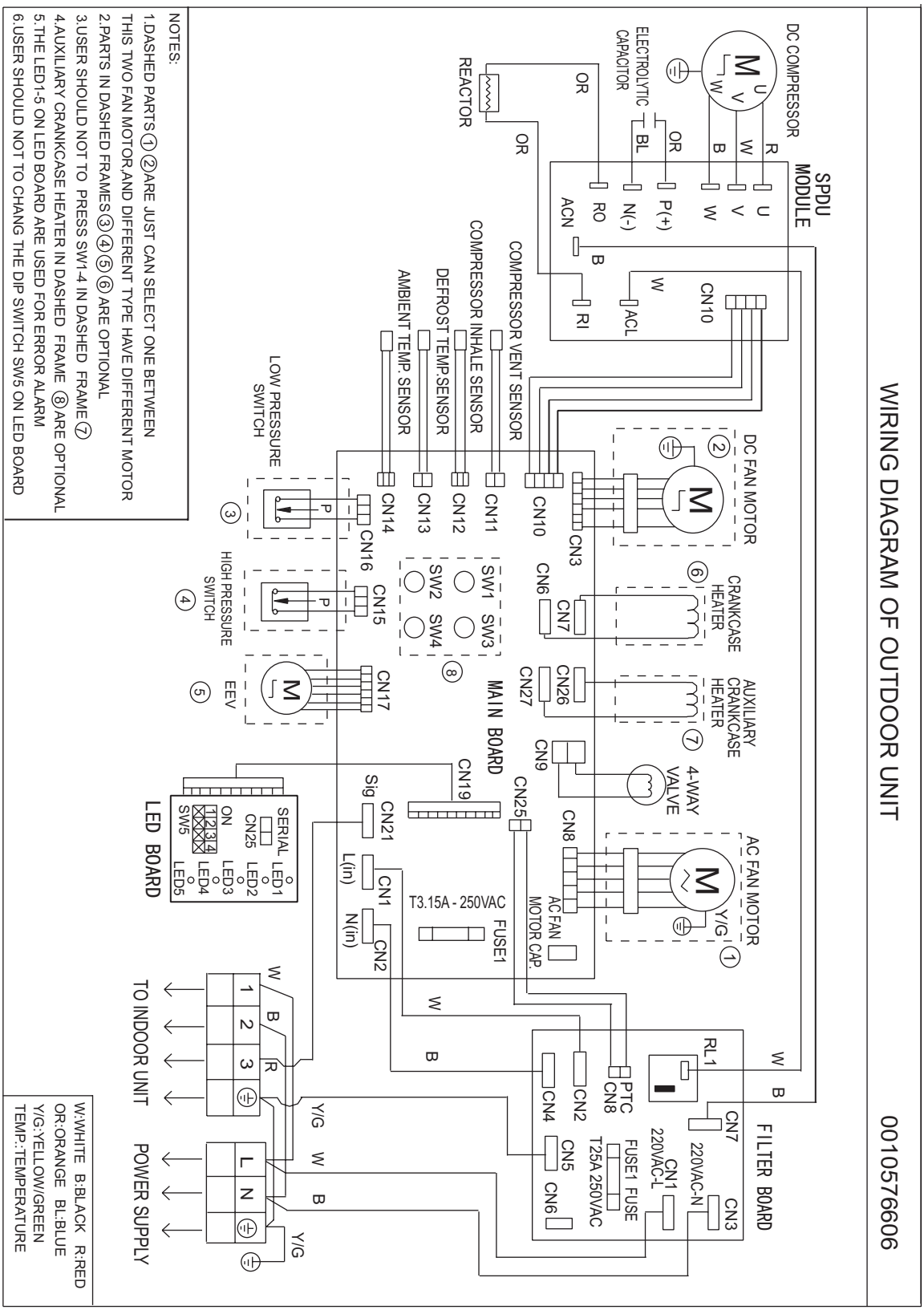
17.10 Failure code display

Press emergency switch for up to 10 seconds, and sounds 3 times, if releasing the switch, the unit will display failure record. If pressing the switch time is up to 15 seconds, no display on the panel, and the failure record is cancelled.

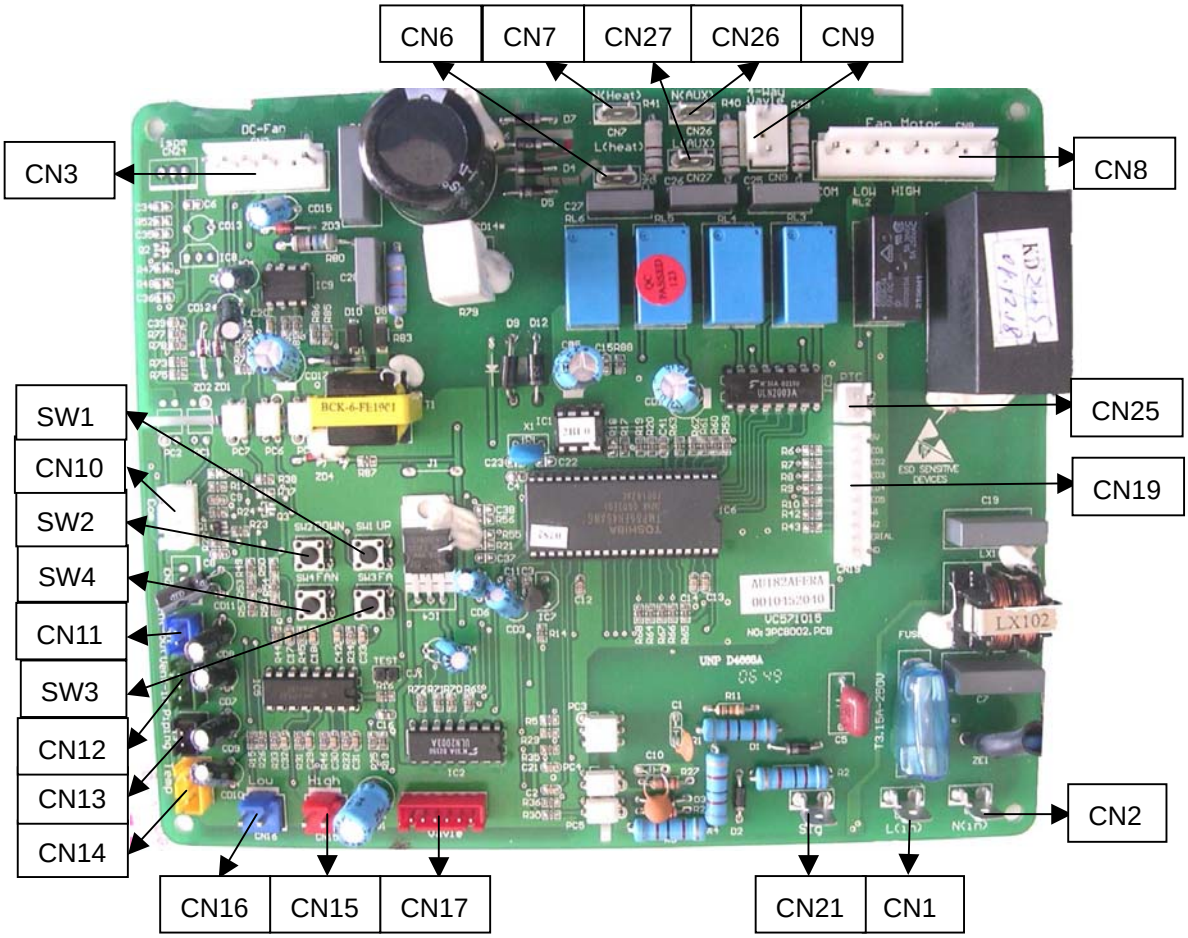
Remark: The latest record will not be cancelled when being powered off, and the data will be saved in EEPROM. The previous alarm will display on the indication board.

10 seconds later, the failure record will be cancelled.

