

SERVICE MANUAL



Models

AB182ACERA

AC182ACERA

● Features

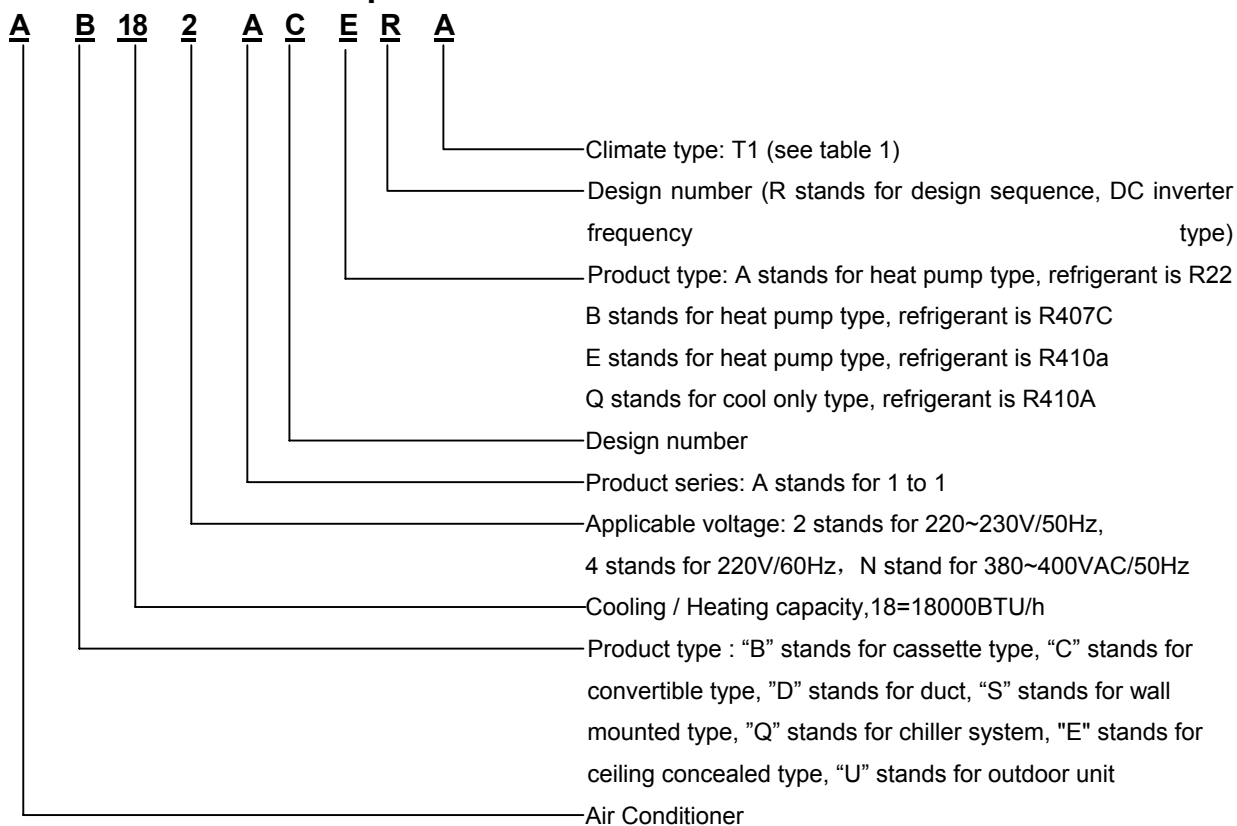
- High energy efficiency class-A
- New designed panel 700*700 with 600*600 cassette unit
- Can be connected with the universal outdoor unit AU182AFERA
- Infrared control type or wired control type
- Central control and full automation, if connected with a central controller
- Low ambient cooling kit (optional) and low ambient heating kit (optional)
- New friendly refrigerant R410a, environment protection
- Advanced technology, DC inverter control function
- Built-in high-head water pump for cassette unit
- Pre-set fresh air inlet for cassette unit
- Left-side and right-side drainage hole for convertible unit
- Optional installation types for convertible unit: on the ceiling or on the floor
- Weekly timer (standard)
- Group control function
- Auto check of troubles
- Auto restart function
- Room card function

CONTENTS

Contents.....	2
1. Description of products & features.....	3
2. Specification.....	5
3. Safety precaution.....	8
4. Net dimension.....	10
5. Installation instructions.....	11
6. Parts and functions.....	24
7. Infrared controller functions.....	25
8. Electrical control functions.....	35
9. Electrical data.....	50
10. Performance curves.....	55
11. Noise level charts.....	57
12. Air velocity distribution.....	58

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 °C~43°C	10°C~35°C	21°C~52°C
Heat pump	-7°C~43°C	-7°C~35°C	-7°C~52°C
Electricity Heating	~43°C	~35°C	~52°C

1.3 Operating Range of Air Conditioners

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

1.4 Product features

New designed panel 700*700 with the 600*600 cassette unit

New designed swing louver with the non smooth surface, which can hold back the condensant water.

New designed filter lock, which will fix the filter more firmly than before.

Adopts the stepping motor, give the louver a larger swing angel.

New fan with bigger diameter fan blade, sending out larger air flow.

Electric control box is located in the unit, convenient to maintain.

The cassette indoor unit adopts the panel whose dimension is identical to that of ceiling, after installation, the unit will be accordant with the decoration decor.

Can be connected to the universal outdoor unit AU182AFERA

The universal outdoor unit can match with all types of indoor unit with the same capacity, such as the cassette type, the convertible type, the duct type, the wall mounted type, and the cabinet type, etc.

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-H71, which can realizes many functions such as heating, cooling, fan, swing, fresh, health, filter up/down, electric heating, etc. Furthermore, the remote controller can be compatible with many old controllers, more convenient for utilizing.

Auto-check function

The unit can display the malfunction codes on the control board by using advanced auto-check technology, convenient for user find and dwell with the abnormal running.

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.

Room card function

The unit can be used for the hotel or other buildings due to the room card function, which function can realize the power ON/OFF by putting on or off a card. Easy to manage the building.

Central control function, if connected with a central controller

Low ambient cooling kit (optional) and low ambient heating kit (optional)

If the unit is equipped with the low ambient cooling/heating kit, it can realize the cooling/heating operation under the serious condition of ambient temperature is -15degree.

Weekly timing function

2. Specification

Item				Model	AB182ACERA	
Function					cooling	heating
Capacity				kW	5.0 (1.8--5.8)	5.2 (2.0---6.2)
Sensible heat ratio					0.71	/
Total power input				W	1660 (550---2400)	1730 (600---2300)
Max. power input				W	2650	2650
EER or COP				W/W	3.01	3.01
Dehumidifying capacity				10 - ³ ×m³/h	2.1	
Power cable					4.0×3	
Power source				N, V, Hz	1, 220--230, 50	
Running /Max.Running				A / A	7.8(3.0---10.5) /12.0	8.0 (3.2---10) /12.0
Start Current				A	3A	3A
Circuit breaker				A	25A	25A
Indoor unit	Unit model (color)				AB182ACERA(WHITE)	
	Fan	Type × Number			centrifugal*1	
		Speed(H-M-L)		r/min	760/650/520	
		Fan motor output power		kW	0.05	
		Air-flow(H-M-L)		m³/h	700/-----	
	Heat exchanger	Type / Diameter		mm	inner grooved pipe/φ7	
		Total Area		m²	1.23	
		Temp. scope		℃	2-7	
	Dimension	External	(L×W×H)	mm×mm×mm	570×570×260	
		Package	(L×W×H)	mm×mm×mm	718×680×380	
	Drainage pipe (material , I.D./O.D.)			mm	PVC 26/32	
	Control type (Remote /wired)				Remote	
	Fresh air hole dimension			mm	95	
	Outlet distribution hole dimension			mm	/	
	Electricity Heater			kW	0	
	Noise level (H-M-L)			dB(A)	44/----	
	Weight (Net / Shipping)			kg / kg	25/27	
Panel	Dimension	External	(L×W×H)	mm×mm×mm	700×700×60	
		Package	(L×W×H)	mm×mm×mm	740×750×115	
	Weight (Net / Shipping)			kg / kg	3.5/4.5	
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	30			
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.						