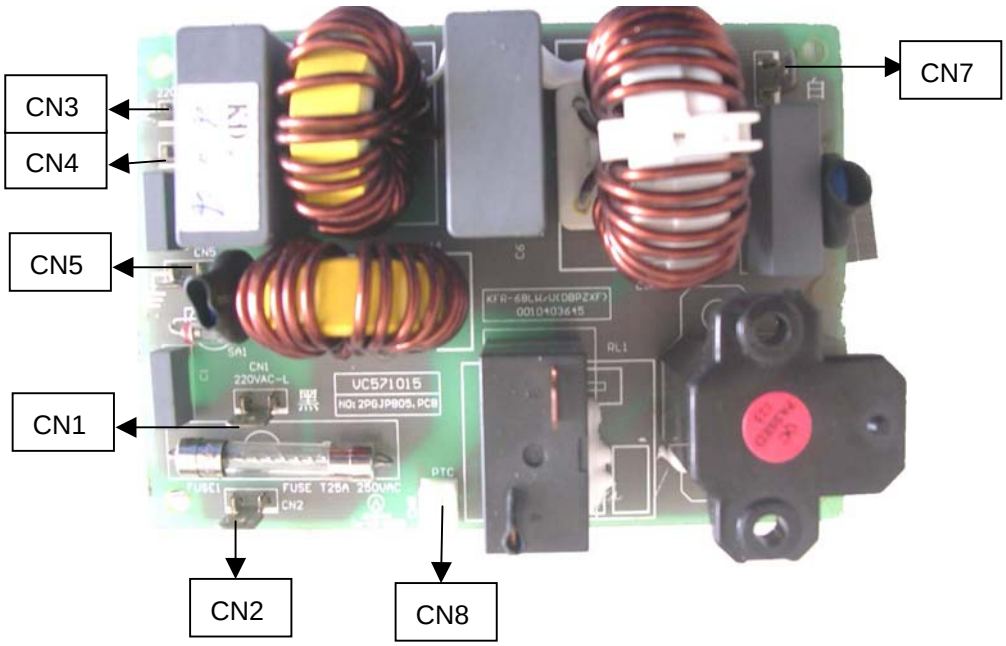
## 10. Electric Wiring diagram



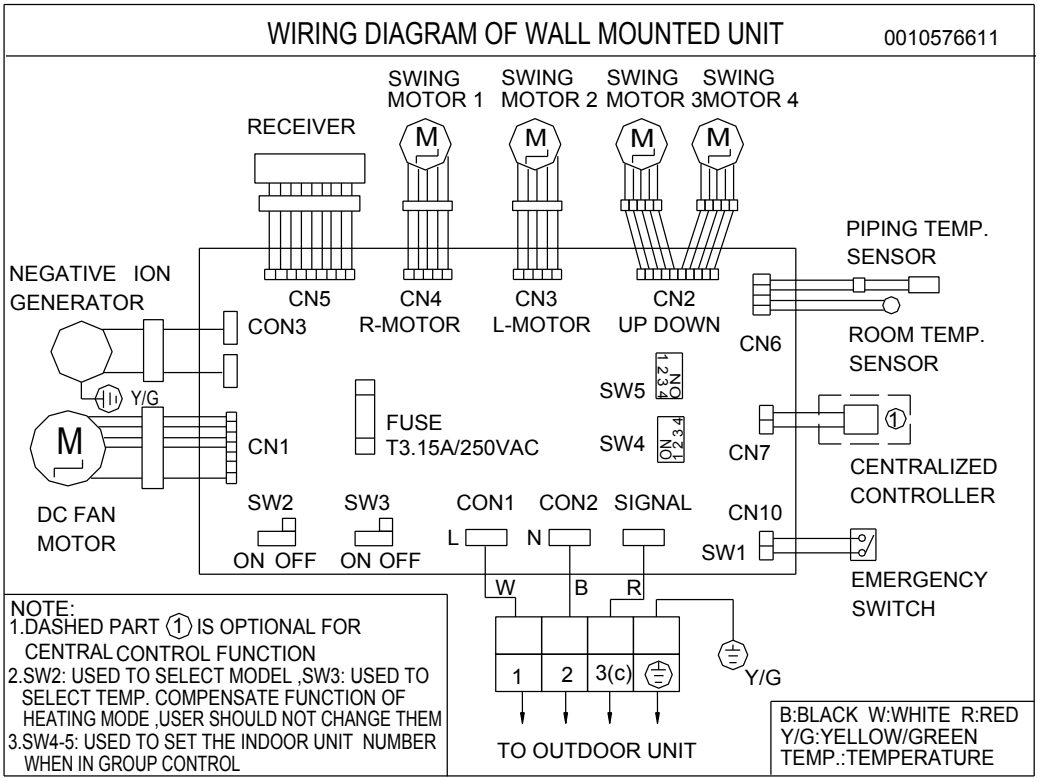
New PCB 0010452040



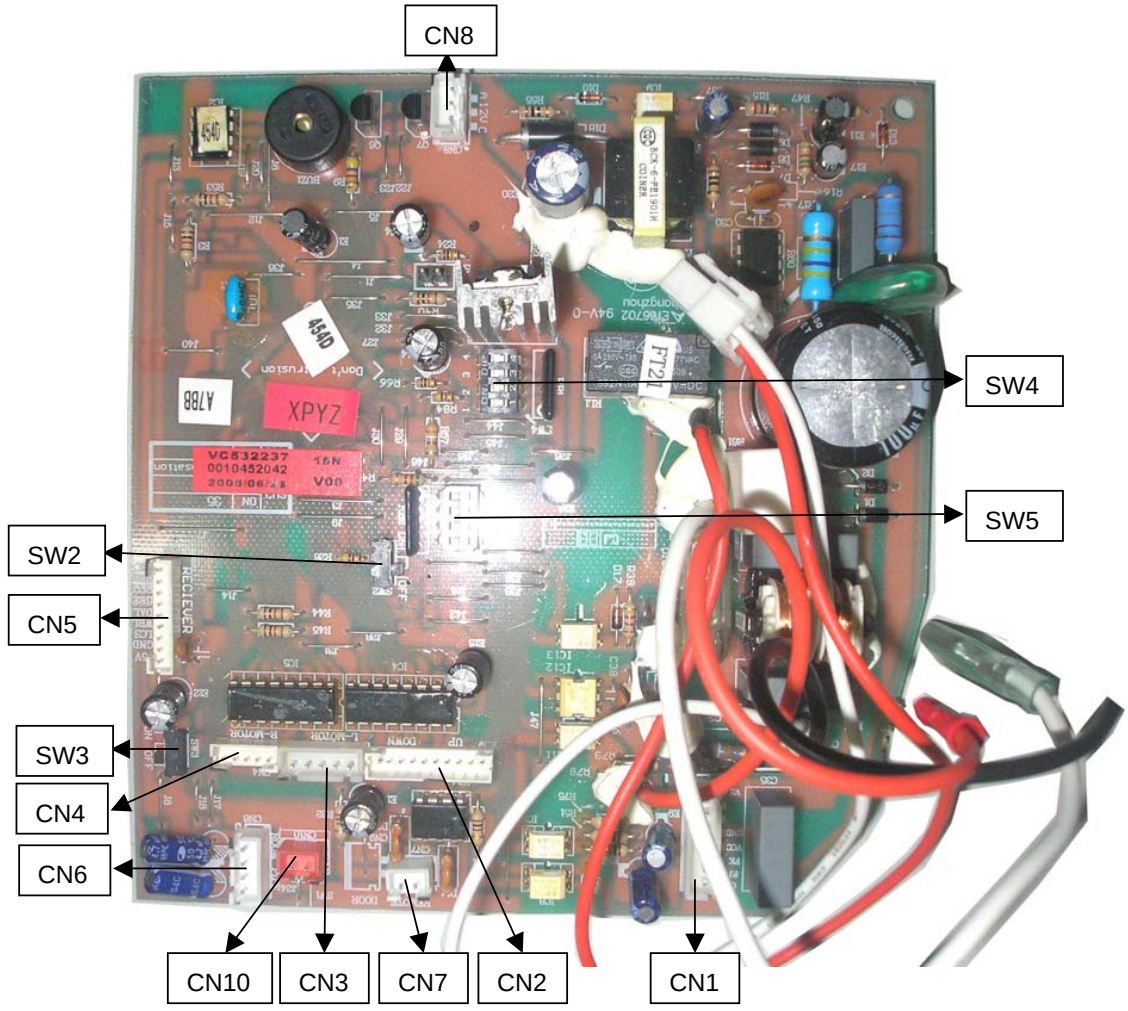

New filter board 0010403645



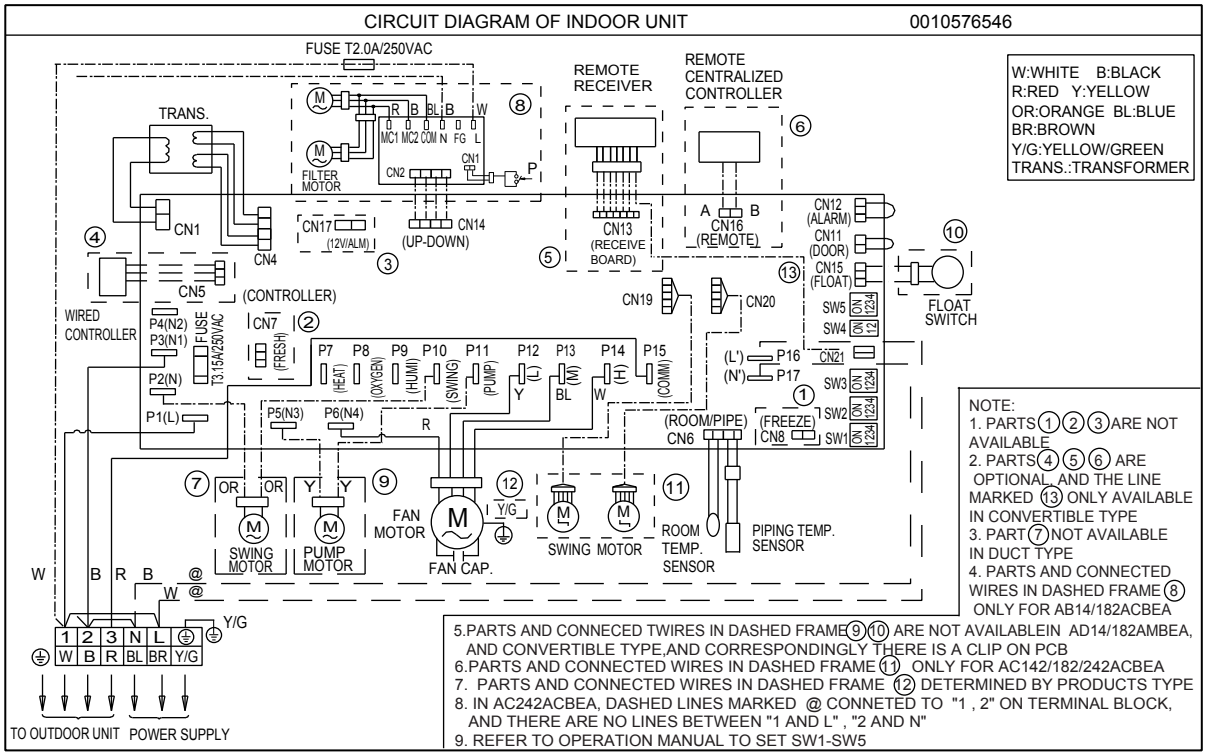
AS182AVERA:



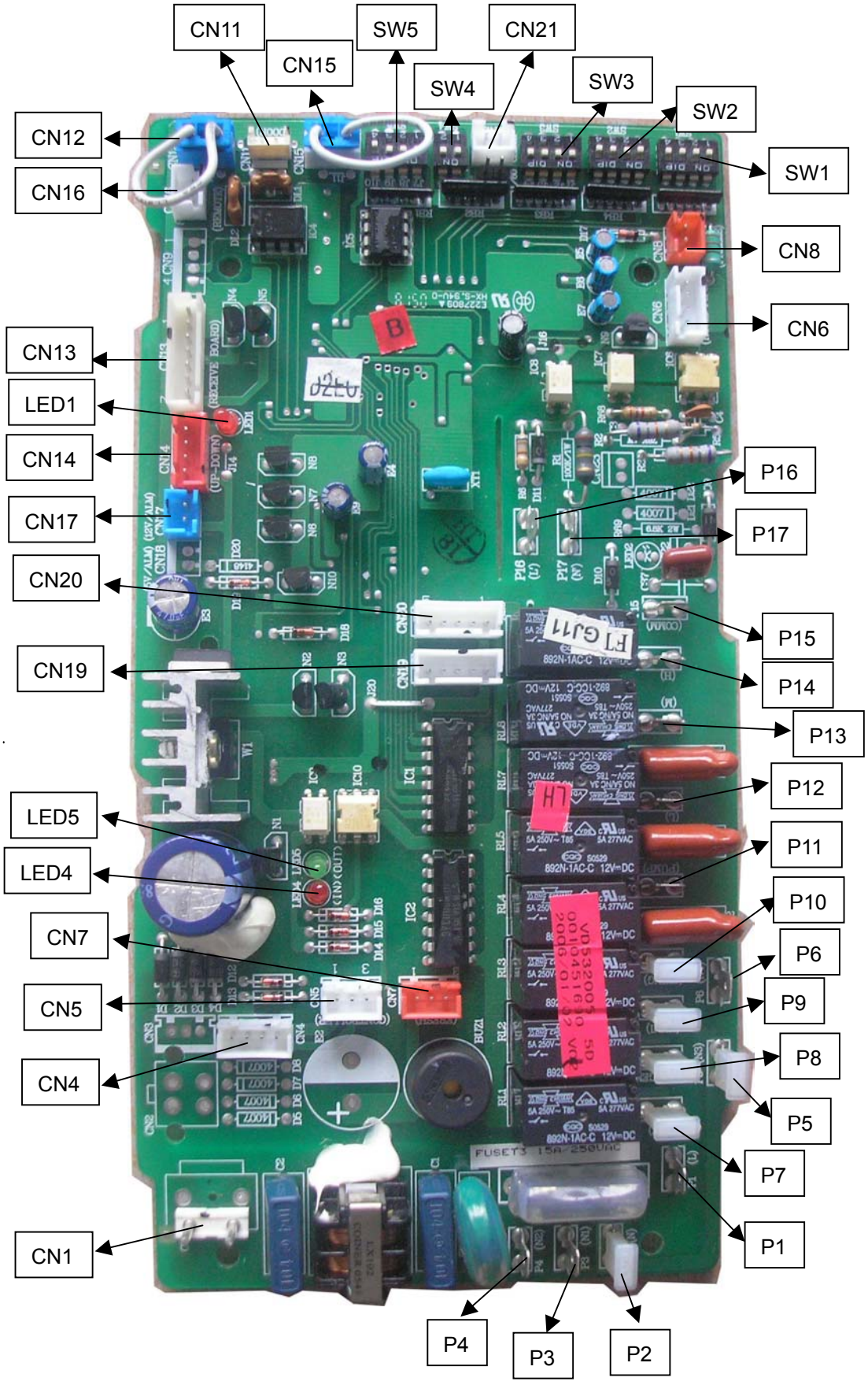

0010452042



AD182AMERA:


CIRCUIT DIAGRAM OF INDOOR UNIT 0010576546
FUSE T2.0A/250VAC
TRANS.
FILTER MOTOR
REMOTE RECEIVER
REMOTE CENTRALIZED CONTROLLER
CN1
CN2
CN4
CN5
CN7
CN13 (RECEIVE BOARD)
CN14 (UP-DOWN)
CN16 (REMOTE)
CN17 (12V/ALM)
CN19
CN20
CN21
CN12 (ALARM)
CN11 (DOOR)
CN15 (FLOAT)
FLOAT SWITCH
WIRED CONTROLLER
(CONTROLLER)
FUSE T3.15A/250VAC
(FRESH)
(HEAT)
(OXYGEN)
(HUMI)
(SWING)
(PUMP)
(M)
(COMM)
(ROOM/PIPE) CN6
(FREEZE) CN8
SW1
SW2
SW3
SW4
SW5
SWING MOTOR
PUMP MOTOR
FAN MOTOR
FAN CAP.
SWING MOTOR
ROOM TEMP. SENSOR
PIPING TEMP. SENSOR
TO OUTDOOR UNIT
POWER SUPPLY
W:WHITE B:BLACK
R:RED Y:YELLOW
OR:ORANGE BL:BLUE
BR:BROWN
Y/G:YELLOW/GREEN
TRANS.:TRANSFORMER
NOTE:
1. PARTS ① ② ③ ARE NOT AVAILABLE
2. PARTS ④ ⑤ ⑥ ARE OPTIONAL, AND THE LINE MARKED ⑬ ONLY AVAILABLE IN CONVERTIBLE TYPE
3. PART ⑦ NOT AVAILABLE IN DUCT TYPE
4. PARTS AND CONNECTED WIRES IN DASHED FRAME ⑧ ONLY FOR AB14/182ACBEA
5.PARTS AND CONNECED TWIRES IN DASHED FRAME ⑨ ⑩ ARE NOT AVAILABLEIN AD14/182AMBEA, AND CONVERTIBLE TYPE,AND CORRESPONDINGLY THERE IS A CLIP ON PCB
6.PARTS AND CONNECTED WIRES IN DASHED FRAME ⑪ ONLY FOR AC142/182/242ACBEA
7. PARTS AND CONNECTED WIRES IN DASHED FRAME ⑫ DETERMINED BY PRODUCTS TYPE
8. IN AC242ACBEA, DASHED LINES MARKED @ CONNETED TO "1 , 2" ON TERMINAL BLOCK, AND THERE ARE NO LINES BETWEEN "1 AND L" , "2 AND N"
9. REFER TO OPERATION MANUAL TO SET SW1-SW5