Item			Model	AC182ACERA	
Function				cooling	heating
Capacity			kW	5.1(1.8--5.8)	6.0(2.0---7.1)
Sensible heat ratio				0.71	
Total power input			W	1690(550---2650)	1650(600---2650)
Max. power input			W	2650	2650
EER or COP			W/W	3.01	3.63
Dehumidifying capacity			10 - ³ ×m ³ /h	1.8	
Power cable				4.0×3	
Power source			N, V, Hz	1, 220--230, 50	
Running			A / A	8.0(3.0--12.0) A	7.8(3.2--12.0) A
Start Current			A	3	3
Circuit breaker			A	25	25
Indoor unit	Unit model (color)			AC182ACERA(WHITE)	
	Fan	Type × Number		CENTRIFUGALX2	
		Speed(H-M-L)	r/min	1150/1050/850	
		Fan motor output power	kW	0.05	
		Air-flow(H-M-L)	m ³ /h	750/650/550	
	Heat exchanger	Type / Diameter	mm	inner grooved pipe/φ7	
		Total Area	m ²	0.45	
		Temp. scope	℃	2-7	
	Dimension	External (L×W×H)	mm×mm×mm	1090×655×199	
		Package (L×W×H)	mm×mm×mm	1150×750×300	
	Drainage pipe (material , I.D./O.D.)		mm	PVC 18/20	
	Control type (Remote /wired)			Remote	
	Fresh air hole dimension		mm	/	
	Electricity Heater		kW	/	
	Noise level (H-M-L)		dB(A)	50/45/40	
	Weight (Net / Shipping)		kg / kg	30/39	
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	30	

Norminal condition: indoor temperature (cooling): 27℃DB/19℃WB, indoor temperature (heating): 20℃DB

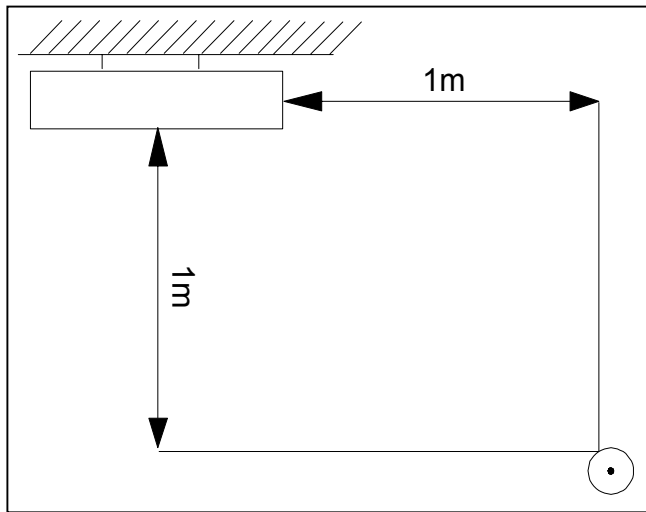
Outdoor temperature(cooling): 35℃DB/24℃WB, outdoor temperature(heating): 7℃DB/6℃WB

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.

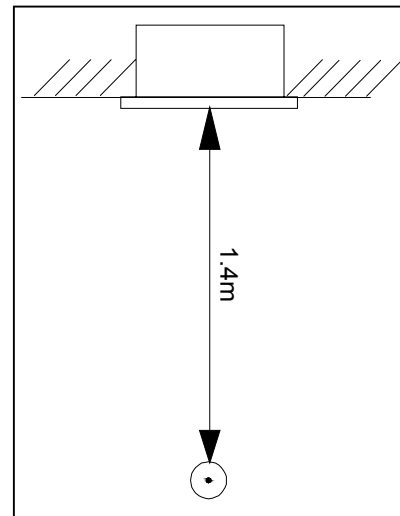
Installation state: the unit should be placed on the flat floor or be mounted in horizontal direction.

Testing method:

mounting-on-ceiling unit:



built-in-ceiling unit:



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.

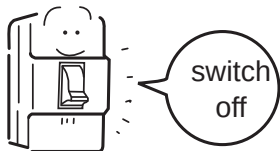
The Safety Cautions should be at hand so that they can be checked at any time when needed.

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.



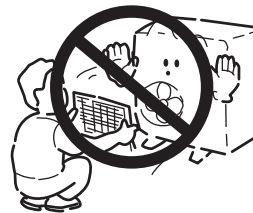
- After the unit being used for a long time, the base should be checked for any damages.

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



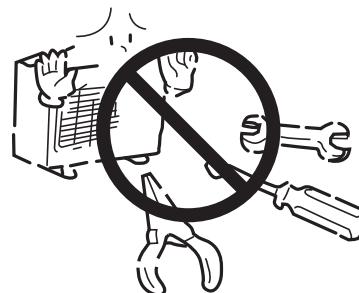
- Don't dismantle the outlet of the outdoor unit.

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.

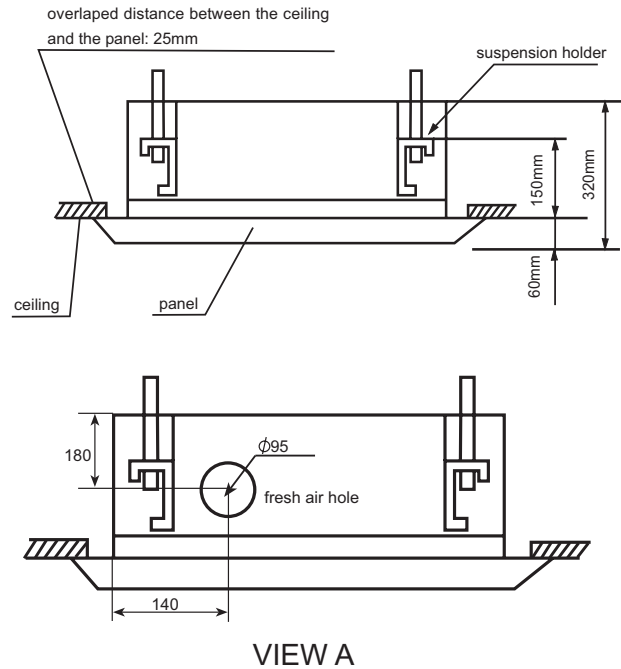
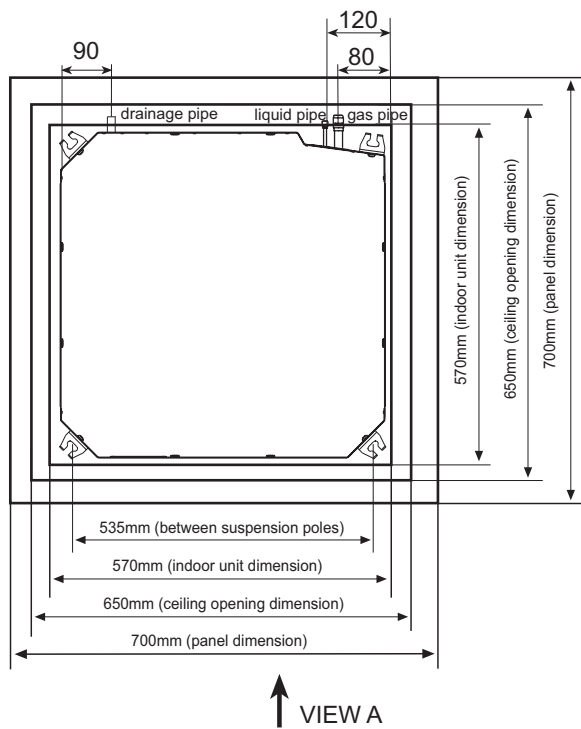


- **Use discharge pipe correctly to ensure efficient discharge.**

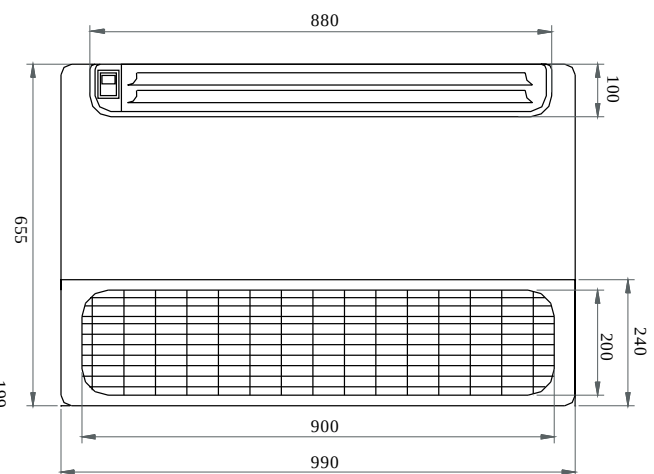
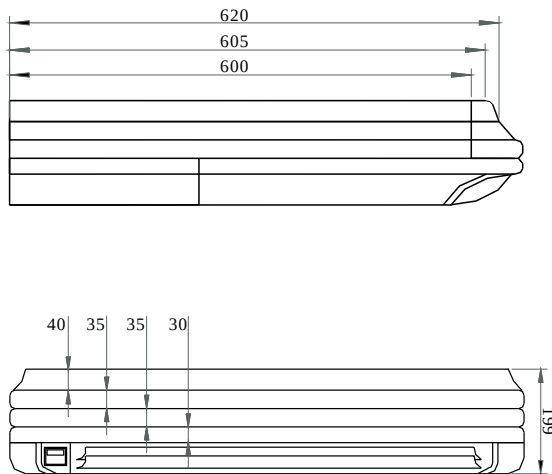
Incorrect pipe use may cause water leaking.

4. Net dimension

AB182ACERA:



AC182ACERA:



5. Installation Instructions

Cassette unit:

Cautions

- Do not obstruct or cover the ventilation grille of the air conditioner. Do not put fingers or any other things into the inlet/outlet and swing louver.
- Do not allow children to play with the air conditioner. In no case should children be allowed to sit on the outdoor unit.

Specifications

The refrigerating circuit is leak-proof.

The machine is adaptive in following situation

1. Applicable ambient temperature range:

AB092/122ACBIA, AB142/182ACBJA:

			Rated	Maximum	Minimum
Cooling	indoor	DB °C	27	32	18
		WB °C	19	23	14
	outdoor	DB °C	35	43	-5
		WB °C	24	26	--
Heating	indoor	DB °C	20	27	15
		WB °C	14.5	--	--
	outdoor	DB °C	7	24	-7
		WB °C	6	18	--

AB142/182ACBFA:

			Rated	Maximum	Minimum
Cooling	indoor	DB °C	27	32	18
		WB °C	19	23	14
	outdoor	DB °C	35	43	10
		WB °C	24	26	--
Heating	indoor	DB °C	20	27	15
		WB °C	14.5	--	--
	outdoor	DB °C	7	24	-7
		WB °C	6	18	--

2. If the supply cord is damaged, it must be replaced by the manufacturer or its service agent or a similar qualified person.

3. If the fuse on PC board is broken please change it with the type of T3.15A/250VAC.

4. Use copper wire only. The connecting cable should be H05RN-F 4G 0.75mm². The power cable should be H05RN-F 3G 2.5mm².

All the cables shall have got the European authentication certificate.

5. The power cord should be self-provided and it should have got the Local authentication certificate.

6. The air breaker should be all-pole switch. And the distance between it's two connectors should be no less than 3mm.

7. 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.

8. In socket, exactly distinguish earth wire with neutral wire and it is wrong to connect them together.

9. A leakage breaker must be installed.

10. 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 agency to avoid dangers.

Other Instructions

1. The waste battery shall be disposed properly. When throwing away the waste batteries, please perform in accordance with the local regulation.

2. The indoor unit installation height is at least 2.5m.

Installation Tools

Installation tools

The installation tools listed in the following sheet can be used as required.

1. Screw driver
2. Hacksaw
3. Drill with a diameter of 60mm
4. Inner hexagon spanner, shifting spanner
5. Spanner (14, 17, 19, 24, 27mm)
6. Pipe cutter
7. Pipe expander
8. Knife
9. Pliers
10. Leakage detector or soapy water
11. Band tape
12. Scraper
13. Refrigerant oil

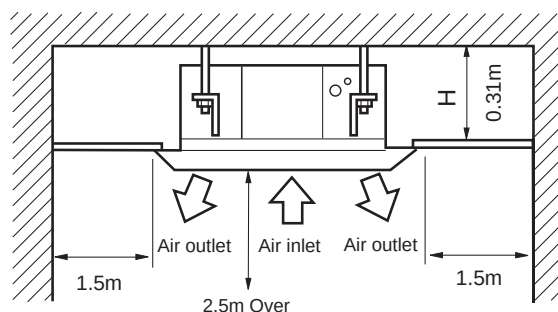
The following parts mentioned in this manual are the installation accessories we prepared.

Symbol	Parts Name
A	Adhesive tape
B	Pipe clamp
C	Connecting hose
D	Drainage hose
E	Non-hydroscopic heat insulating material
F	Gypsum powder

Installation Procedures

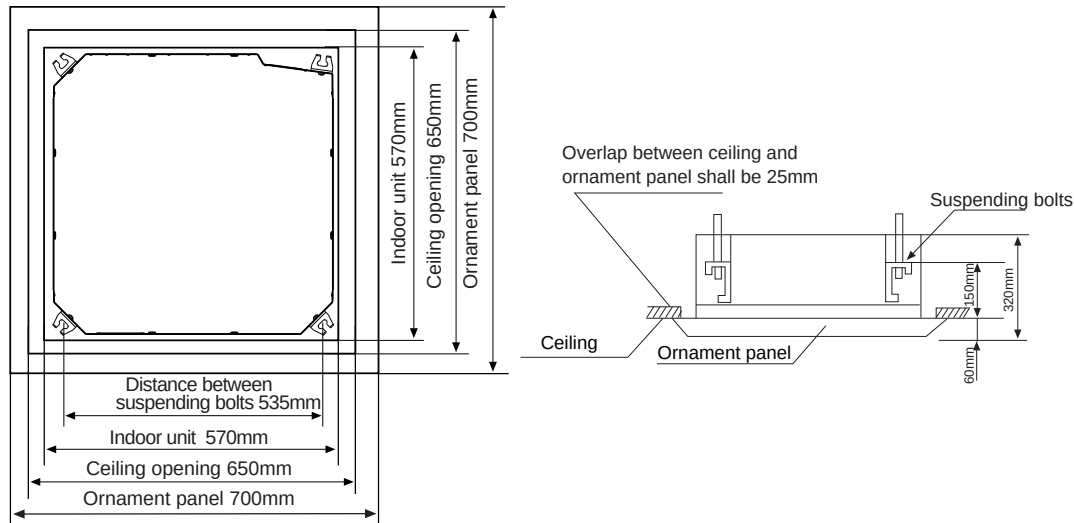
1. Selection of Installation Place

- (1) Place above the ceiling where it is enough space to arrange the unit.
- (2) Place where the drainage pipe can be arranged well.
- (3) Place where inlet and outlet air of indoor and outdoor unit will not be blocked.
- (4) Do not expose the unit to the place with heavy oil or moisture (e.g. kitchen and workshop).
- (5) Do not set the unit in the place where destructive gas (such as sulfuric acid gas) or pungent gas (thinner and gasoline) concentrates and retains.
- (6) Place strong enough to support the unit.
- (7) No expensive articles such as television and piano below indoor unit.
- (8) Enough space for maintenance.
- (9) Place more than 1m away from television and radio to avoid disturbing television and radio.
- (10) Easy for maintenance.



2. Installation Preparation

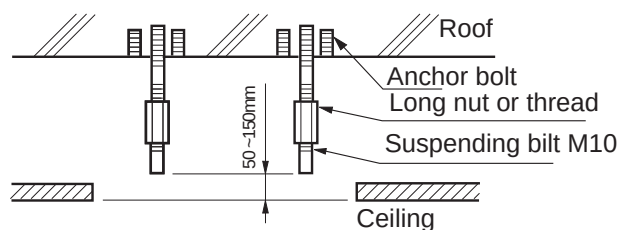
(1) Position of ceiling opening between unit and suspending bolt (front view of unit).



(2) Prepare all piping (refrigerant, water drainage) and wires (connection wire of remote controller, indoor unit connection wires) to the indoor unit before installation in order to connect indoor unit immediately after installation.

(3) Install a suspending bolt

To support the unit weight, anchor bolt should be used in the case of the existing ceiling. For new ceiling, use flush-in type bolt, built-in type bolt or parts pretared in the field. Before going on installing, adjust the distance to ceiling.