0010451690E



### 11.2 Sensor characteristic

| model | name | code | sub-part code | characteristic |
|---|---|---|---|---|
| AU182AFERA | outdoor ambient temperature sensor | 0010450192 | 001A3800082 | R25=10KΩ±3%<br>B25/50=3700K±3% |
| | mid-condenser temperature sensor | 0010450195 | 001A3800093 | R25=10KΩ±3%<br>B25/50=3700K±3% |
| | oil temperature sensor | 0010451305 | 001A3800093 | R25=10KΩ±3%<br>B25/50=3700K±3% |
| | discharging temperature sensor | 0010451313 | 001A3800096 | R80=50KΩ±3%<br>B25/80=4450K±3% |
| AS182AVERA | coil temperature sensor | 001A3900059 | | 1.R25=10KΩ±3%<br>B25/50=3700K±3%<br>2.R25=23KΩ±2.5%<br>B25/50=4200K±3% |
| AD182AMERA | coil temperature sensor | 001A3900005 | | R25=23KΩ±2.5%<br>B25/50=4200K±3% |

| R80=50KΩ±3% B25/80=4450K±3% | | R80=50KΩ±3% B25/80=4450K±3% | |
|---|---|---|---|
| T(℃) | Rnom(KΩ) | T(℃) | Rnom(KΩ) |
| -30 | 11600 | 24 | 536.6 |
| -29 | 10860 | 25 | 511.1 |
| -28 | 10170 | 26 | 486.9 |
| -27 | 9529 | 27 | 464 |
| -26 | 8932 | 28 | 442.3 |
| -25 | 8375 | 29 | 421.7 |
| -24 | 7856 | 30 | 402.1 |
| -23 | 7372 | 31 | 383.6 |
| -22 | 6920 | 32 | 366 |
| -21 | 6498 | 33 | 349.3 |
| -20 | 6104 | 34 | 333.5 |
| -19 | 5736 | 35 | 318.4 |
| -18 | 5392 | 36 | 304.1 |
| -17 | 5071 | 37 | 290.5 |
| -16 | 4770 | 38 | 277.6 |
| -15 | 4488 | 39 | 265.3 |
| -14 | 4225 | 40 | 253.6 |
| -13 | 3978 | 41 | 242.5 |
| -12 | 3747 | 42 | 232 |
| -11 | 3531 | 43 | 221.9 |
| -10 | 3328 | 44 | 212.3 |
| -9 | 3138 | 45 | 203.2 |
| -8 | 2960 | 46 | 194.5 |
| -7 | 2793 | 47 | 186.3 |
| -6 | 2636 | 48 | 178.4 |
| -5 | 2489 | 49 | 170.9 |
| -4 | 2351 | 50 | 163.7 |
| -3 | 2221 | 51 | 155.9 |
| -2 | 2099 | 52 | 150.4 |
| -1 | 1984 | 53 | 144.2 |
| 0 | 1877 | 54 | 138.3 |
| 1 | 1775 | 55 | 132.7 |
| 2 | 1680 | 56 | 127.3 |
| 3 | 1590 | 57 | 122.1 |
| 4 | 1506 | 58 | 117.2 |
| 5 | 1426 | 59 | 112.5 |
| 6 | 1351 | 60 | 108 |
| 7 | 1280 | 61 | 103.8 |
| 8 | 1214 | 62 | 99.68 |
| 9 | 1151 | | |
| 10 | 1092 | | |
| 11 | 1036 | | |
| 12 | 983.2 | | |
| 13 | 933.4 | | |
| 14 | 886.4 | | |
| 15 | 841.9 | | |
| 16 | 800 | | |
| 17 | 760.8 | | |
| 18 | 722.8 | | |
| 19 | 687.3 | | |
| 20 | 653.8 | | |
| 21 | 622 | | |
| 22 | 592 | | |
| 23 | 553.6 | | |

| R25=10KΩ±3% B25/50=3700K±3% | | R25=10KΩ±3% B25/50=3700K±3% | |
|---|---|---|---|
| T(℃) | Rnom(KΩ) | T(℃) | Rnom(KΩ) |
| -20℃ | 90.79 | 34 | 6.95 |
| -19 | 85.72 | 35 | 6.68 |
| -18 | 80.96 | 36 | 5.43 |
| -17 | 76.51 | 37 | 5.6 |
| -16 | 72.33 | 38 | 5.59 |
| -15 | 68.41 | 39 | 5.73 |
| -14 | 64.73 | 40 | 5.52 |
| -13 | 61.27 | 41 | 5.32 |
| -12 | 58.02 | 42 | 5.12 |
| -11 | 54.97 | 43 | 4.93 |
| -10 | 52.1 | 44 | 4.9 |
| -9 | 49.4 | 45 | 4.58 |
| -8 | 46.86 | 46 | 4.42 |
| -7 | 44.46 | 47 | 4.26 |
| -6 | 42.21 | 48 | 4.11 |
| -5 | 40.08 | 49 | 3.97 |
| -4 | 38.08 | 50 | 3.83 |
| -3 | 36.19 | 51 | 3.7 |
| -2 | 34.41 | 52 | 3.57 |
| -1 | 32.73 | 53 | 3.45 |
| 0 | 31.14 | 54 | 3.33 |
| 1 | 29.64 | 55 | 3.22 |
| 2 | 28.22 | 56 | 3.11 |
| 3 | 26.4 | 57 | 3.11 |
| 4 | 25.61 | 58 | 2.9 |
| 5 | 24.41 | 59 | 2.81 |
| 6 | 23.27 | 60 | 2.72 |
| 7 | 22.2 | 61 | 2.63 |
| 8 | 21.18 | 62 | 2.54 |
| 9 | 20.21 | 63 | 2.49 |
| 10 | 19.3 | 64 | 2.38 |
| 11 | 18.43 | 65 | 2.3 |
| 12 | 17.61 | 66 | 2.23 |
| 13 | 16.83 | 67 | 2.16 |
| 14 | 16.09 | 68 | 2.09 |
| 15 | 15.38 | 69 | 2.03 |
| 16 | 14.71 | 70 | 1.96 |
| 17 | 14.08 | 71 | 1.9 |
| 18 | 13.48 | 72 | 1.85 |
| 19 | 12.9 | 73 | 1.79 |
| 20 | 12.36 | 74 | 1.73 |
| 21 | 11.84 | 75 | 1.68 |
| 22 | 11.34 | 76 | 1.63 |
| 23 | 10.87 | 77 | 1.58 |
| 24 | 10.43 | 78 | 1.54 |
| 25 | 10 | 79 | 1.49 |
| 26 | 9.59 | 80 | 1.45 |
| 27 | 9.21 | | |
| 28 | 8.84 | | |
| 29 | 8.48 | | |
| 30 | 8.15 | | |
| 31 | 7.83 | | |
| 32 | 7.52 | | |
| 33 | 7.23 | | |

| R25=23KΩ±2.5% B25/50=4200K±3% | | R25=23KΩ±2.5% B25/50=4200K±3% | |
|---|---|---|---|
| T(℃) | Rnom(KΩ) | T(℃) | Rnom(KΩ) |
| -20℃ | 281.34 | 22℃ | 26.54 |
| -19℃ | 263.56 | 23℃ | 25.3 |
| -18℃ | 247.04 | 24℃ | 24.12 |
| -17℃ | 231.66 | 25℃ | 23 |
| -16℃ | 217.35 | 26℃ | 21.94 |
| -15℃ | 204.02 | 27℃ | 20.94 |
| -14℃ | 191.61 | 28℃ | 19.99 |
| -13℃ | 180.04 | 29℃ | 19.09 |
| -12℃ | 169.24 | 30℃ | 18.23 |
| -11℃ | 159.17 | 31℃ | 17.42 |
| -10℃ | 149.77 | 32℃ | 16.65 |
| -9℃ | 140.99 | 33℃ | 15.92 |
| -8℃ | 132.78 | 34℃ | 15.22 |
| -7℃ | 125.11 | 35℃ | 14.56 |
| -6℃ | 117.93 | 36℃ | 13.93 |
| -5℃ | 111.22 | 37℃ | 13.34 |
| -4℃ | 104.93 | 38℃ | 12.77 |
| -3℃ | 99.04 | 39℃ | 12.23 |
| -2℃ | 93.52 | 40℃ | 11.71 |
| -1℃ | 88.35 | 41℃ | 11.22 |
| 0℃ | 83.5 | 42℃ | 10.76 |
| 1℃ | 78.94 | 43℃ | 10.31 |
| 2℃ | 74.67 | 44℃ | 9.89 |
| 3℃ | 70.65 | 45℃ | 9.49 |
| 4℃ | 66.88 | 46℃ | 9.1 |
| 5℃ | 63.33 | 47℃ | 8.74 |
| 6℃ | 60 | 48℃ | 8.39 |
| 7℃ | 56.86 | 49℃ | 8.05 |
| 8℃ | 53.91 | 50℃ | 7.73 |
| 9℃ | 51.13 | 51℃ | 7.43 |
| 10℃ | 48.51 | 52℃ | 7.14 |
| 11℃ | 46.04 | 53℃ | 6.86 |
| 12℃ | 43.72 | 54℃ | 6.6 |
| 13℃ | 41.52 | 55℃ | 6.34 |
| 14℃ | 39.45 | 56℃ | 6.1 |
| 15℃ | 37.5 | 57℃ | 5.87 |
| 16℃ | 35.66 | 58℃ | 5.65 |
| 17℃ | 33.92 | 59℃ | 5.44 |
| 18℃ | 32.27 | 60℃ | 5.24 |
| 19℃ | 30.72 | | |
| 20℃ | 29.25 | | |
| 21℃ | 27.86 | | |

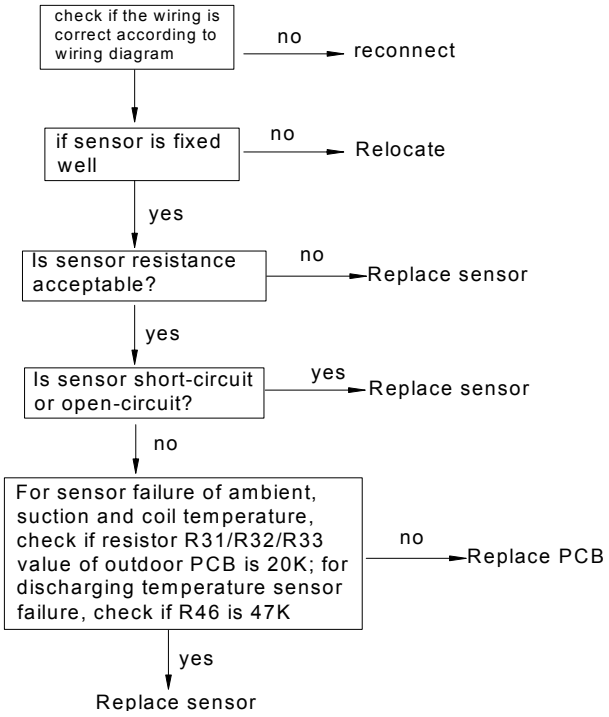
# 12. Troubleshooting

## Outdoor troubleshooting:

Below the indication on indicator board sequence is LED5-LED4-LED3-LED2-LED1, 0: OFF; 1: ON

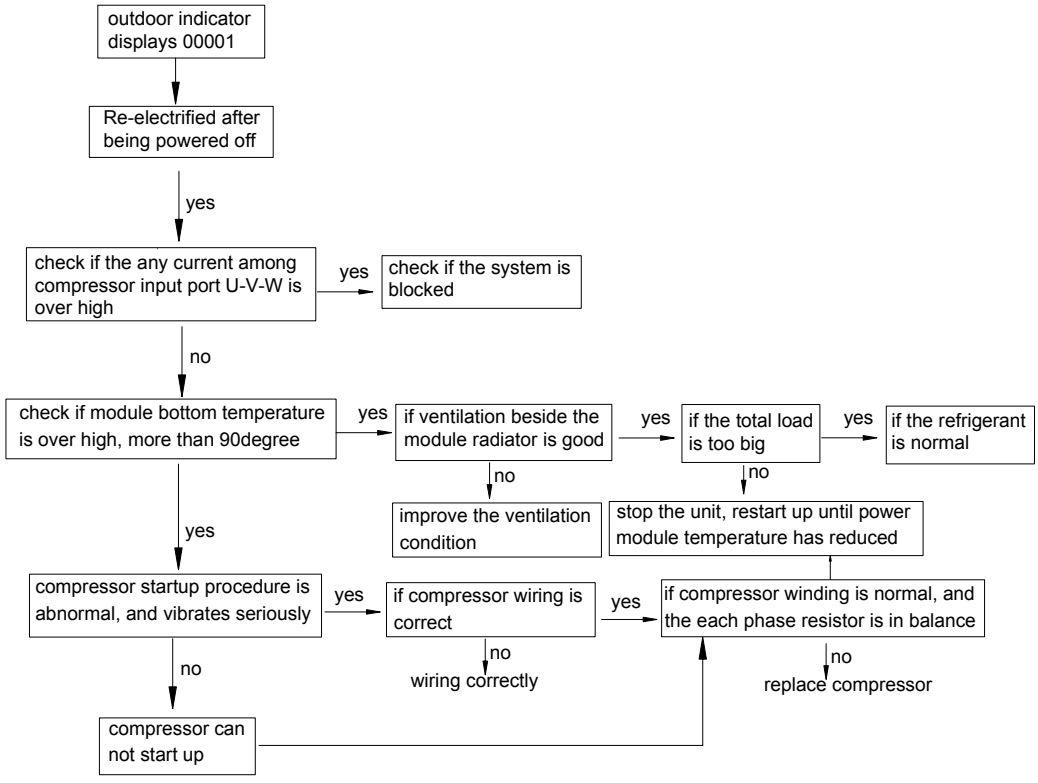
1) Sensor failure

Alarm condition: ambient temperature sensor is in short circuit or open circuit for 3 seconds continously.
Outdoor indicator displays 00110 or 00111, or 01001



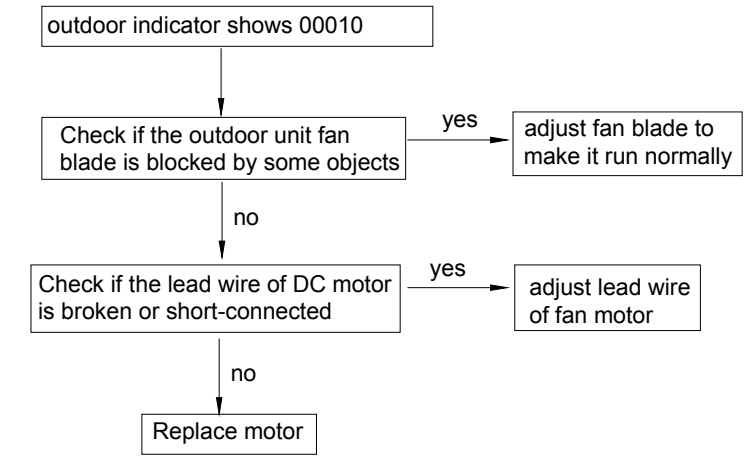

2) Outdoor power module failure

Alarm condition: outdoor indicator displays 10111, 00001, or 01111, 10000, 100001, or 10100



3) Outdoor DC motor abnormal

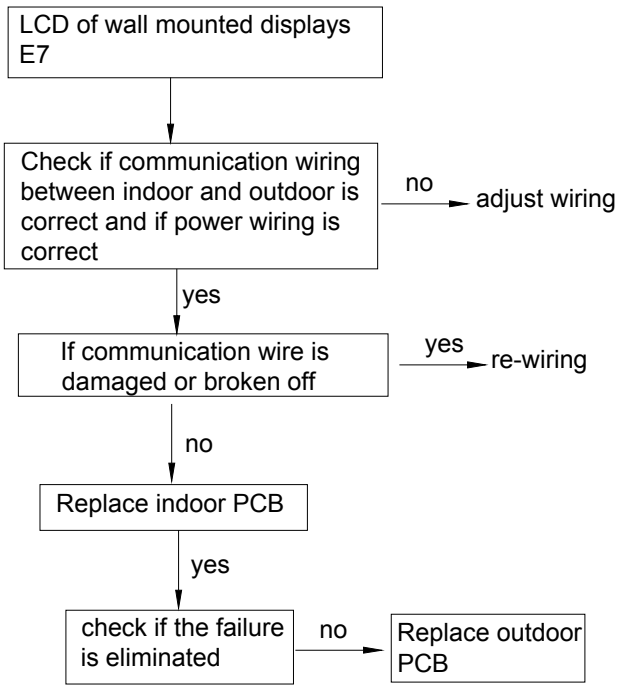
Outdoor indicator displays 00010.
Alarm condition:outdoor DC motor is blocked rotor or broken, abnormal.
This fault is only used when indoor unit is with DC fan motor.



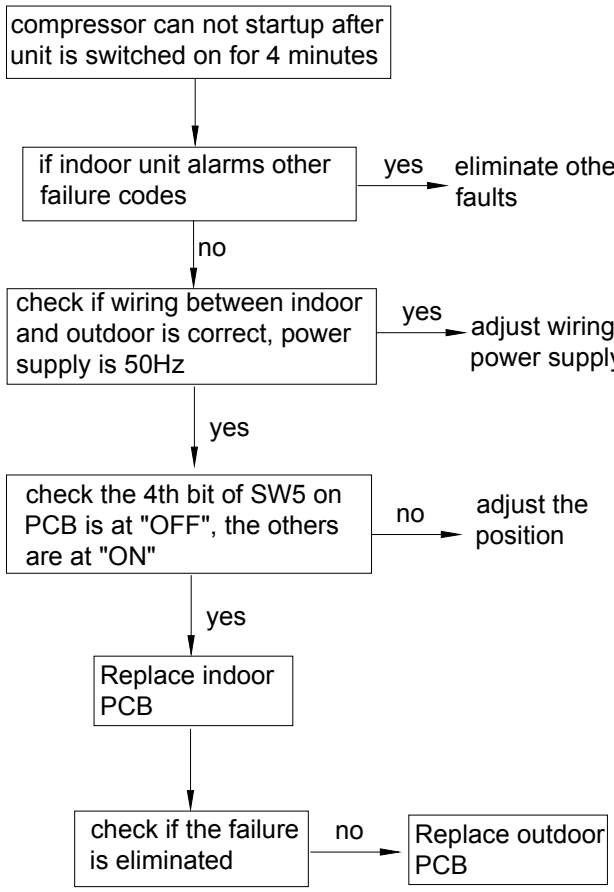

Warning: For outdoor DC fan motor, forbidden to pull off the plug when being electrified.

4) Communication error between indoor and outdoor units
Outdoor indicator shows 00011

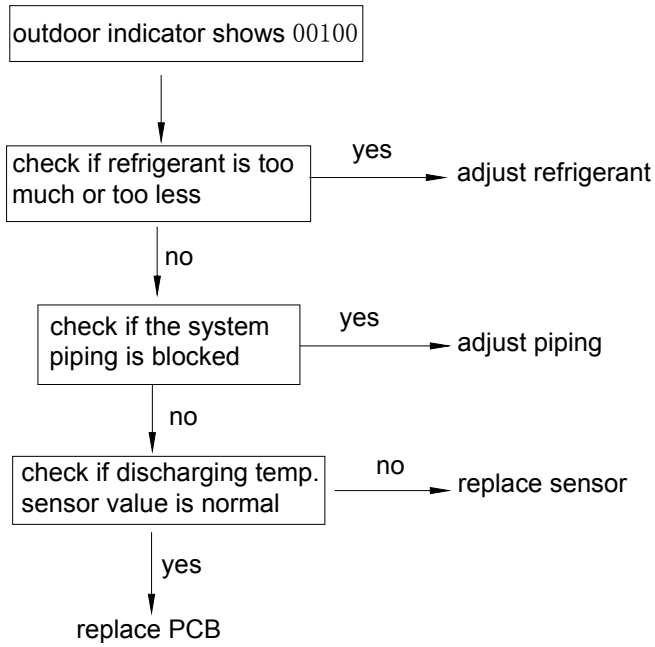
For wall mounted unit:



For convertible unit and ceiling concealed unit:

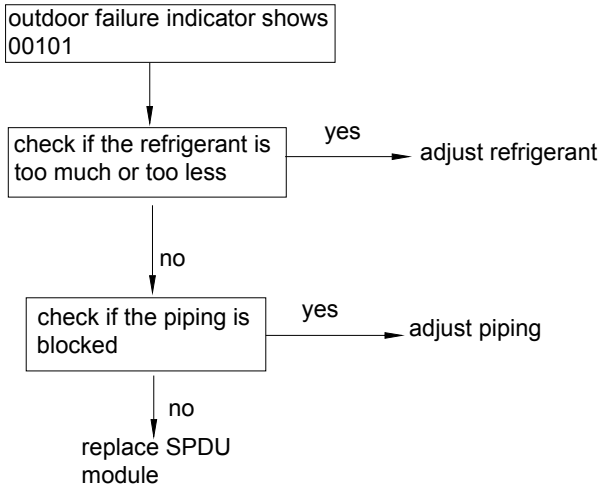



5)Compressor discharging temperature protection
Outdoor indicator shows 00100.
Alarm condition: Within half an hour after compressor is running, compressor discharging temperature is over 120degree for 3 times continously.



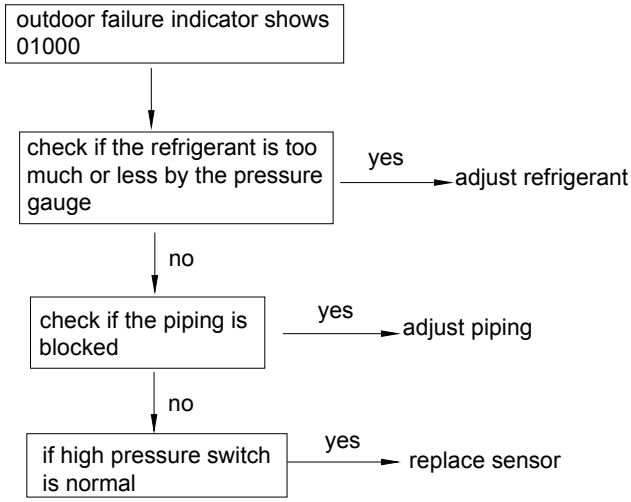
6) Outdoor SPDU module over current protection

Outdoor indicator shows 00101.
Alarm condition: When compressor running, the module current is over 21A.



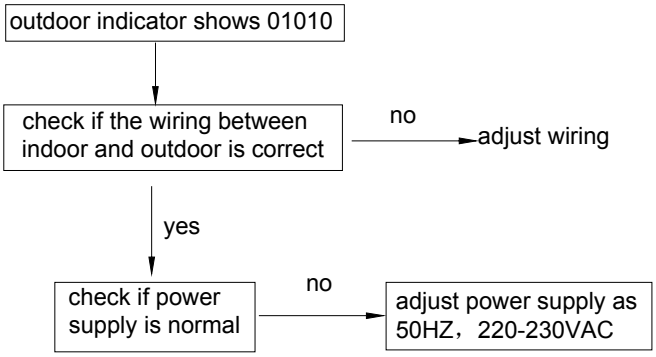

7) Outdoor high pressure protection

Outdoor indicator shows 01000
Alarm condition: When compressor running, high pressure is over 4.5 MPa for 30 seconds continously.



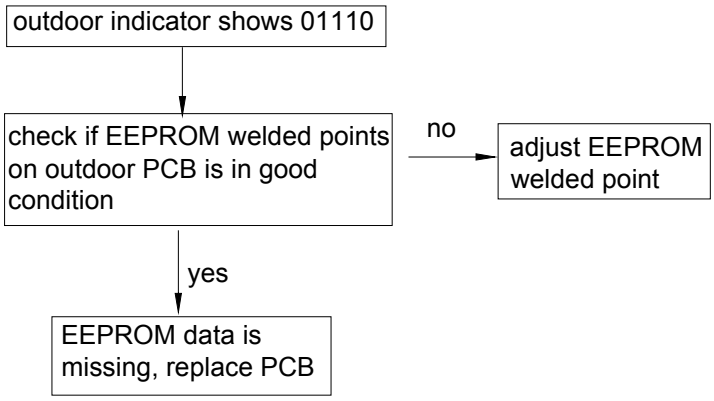

8) Outdoor power supply is abnormal

Outdoor indicator shows 01010
Alarm condition: if power supply is not 50Hz as standard, which will affect the normal communication and cause air conditioner bad operation.



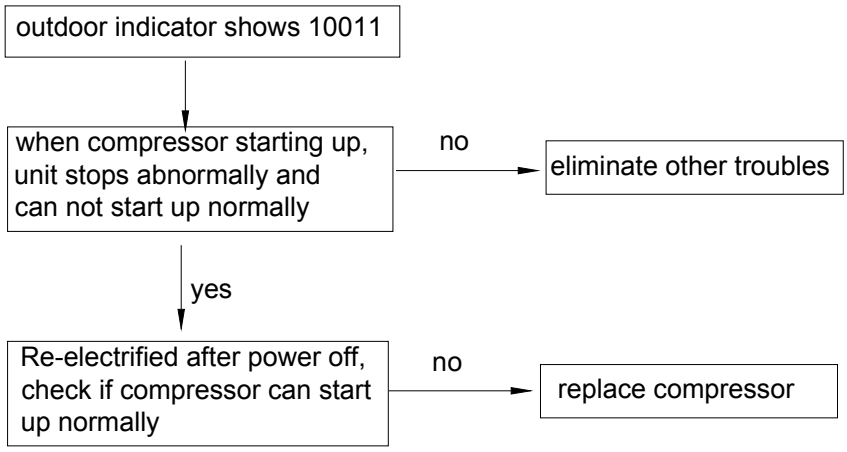
9) EEPROM is abnormal

Outdoor indicator shows 01110.
Alarm condition: EEPROM is fault or data is missing.



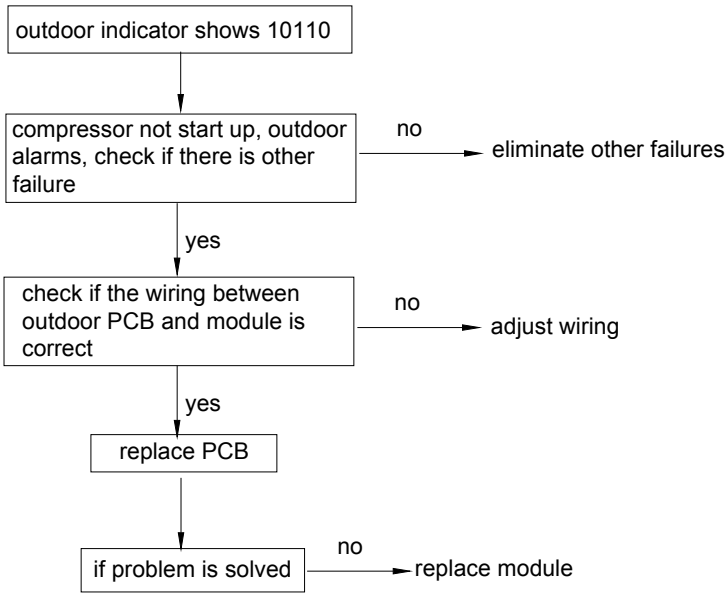

10) Running state detecting abnormal

Outdoor indicator shows 10011.
Alarm condition: when compressor is running, the unit will be abnormal or stop.