<Installation Example>

Note: All the above mentioned parts shall be prepared in feild, the diameter of suspending bolt is M10

3. Installation of indoor unit

In case of no ceiling

Install unit temporarily

Put suspending bracket on the suspending bolt to hang the unit up. Be sure to use nut and washer at both end of the breaket to secure firmly.

After installation on the ceiling

(1) Adjust unit to its right position (Refer to preparation for installation-(1))

(2) Check that unit is horizontal.

Water pump and floating switch is installed inside indoor unit, check four corners of the unit for its lever using horizontal comparator or PVC tube with water. (If unit is tilting against the direction of water drainage, problem may occur on floating water leakage.)

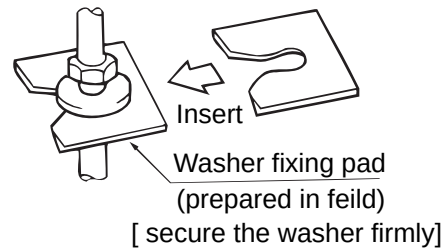
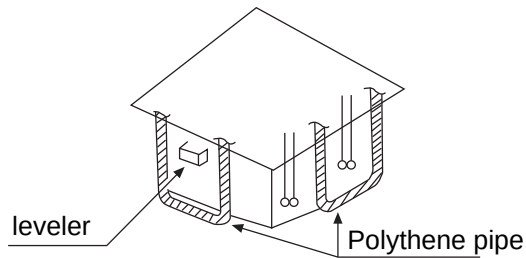
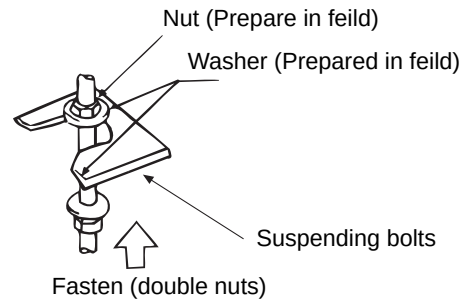
In the case of existing ceiling

(1) Install unit temporarily

Put suspending bracket on the suspending bolt to hang the unit up. Be sure to use nut and washer at both end of the bracket to secure it firmly.

(2) Adjust the height and position of the unit.

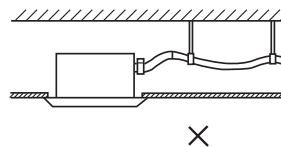
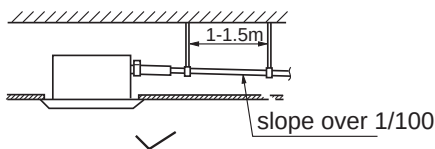
(3) Proceed with procedure (4) of " In the case of no ceiling "



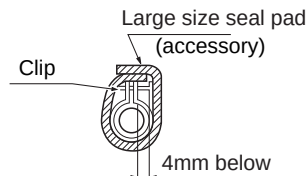
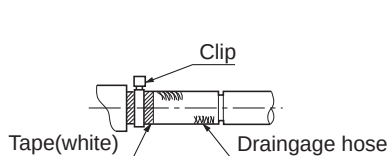
4. Installation of water drainage pipe

(1) Install water drainage pipe

- Pipe diameter shall be equal or larger than that of connecting pipe (Pipe of polythene; size: 25mm; O.D.: 32mm)
- Drainpipe should be short, with a downward slope at least 1/100 to prevent air bag from forming.
- If downward slope of drainpipe cannot be made, lifting pipe shall be installed.
- Keep a distance of 1-1.5m between suspending bolts, to make water hose straight.

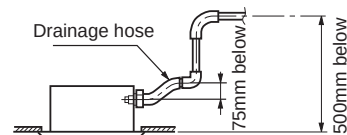
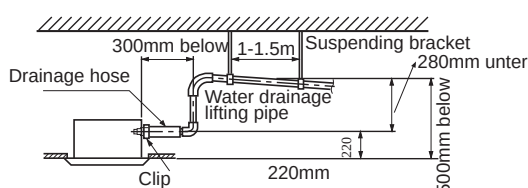


- Use the drainage hose and clip provided with unit.
Insert water pipe into water plug until it reaches the white tape.
Tighten the clip until head of the screw is less than 4mm from hose.
- Wind the drainage hose to the clip using seal pad for heat insulation.
- Insulate drainage hose in the room.



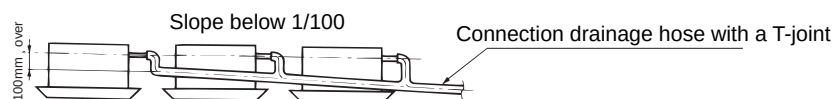
5. Cautions for the water drainage lifting pipe

- Installation height of water drainage lifting pipe shall be less than 280mm
- There should be a right angle with unit ,300mm from unit.



< Note >

- The slope of water drainage hose shall be within 75mm , make the drainage plug not to bear excessive force.
- If several water hoses join together, of as per following procedures.

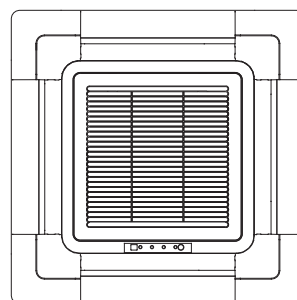
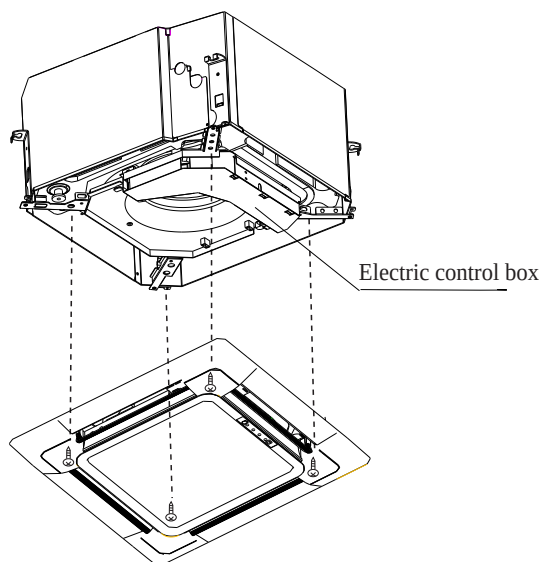


Specifications of the selected drainage hoses shall meet the requirements for the unit running

6. Installation of Ornament Panel

Install ornament panel on indoor unit

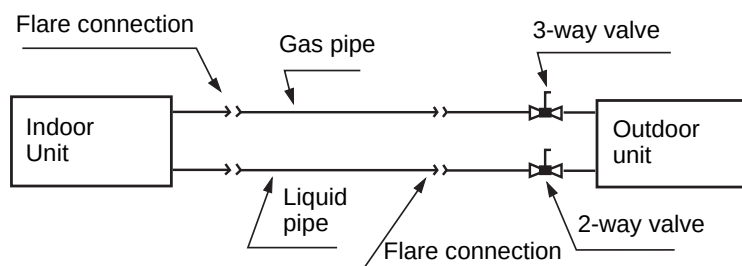
- (1) Check whether indoor unit is horizontal with leveler or polythene pipe filled with water , and check that the dimension of the ceiling opening is correct. Take off the lever gauge before installing the ornament panel.
- (2) Fasten the screws to make the height difference between the two sides of indoor unit less than 5mm.
- (3) Firstly fix it with screws temporarily.
- (4) Fasten the two temporarily fixing screws and other two, and tighten the four screws.
- (5) Connect the wires of synchro-motor.
- (6) Connect the wire of signal.
- (7) If no response of remote controller,check whether the wiring is correct,restart remote controller 10 seconds after shut off power supply.



Panel limitation board installation

- (1)Install the panel board in the direction shown in the figure.
- (2)The incorrect direction will result in water leakage,meanwhile swing and signal receiving are displayed that cannot be connected.

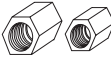
Piping Connection



7.3 Convertible indoor unit

Standard accessories:

The following installation parts are furnished.
Use them as required.

No.	Accessory parts	Qty.
①	 Remote controller	1
②	 Battery	2
③	 Wire clamp	4
④	 Heat insulation sheathing	1+1
⑤	 Screw	2+2
⑥	 Screw cap	1+1
⑦	 Remote controller bracket	1

Pipe connection requirement

Please refer to the specification to confirm the stop valve diameter and the permitted pipe drop and pipe length.