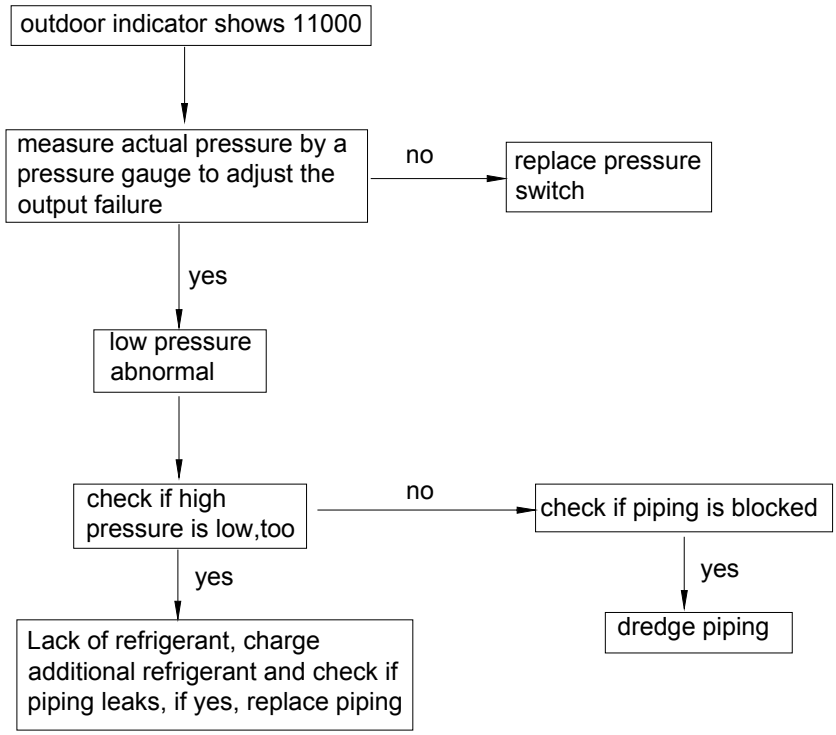



11) Communication failure between outdoor PCB and module

Outdoor indicator shows 10110



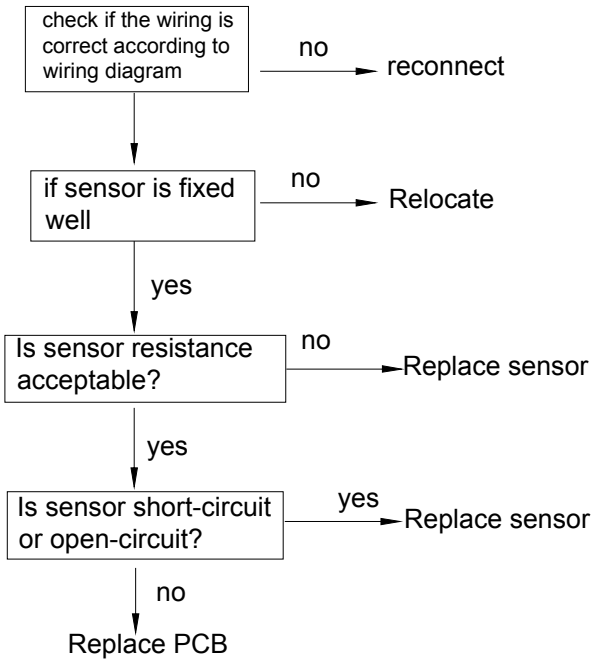
12) Outdoor low pressure abnormal
Outdoor indicator shows 11000.
Alarm condition: outdoor system pressure is lower than 0.05MPa.




Indoor troubleshooting:

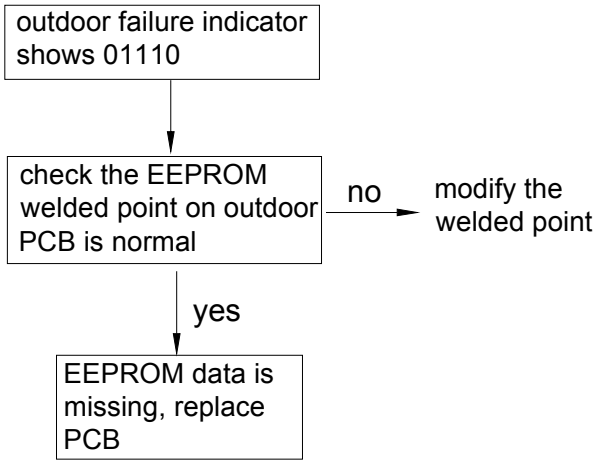
1) Sensor failure

Alarm condition: ambient temperature sensor is in short circuit or open circuit for 2 seconds continously.



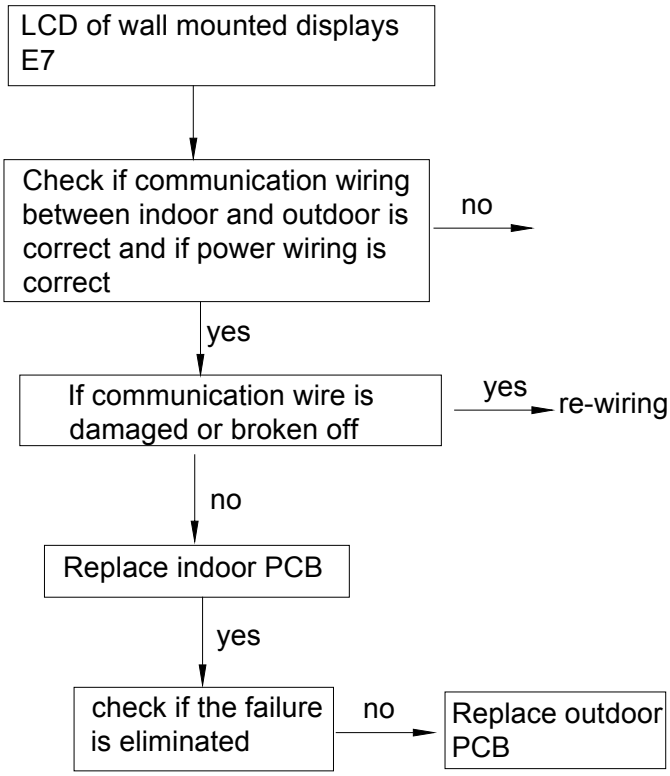
2) EEPROM failure

Alarm condition: before being electrified, EEPROM is faulty or the data is missing.



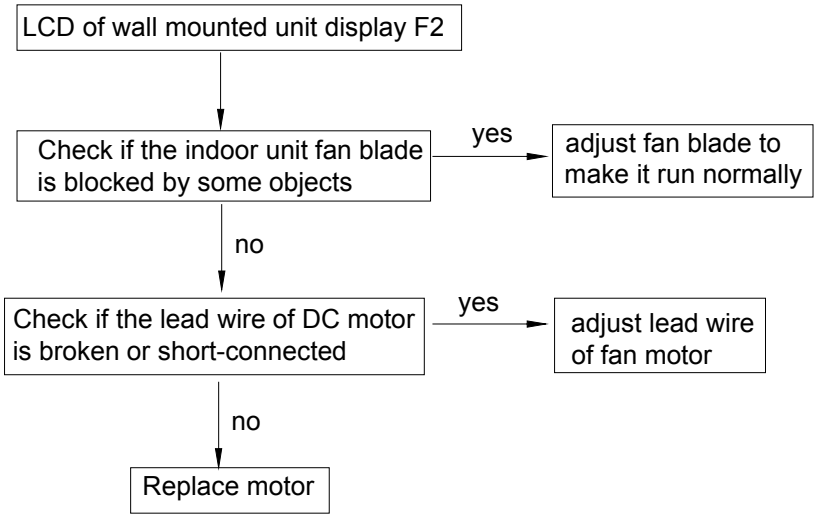

The indication on indicator board sequence is LED5-LED4-LED3-LED2-LED1, 0: OFF; 1: ON

3) Communication error between indoor and outdoor units



4) Indoor DC motor abnormal

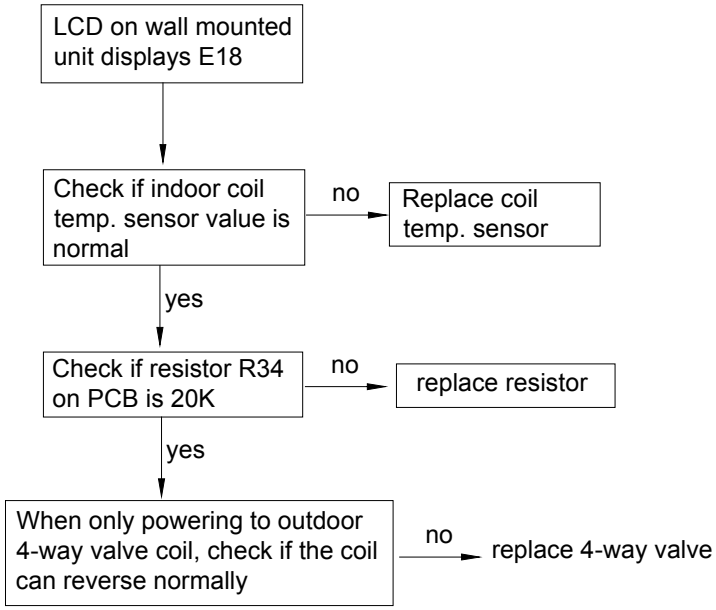
Alarm condition:outdoor DC motor is blocked rotor or broken, abnormal.
This fault is only used when indoor unit is with DC fan motor.




Warning: For outdoor DC fan motor, forbidden to pull off the plug when being electrified.