INSTALLATION PROCEDURE

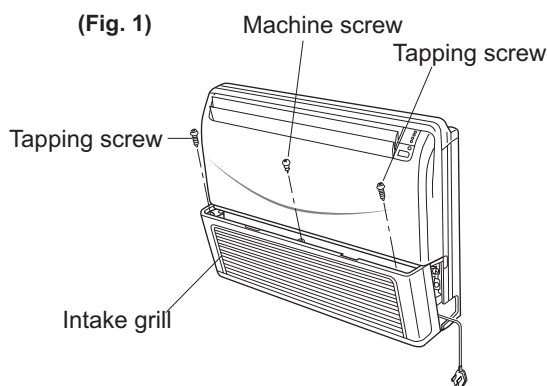
Install the room air conditioner as follows:

PREPARING INDOOR UNIT INSTALLATION

1. REMOVE THE INTAKE GRILL

Open the intake grill and remove the three or four or six screws.(Fig. 1)

Remark: The main unit can be wired before the indoor unit is installed. Select the most appropriate installation order.



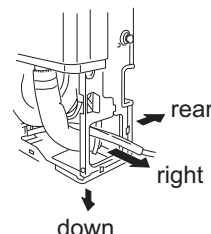
A. FLOOR CONSOLE TYPE

1. DRILLING FOR PIPING

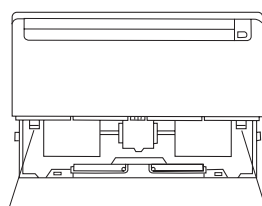
Select piping and drain directions.(Fig.2) (Series14,18,24)

The piping and drain can be made in three directions as shown below.

(Fig. 2)



(Fig.3)

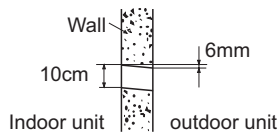


Drain hose (Left side)

Drain hose (Right side)

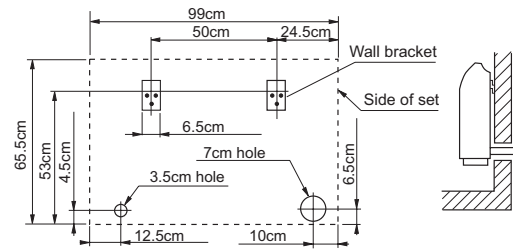
When the directions are selected, drill a 7 cm dia. hole on the wall so that the hole is tilted downward toward the outdoor for smooth water flow. When the pipe is led out from the rear, make a hole in Fig.6, at the position shown.

(Fig. 4)



For series 14,18,24 when installing set to wall, install the accessory wall bracket at the position shown in Fig.5,and mount the set to it.

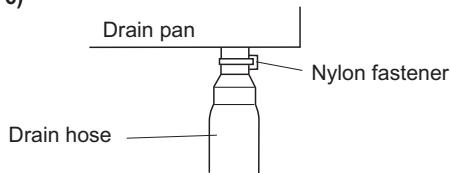
(Fig. 5)



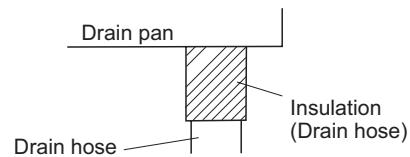
2. INSTALLING DRAIN HOSE

Select whether the drain hose will be connected to the left or right side.(Fig.3) Insert the drain hose into the drain pan, then secure the drain hose with a nylon fastener. (Fig.6)

(Fig. 6)



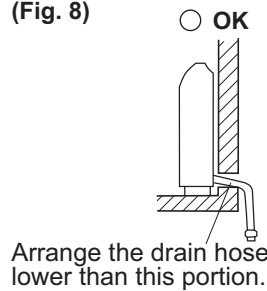
(Fig. 7)



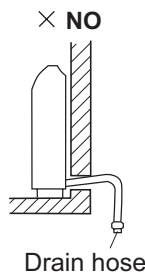
Wrap the insulation (drain hose) around the drain hose connection.(Fig.7)

Be sure to arrange the drain hose correctly so that it is leveled lower than the drain hose connecting port of the indoor unit.

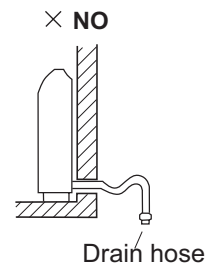
(Fig. 8)



☒ NO



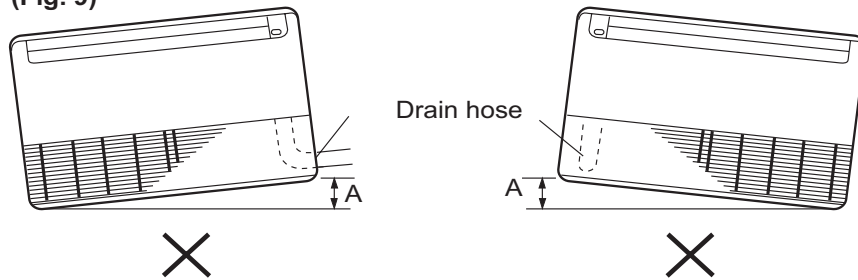
☒ NO



CAUTION

Do not install the unit drain hose side is too high. Height A should be less than 5 mm.(Fig.9)

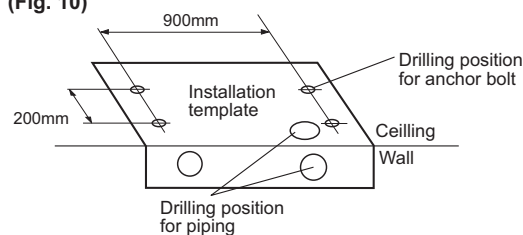
(Fig. 9)



B. UNDER CEILING TYPE

Using the installation template, drill holes for piping and anchor bolts(for holes).(Fig.10)

(Fig. 10)

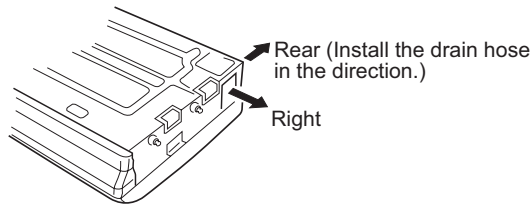


For series 14,18,24

1. DRILLING FOR PIPING

Select piping and drain directions. (Fig.11)

(Fig. 11)



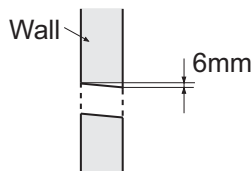
CAUTION

Install the drain hose at the rear; it should not be installed on the top or right side.

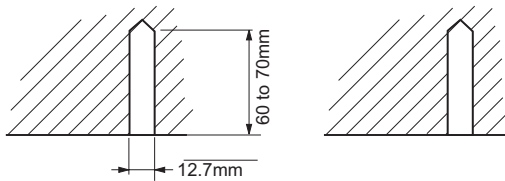
2. DRILLING HOLES FOR ANCHOR BOLTS AND INSTALLING THE ANCHOR BOLTS

When the directions are selected, drill 80mm and 50mm or 150mm dia. hole on the wall so that the hole is tilted downward toward the outdoor for smooth water flow.