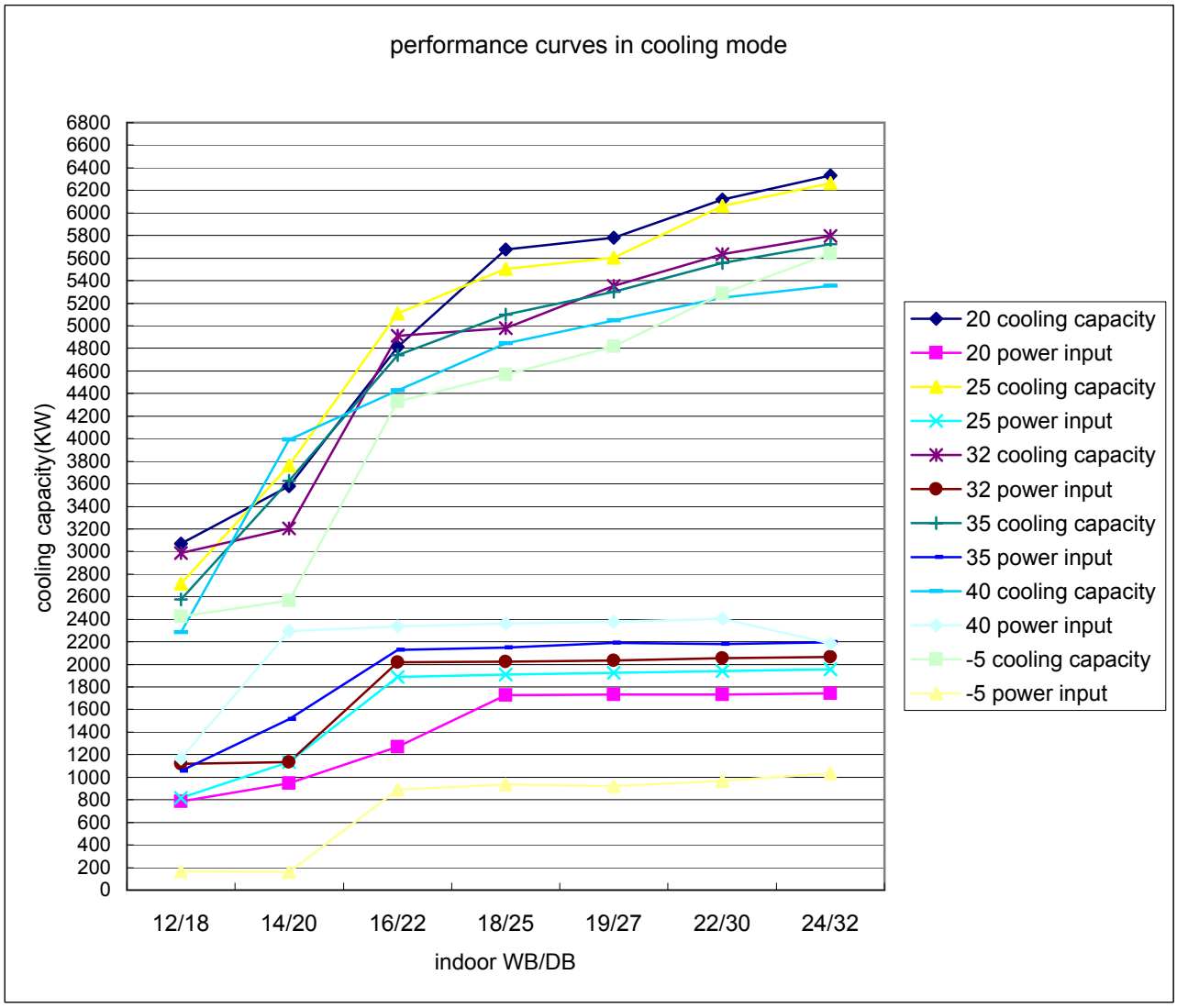
5) Temperature cutoff protection

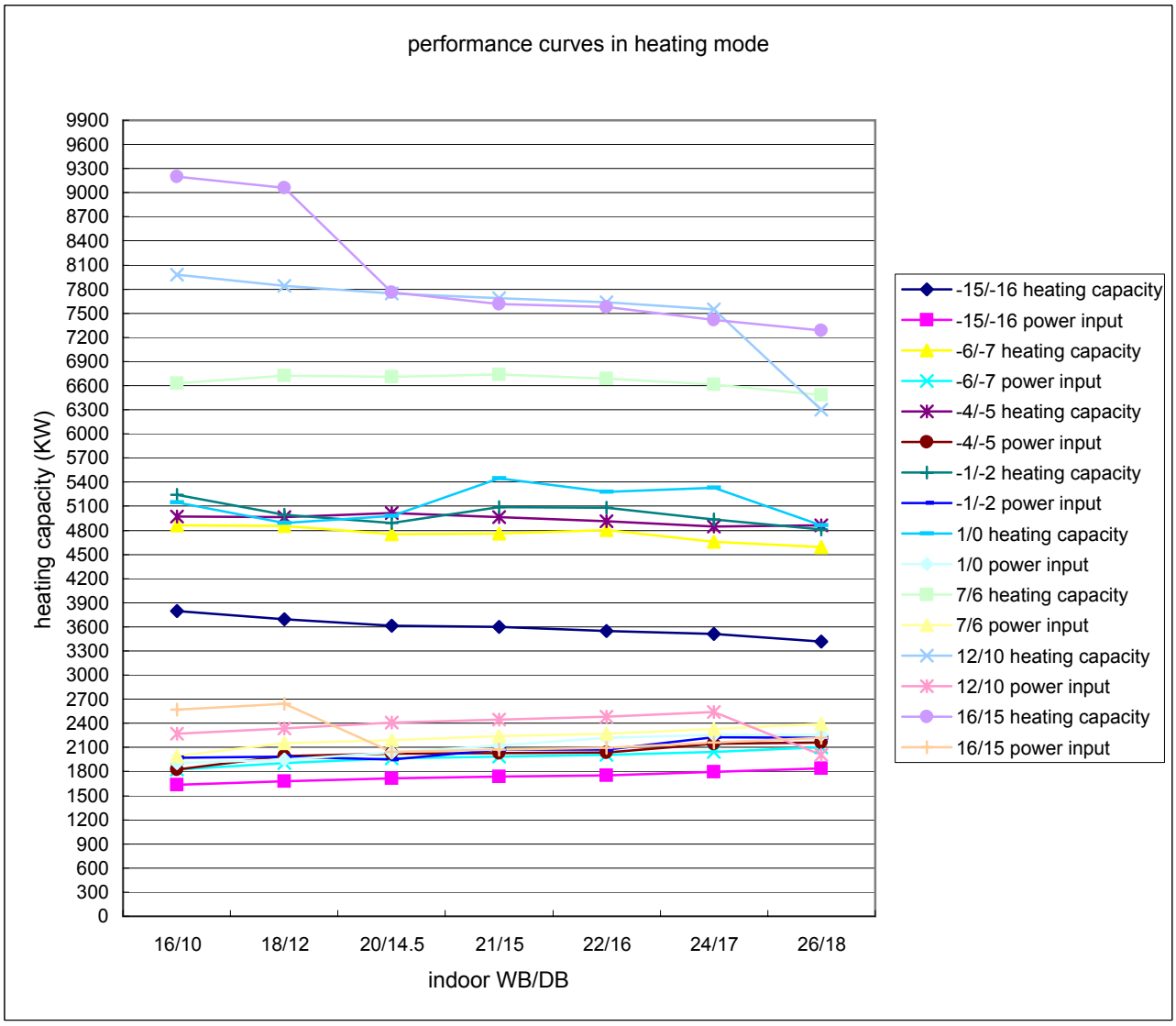
Alarm condition: indoor coil temperature sensor value is abnormal;
or outdoor 4-way valve coil is invalid



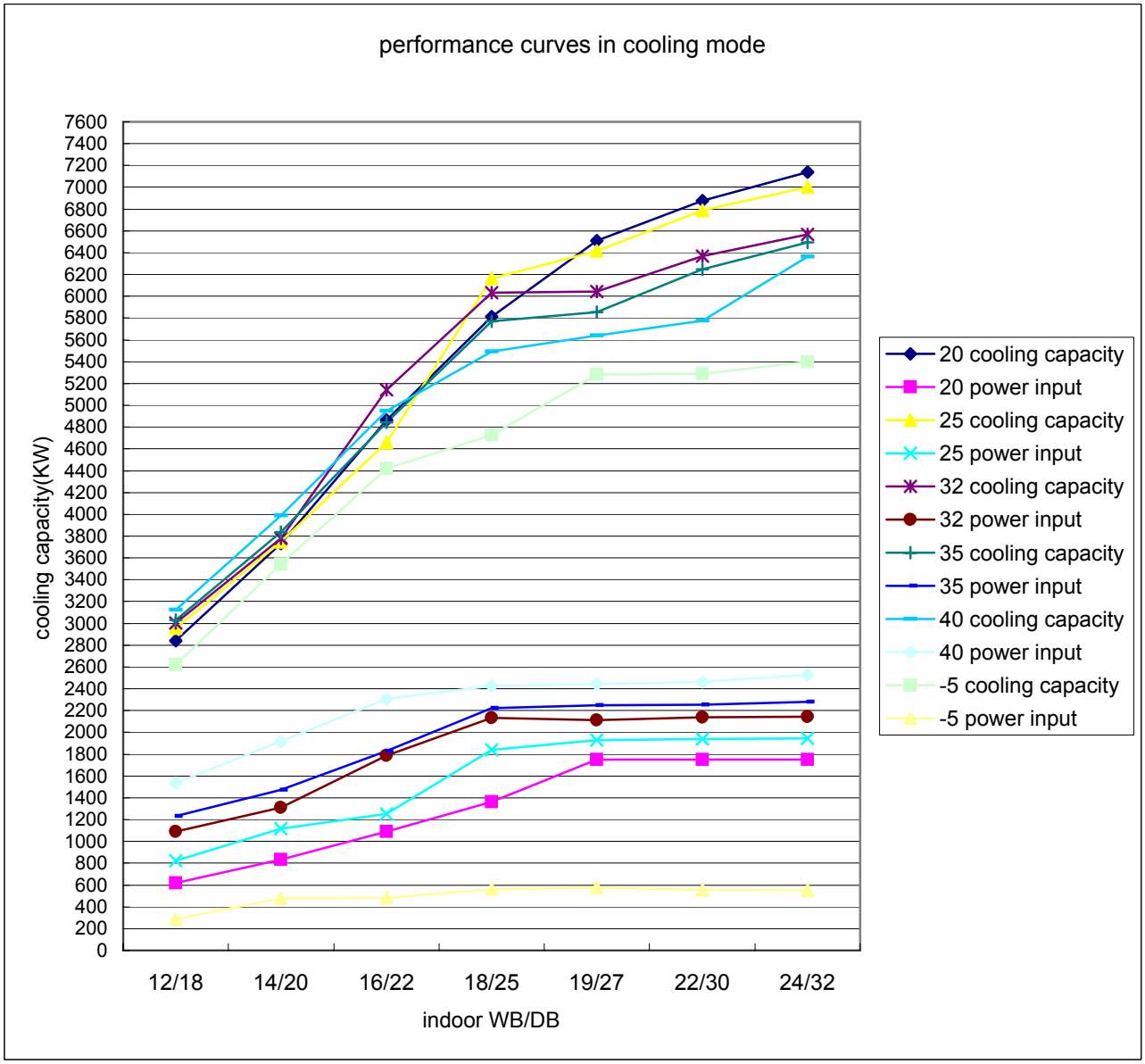
## 13. Performance curves

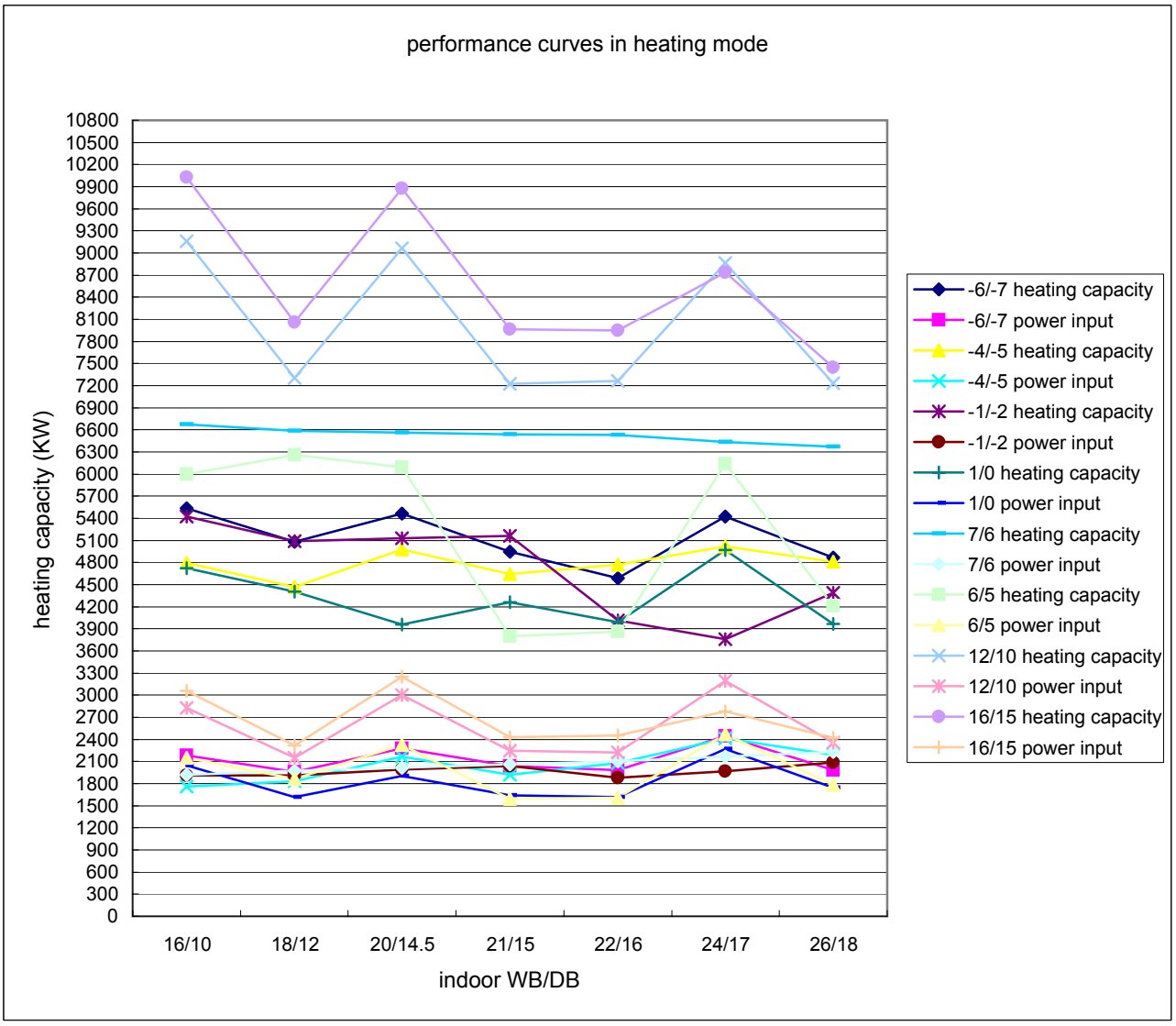
AU182AFERA+AS182AVERA:

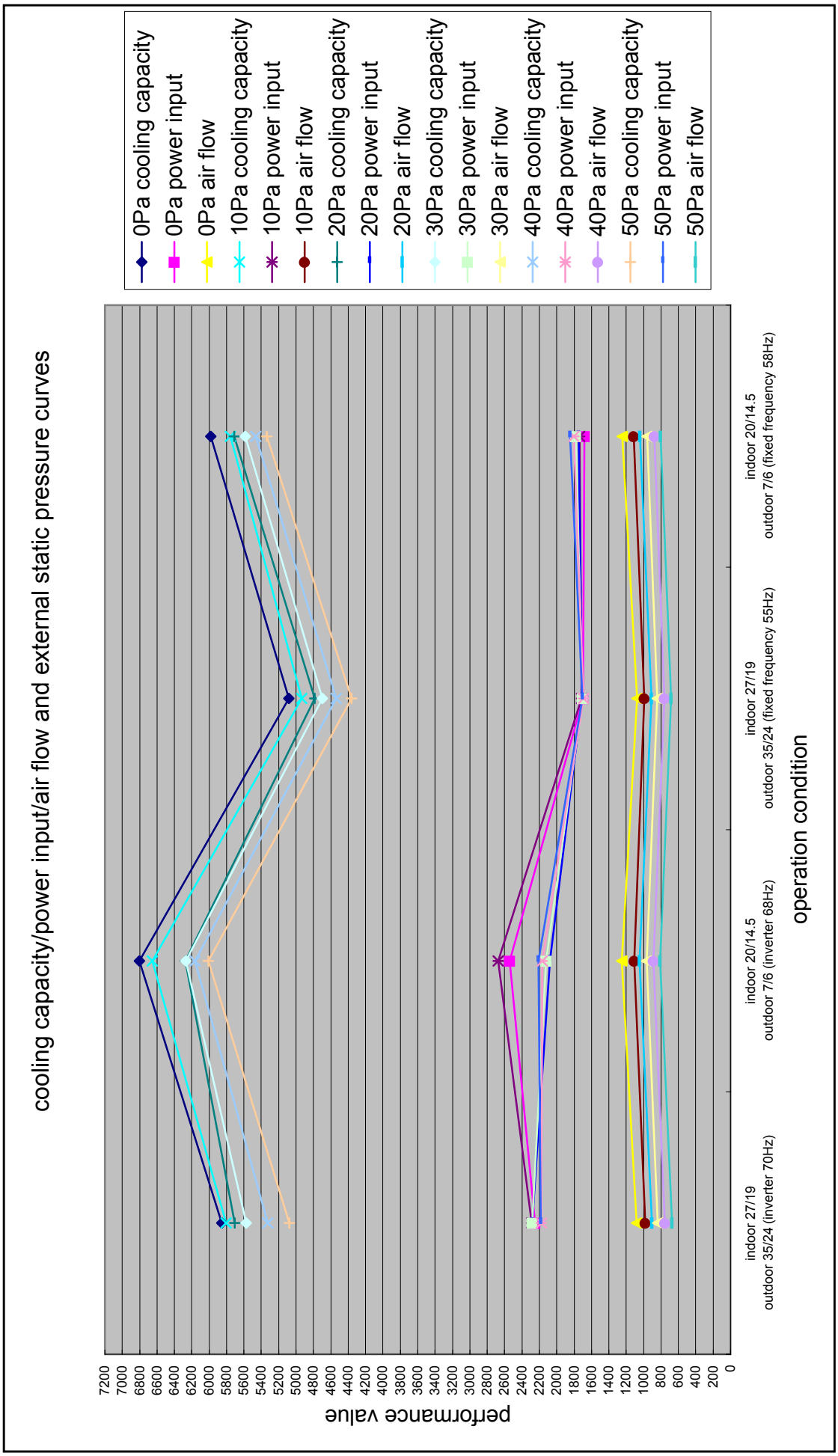



performance curves in heating mode
heating capacity (KW)
9900
9600
9300
9000
8700
8400
8100
7800
7500
7200
6900
6600
6300
6000
5700
5400
5100
4800
4500
4200
3900
3600
3300
3000
2700
2400
2100
1800
1500
1200
900
600
300
0
16/10
18/12
20/14.5
21/15
22/16
24/17
26/18
indoor WB/DB
-15/-16 heating capacity
-15/-16 power input
-6/-7 heating capacity
-6/-7 power input
-4/-5 heating capacity
-4/-5 power input
-1/-2 heating capacity
-1/-2 power input
1/0 heating capacity
1/0 power input
7/6 heating capacity
7/6 power input
12/10 heating capacity
12/10 power input
16/15 heating capacity
16/15 power input

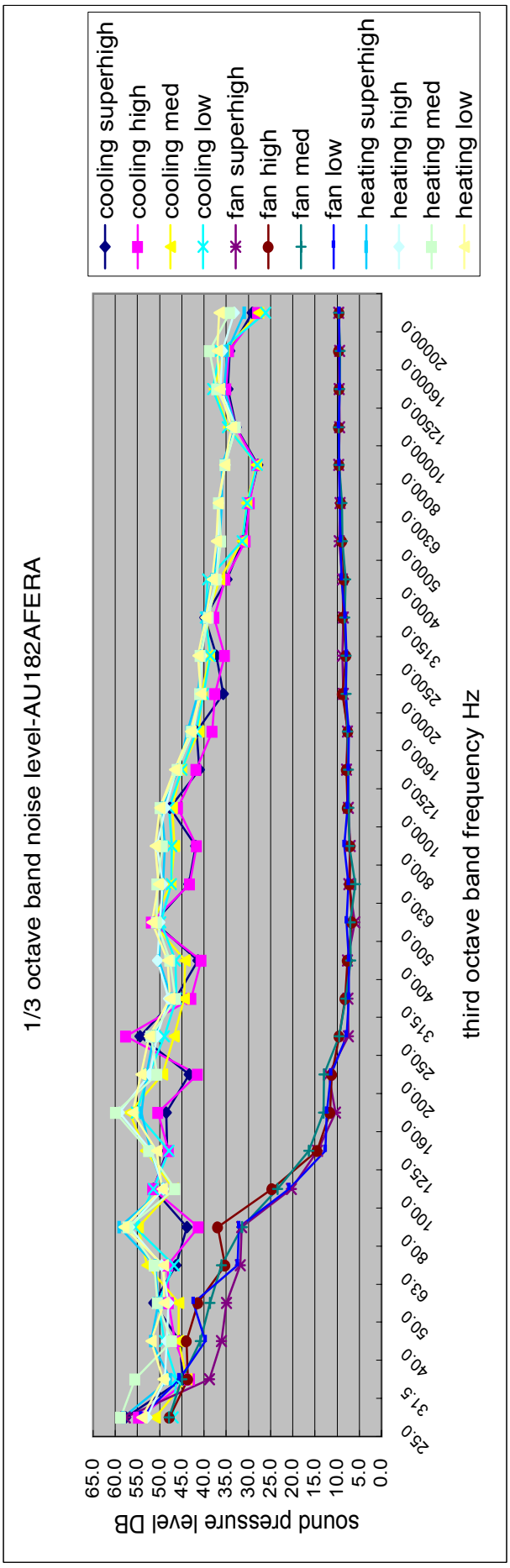
**AU182AFERA+AD182AMERA:**

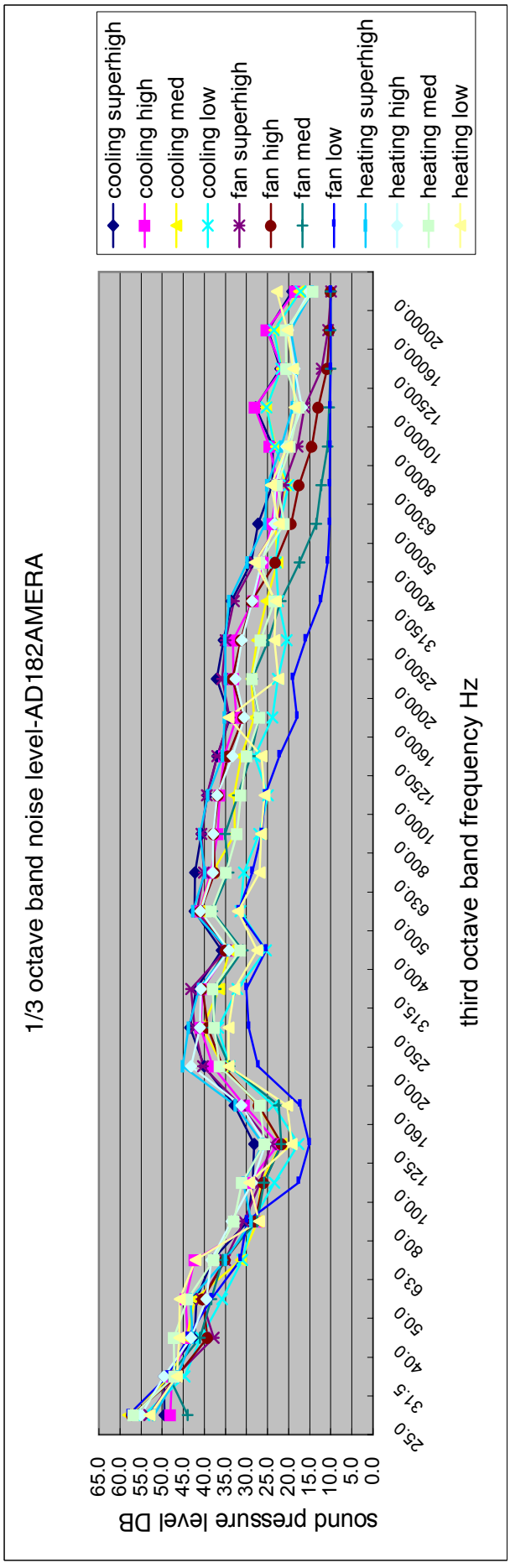


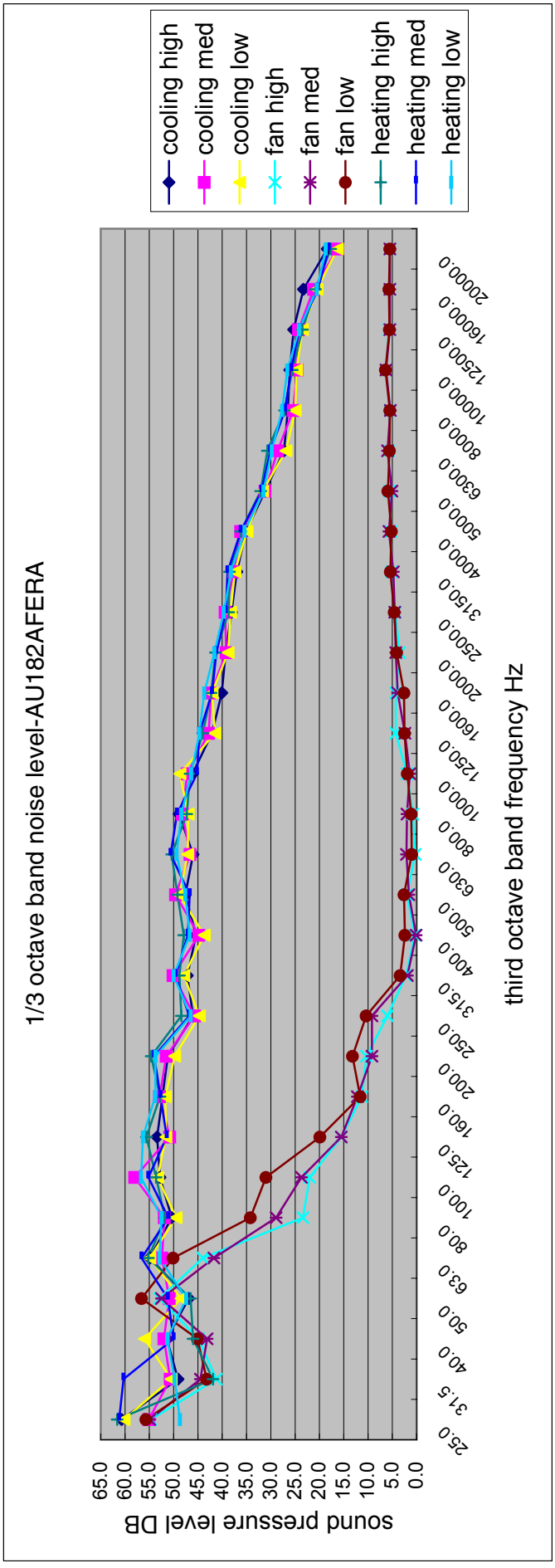

performance curves in heating mode
heating capacity (KW)
10800
10500
10200
9900
9600
9300
9000
8700
8400
8100
7800
7500
7200
6900
6600
6300
6000
5700
5400
5100
4800
4500
4200
3900
3600
3300
3000
2700
2400
2100
1800
1500
1200
900
600
300
0
16/10
18/12
20/14.5
21/15
22/16
24/17
26/18
indoor WB/DB
-6/-7 heating capacity
-6/-7 power input
-4/-5 heating capacity
-4/-5 power input
-1/-2 heating capacity
-1/-2 power input
1/0 heating capacity
1/0 power input
7/6 heating capacity
7/6 power input
6/5 heating capacity
6/5 power input
12/10 heating capacity
12/10 power input
16/15 heating capacity
16/15 power input