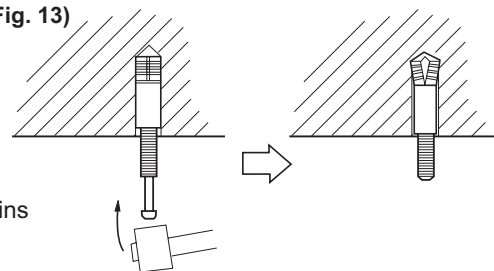
(Fig. 12)



With a concrete drill, drill four 12.7 mm dia. Holes.(Fig.12)



(Fig. 13)

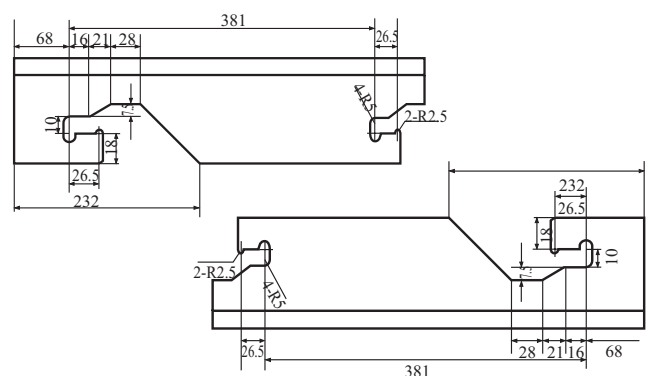
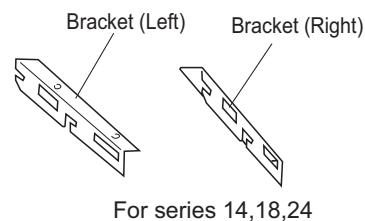
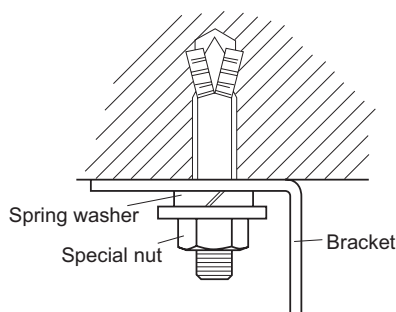


Insert the anchor bolts into the drilled holes, and drive the pins completely into the anchor bolts with a hammer. (Fig. 13)

3. INSTALLING BRACKETS

Install the brackets with nuts, washers and spring washers.(Fig. 14)

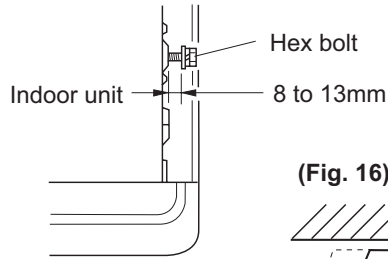
(Fig. 14)



4. INSTALLING INDOOR UNIT

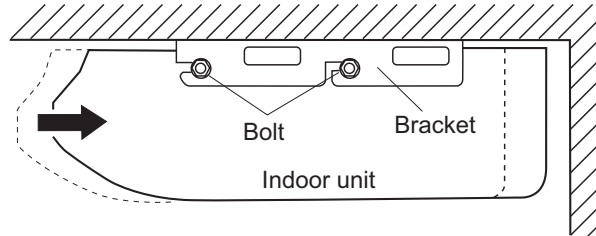
Reset the hex bolts as shown in Fig.15.

(Fig. 15)



Apply the indoor unit to the brackets.(Fig.16)

(Fig. 16)



Now, securely tighten the hex bolts in both sides.

5. INSTALL THE DRAIN HOSE

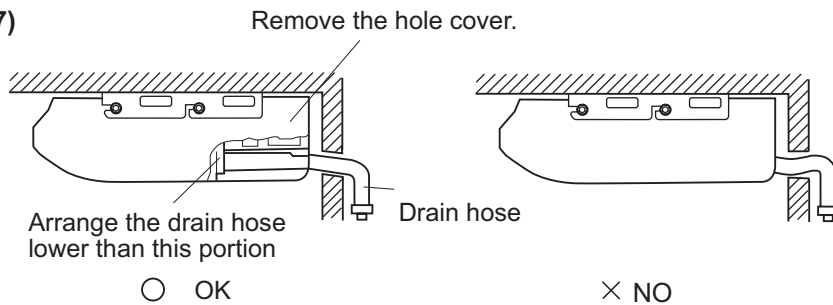
Select whether the drain hose will be connected to the left or right side.(Fig.3)

Insert the drain hose into the drain pan, then secure the drain hose with a nylon fastener.(Fig.6)

Wrap the insulation (drain hose)around the drain hose connection.(Fig.7)

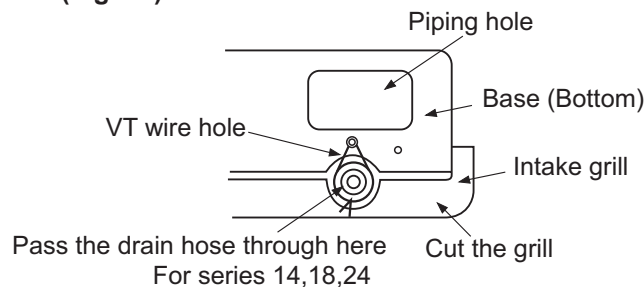
Be sure to arrange the drain hose correctly so that it is leveled lower than the drain hose connecting port of the indoor unit.(Fig.8)

(Fig. 17)



When drain hose is arranged backward. Secure the drain hose with the VT wire. (Fig. 18)

(Fig. 18)



GAS LEAKAGE INSPECTION

⚠ CAUTION

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

HOW TO CONNECT WIRING TO THE TERMINALS

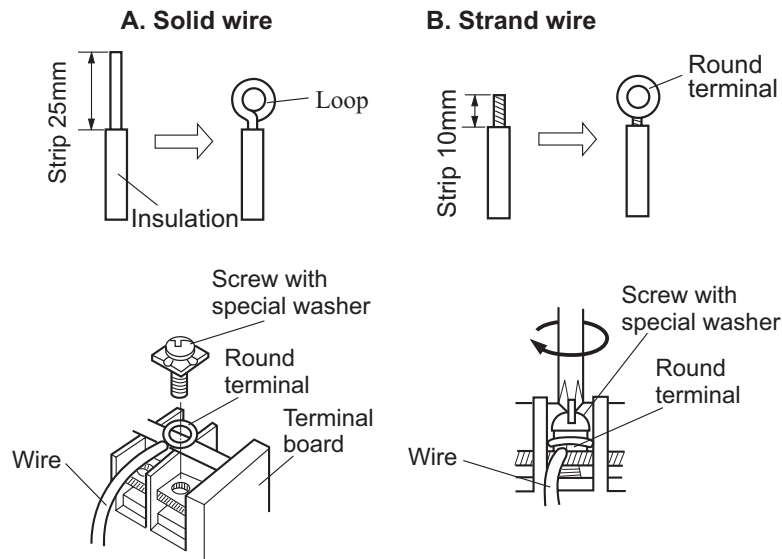
A. For solid core wiring (or F-cable)(Fig.19A)

- (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.19B)

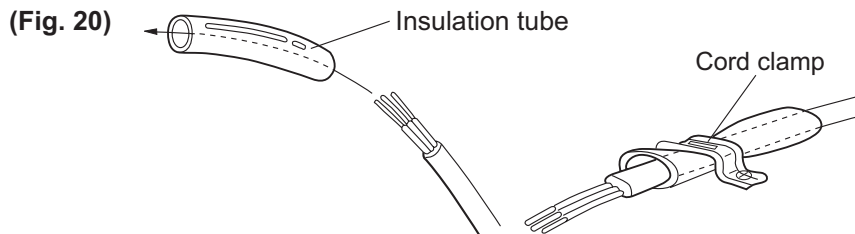
- (1) Cut the wire with a wire cutter or wire-cutting pliers, then strip the insulation to about 10mm of the exposed strand wiring.
- (2) Using a screwdriver, remove the terminal screw(s) on the terminal board.
- (3) Using a round terminal fastener or pliers, securely clamp a round terminal to each stripped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

(Fig. 19)



HOW TO FIXED CONNECTION CORD AND POWER CABLE AT THE CORD CLAMP

After passing the connection cord and power cable through the insulation tube, fasten it with the cord clamp, as shown in Fig.20



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

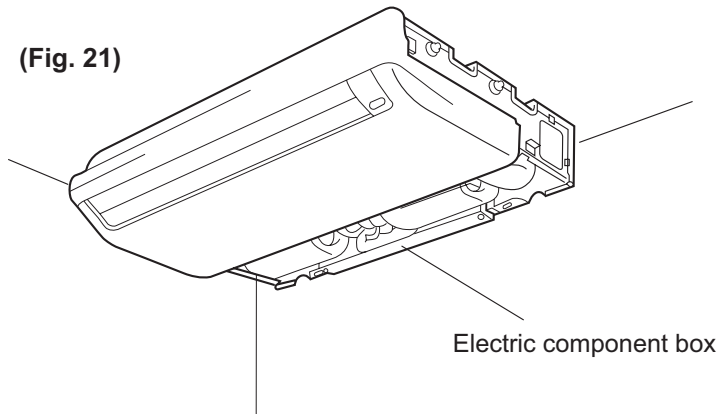
ELECTRICAL WIRING

 CAUTION
(1) Match the terminal block numbers and connection cord colors with those of the outdoor unit. Erroneous wiring may cause burning of the electric parts.
(2) Connect the connection cords firmly to the terminal block. Imperfect installation may cause a fire.
(3) Always fasten the outside covering of the connection cord with the cord clamp. (If the insulator is chafed, electric leakage may occur.)
(4) Always connect the ground wire.