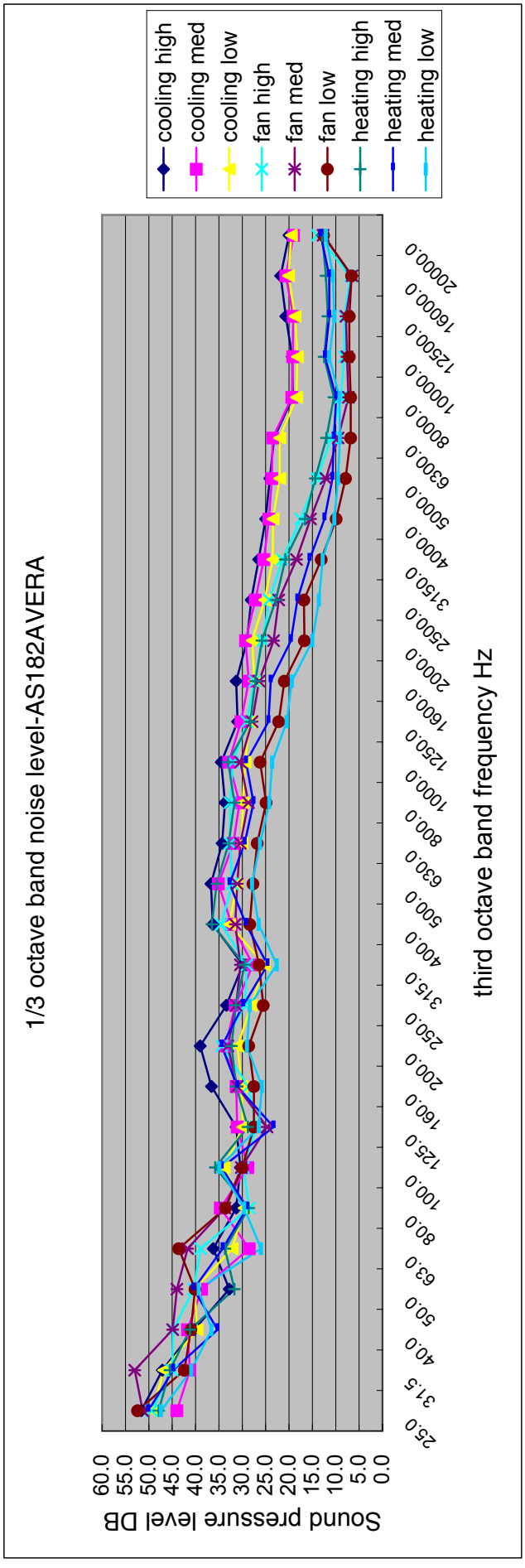

cooling capacity/power input/air flow and external static pressure curves
0Pa cooling capacity
0Pa power input
0Pa air flow
10Pa cooling capacity
10Pa power input
10Pa air flow
20Pa cooling capacity
20Pa power input
20Pa air flow
30Pa cooling capacity
30Pa power input
30Pa air flow
40Pa cooling capacity
40Pa power input
40Pa air flow
50Pa cooling capacity
50Pa power input
50Pa air flow
performance value
7200
7000
6800
6600
6400
6200
6000
5800
5600
5400
5200
5000
4800
4600
4400
4200
4000
3800
3600
3400
3200
3000
2800
2600
2400
2200
2000
1800
1600
1400
1200
1000
800
600
400
200
0
indoor 27/19
outdoor 35/24 (inverter 70Hz)
indoor 20/14.5
outdoor 7/6 (inverter 68Hz)
indoor 27/19
outdoor 35/24 (fixed frequency 55Hz)
indoor 20/14.5
outdoor 7/6 (fixed frequency 58Hz)
operation condition

## 14. Noise level



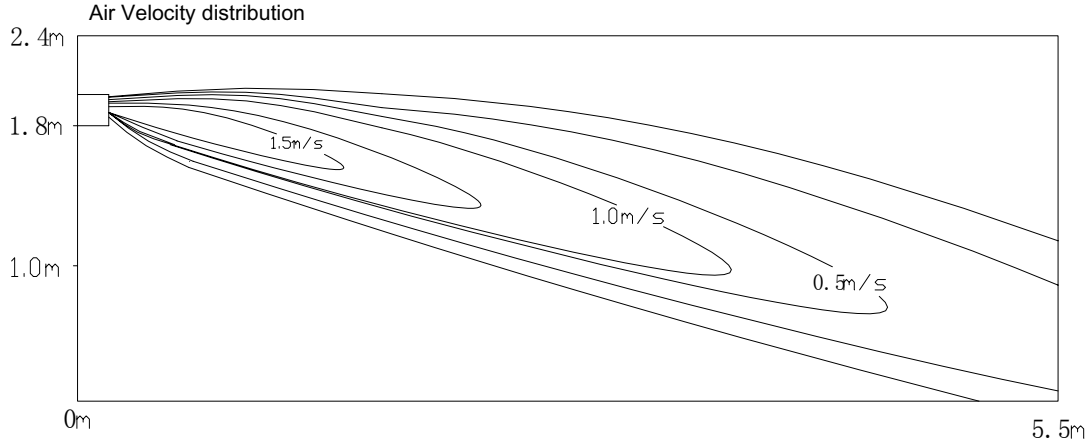

1/3 octave band noise level-AU182AFERA
cooling high
cooling med
cooling low
fan high
fan med
fan low
heating high
heating med
heating low
sound pressure level DB
65.0
60.0
55.0
50.0
45.0
40.0
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0.0
third octave band frequency Hz
25.0
31.5
40.0
50.0
63.0
80.0
100.0
125.0
160.0
200.0
250.0
315.0
400.0
500.0
630.0
800.0
1000.0
1250.0
1600.0
2000.0
2500.0
3150.0
4000.0
5000.0
6300.0
8000.0
10000.0
12500.0
16000.0
20000.0


1/3 octave band noise level-AS182AVERA
cooling high
cooling med
cooling low
fan high
fan med
fan low
heating high
heating med
heating low
Sound pressure level DB
60.0
55.0
50.0
45.0
40.0
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0.0
third octave band frequency Hz
25.0
31.5
40.0
50.0
63.0
80.0
100.0
125.0
160.0
200.0
250.0
315.0
400.0
500.0
630.0
800.0
1000.0
1250.0
1600.0
2000.0
2500.0
3150.0
4000.0
5000.0
6300.0
8000.0
10000.0
12500.0
16000.0
20000.0

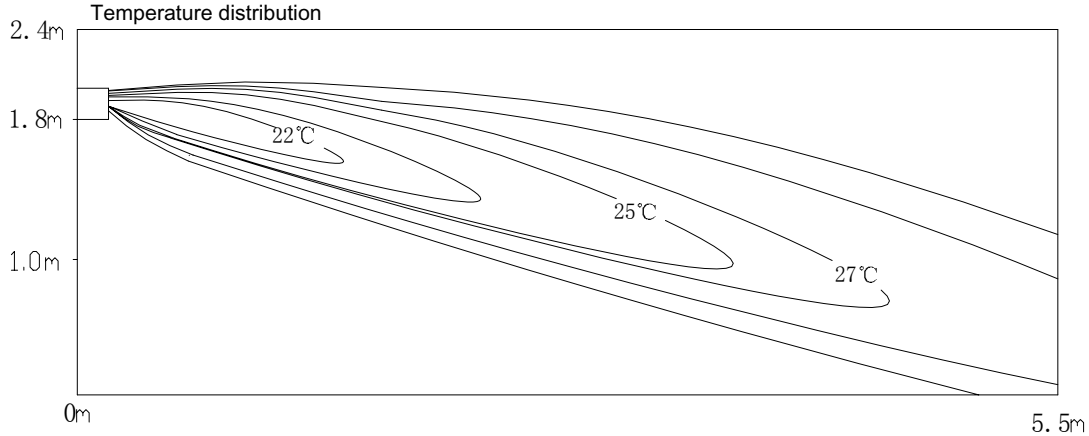
## 15. Air velocity distribution

**AD182AMERA:**

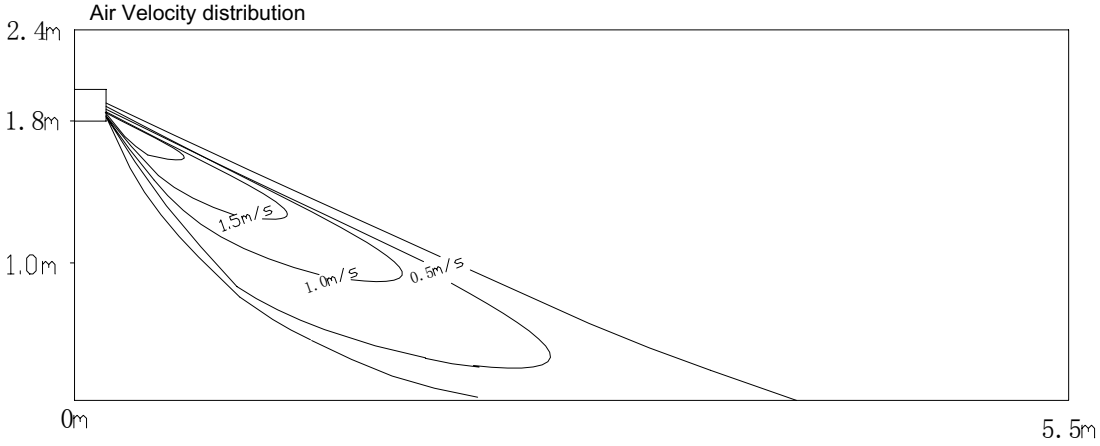
2cooling
air discharge angle 5°
Air Velocity distribution



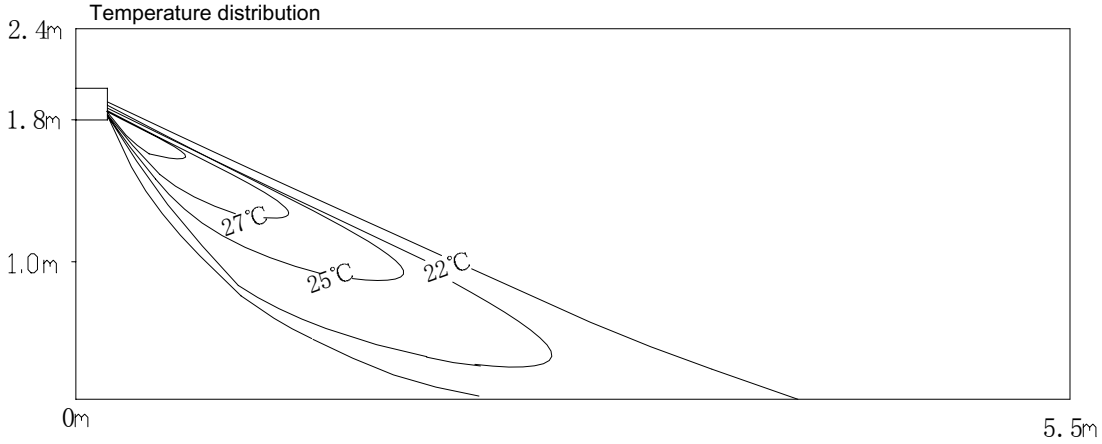

2cooling
air discharge angle 5°
Temperature distribution




2heating
air discharge angle 45°
Air Velocity distribution



2heating
air discharge angle 45°
Temperature distribution



AS182AVERA air velocity distribution:

Fig 1
top view
flow control panel horizal
lourer:center

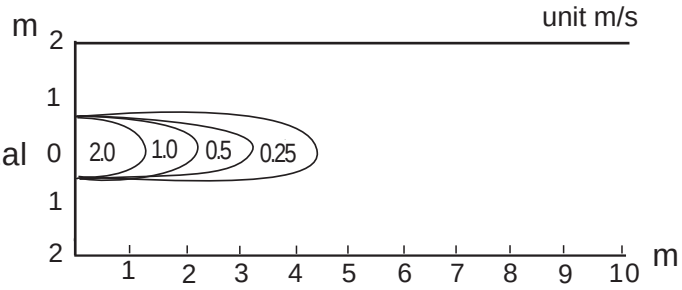



Fig 2
top view
flow control panel horizontal
lourer:right and left

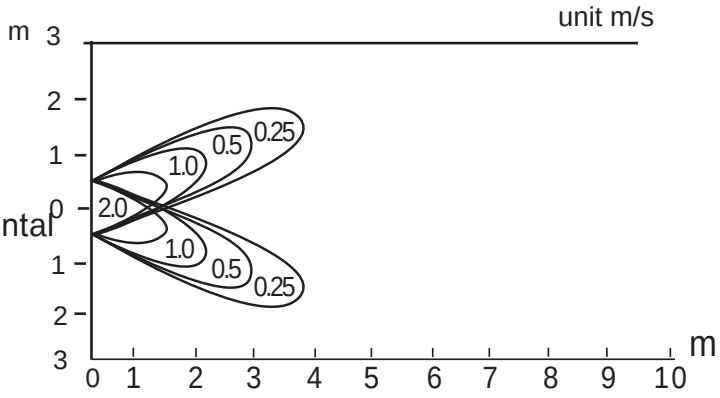



Fig 3
top view
flow control panel horizontal
lourer:center

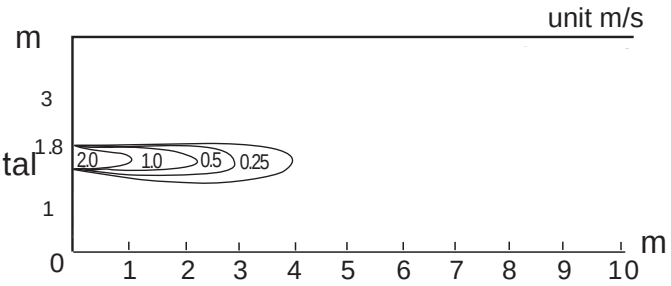
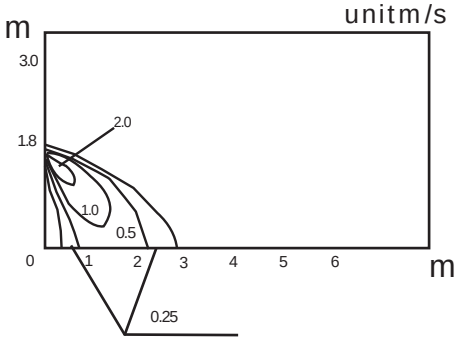



Fig 4
top view
flow control panel vertical
lourer:center




Condition
Fan speed:high
Operation mode:fan
Voltage:230V,50Hz

# Sincere Forever

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