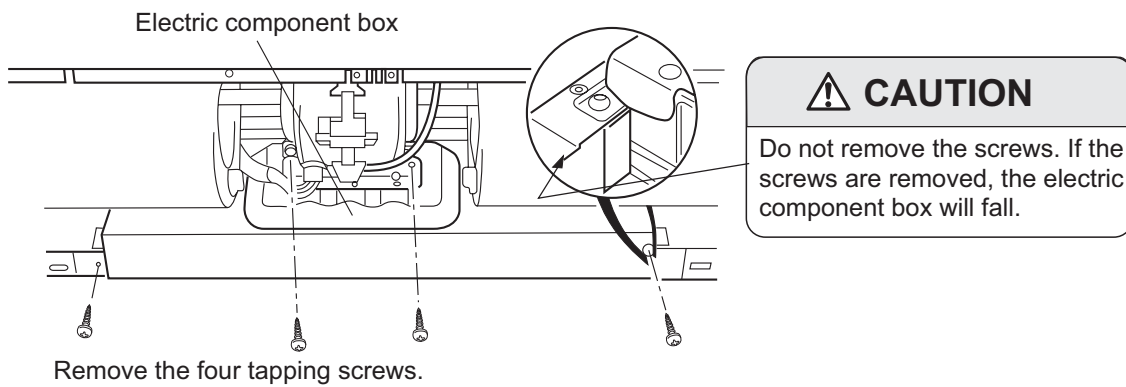
1. INDOOR UNIT SIDE

(1) Remove the electric component box.

(Fig. 21)

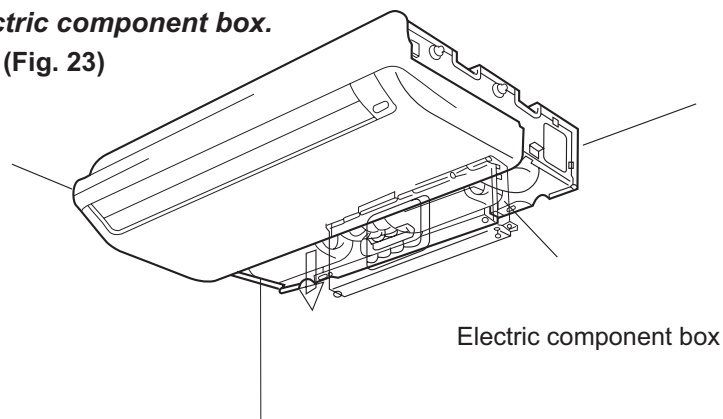


(Fig. 22)



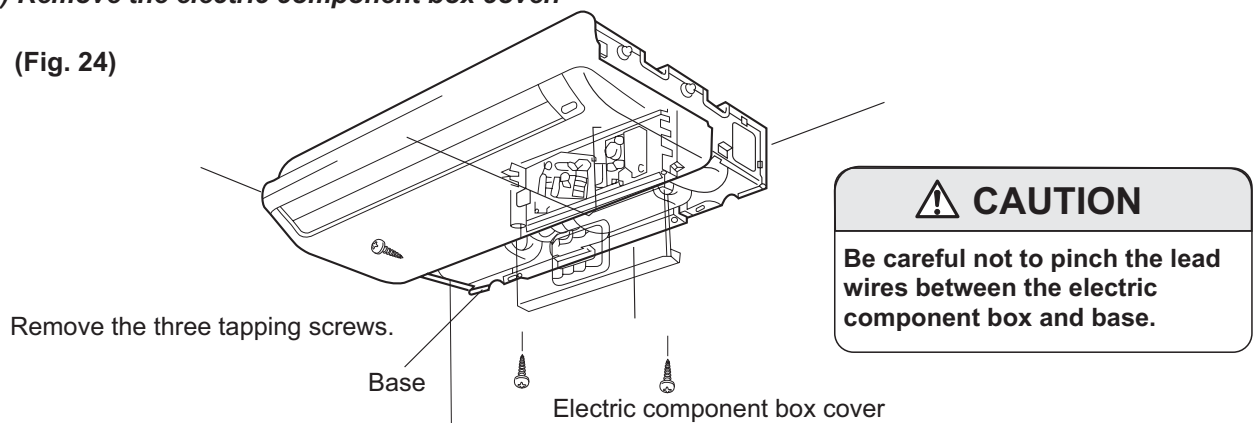
(2) Pull out the electric component box.

(Fig. 23)



(3) Remove the electric component box cover.

(Fig. 24)



(4) Wiring

- (1) Remove the cord clamp.
- (2) Process the end of the connection cords to the dimensions shown in Fig.25.
- (3) Connect the end of the connection cord fully into the terminal block.
- (4) Fasten the connection cord with a cord clamp.
- (5) Fasten the end of the connection cord with the screw.

ELECTRICAL WIRING**⚠ WARNING**

- (1) Always use a special branch circuit and install a special receptacle to supply power to the room air conditioner.
- (2) Use a circuit breaker and receptacle matched to the capacity of the room air conditioner.
- (3) The circuit breaker is installed in the permanent wiring. Always use a circuit that can trip all the poles of the wiring and has an isolation distance of at least 3mm between each pole.
- (4) Perform wiring work in accordance with standards so that the room air conditioner can be operated safely and positively.
- (5) Install a leakage circuit breaker in accordance with the related laws and regulations and electric company standards.

⚠ CAUTION

- (1) The power source capacity must be the sum of the room air conditioner current and the current of other electrical appliances. When the current contracted capacity is insufficient, change the contracted capacity.
- (2) When the voltage is low and the air conditioner is difficult to start, contact the power company the voltage raised.

TEST RUNNING**1. CHECK ITEMS****(1) INDOOR UNIT**

- (1) Is operation of each button on the remote control unit normal?
- (2) Does each lamp light normally?
- (3) Do not air flow direction louvers operate normally?
- (4) Is the drain normal?

(2) OUTDOOR UNIT

- (1) Is there any abnormal noise and vibration during operation?
- (2) Will noise, wind, or drain water from the unit disturb the neighbors?
- (3) Is there any gas leakage?

CUSTOMER GUIDANCE

Explain the following to the customer in accordance with the operating manual:

- (1) Starting and stopping method, operation switching, temperature adjustment, timer, air flow switching, and other remotecontrol unit operations.
- (2) Air filter removal and cleaning, and how to use air louvers.
- (3) Give the operating and installation manuals to the customer.

MOUNT THE COVER PLATE AND THE INTAKE GRILL

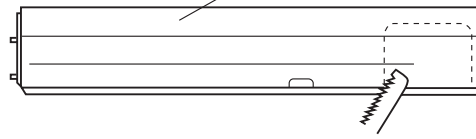
Note: The following installing procedure only for series 14,18,24

1. Mount the cover plate. (Right)

- (1) Cut a pipe exit hole in the right plate. This is only when the pipe exits from the right side. (This operation is not required when the protrusion is on the top or rear.)

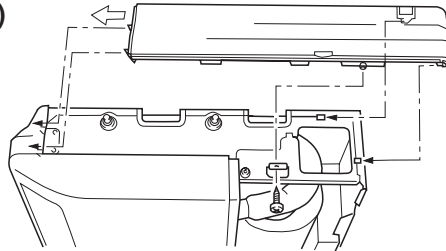
(Fig. 26)

Cover plate (Right)



(2) Join the cover plates (right) and mount with screws.

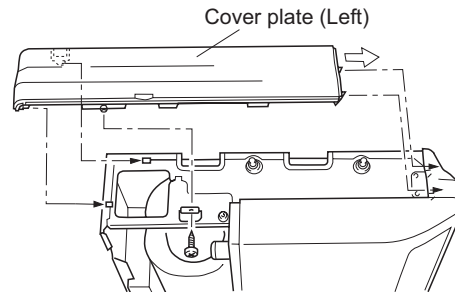
(Fig. 27)



2. Mount the cover plate.(Left)

(1) Join the cover plate (left) and mount with screws.

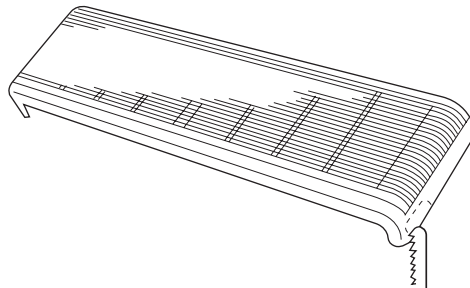
(Fig. 28)



3. Mount the intake grill.

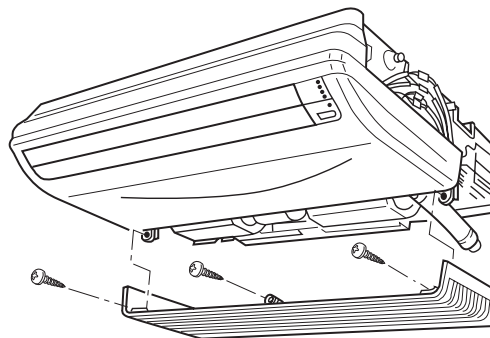
(1) Cut the right side of the intake grill. This is only when the pipe exits from the right side

(Fig. 29)



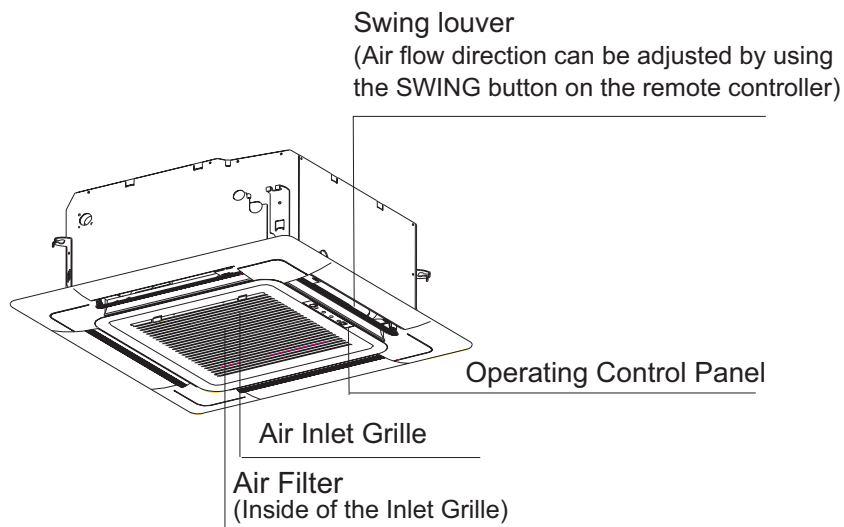
(2) Insert the hinges on the bottom of the intake grill into the holes in the base assembly. Then mount the arms to the three areas on the top of the intake grill.

(Fig.30)

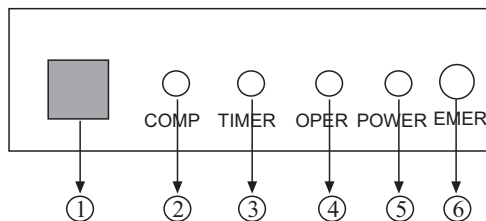


6. Parts and Functions

Cassette unit:

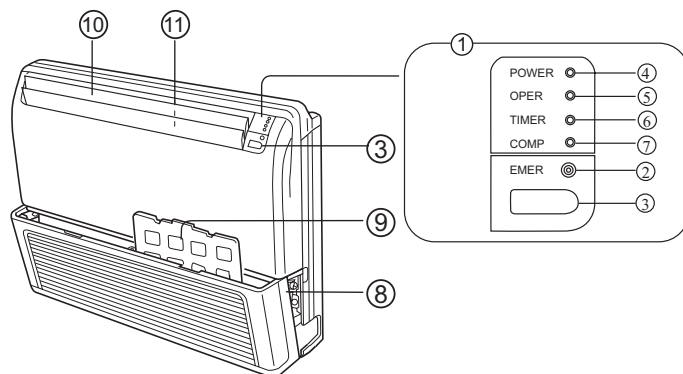


Operating Control Panel



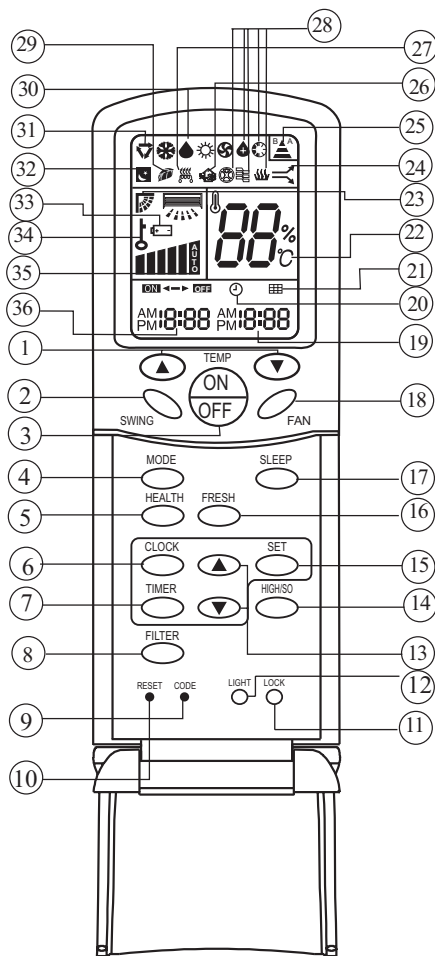
- ① Remote receiver
- ② Compressor Lamp
- ③ TIMER Lamp
- ④ OPERATION Lamp
- ⑤ Power Lamp
- ⑥ Emergency switch

Convertible unit:



- 1 Operating Control Panel
- 2 Emergency switch
- 3 Remote Control Signal Receiver
- 4 Power Indicator Lamp
- 5 OPERATION Indicator Lamp
- 6 TIMER Indicator Lamp
- 7 Compressor Run Lamp
- 8 Intake Grill
- 9 Air Filter
- 10 Up/Down Air Direction Flaps
- 11 Right/Left Air Direction Louvers
(behind Up/Down Air Direction Flaps)

7. Infrared controller functions-YR-H71



1.TEMP Setting Button

(Used to set temperature. Setting ranges: 16°C to 30°C)

In Up/Down function, for controlling up and down filter.

2.SWING Button

If you press this button once, auto swing will be activated.

If you press this button again, the louver will fix in the present position.

3.Power ON/OFF Button

Used for unit start and stop

After power on, the LCD of remote controller will display the previous operation state (except for TIMER, SLEEP and SWING state).

4.Operation MODE

Used to select operation mode.

Every time you press MODE button, operation mode changes according to following sequence:



5.HEALTH Button

Used to set health mode, if the unit has the negative ion function and oxygen bar function.

6.CLOCK Button

Used to set correct time.

7.CLOCK Button

Used to select TIMER ON, TIMER OFF.

(Note: if time of TIMER ON is the same as TIMER OFF, TIMER ON/OFF cannot be set)

8. FILTER Button

Used to set up/down function of filter.

9. CODE Button

Used to select code A or B, for the units except that we recommend especially, the code is A.

10.RESET Button

Press this button by using a sharp article to resume the correct operation of the remote controller in case of need, i.e. for example in case of malfunctions due to electromagnetic noise.

11.LOCK Button

Used to lock operation button and LCD display contents: by pressing this button, other buttons comes out of function and lock state display appears; if you press it again, lock state will be no more active and lock state display will disappear.

12.LIGHT Button

Used to light the control panel (only for cabinet unit)

13.Up and down Button

Used to set TIMER and CLOCK up or down.

14.HIGH/SO Button

Used to select HIGH or SOFT operation.

15.SET Button

Used to confirm TIMER and CLOCK settings.

16.FRESH Button

Used to set fresh mode, the unit will draw in fresh air.

17.SLEEP Button

(The clock must be corrected before setting sleep function) Used to set sleep mode.

NOTE: 1.Cooling only air conditioner does not have the displays and functions related to heating.

2.HIGH/SO button

This button is activated in Cooling/Heating mode, the fan speed is in AUTO mode after pressing it and "high function" will be cancelled automatically after 15 minutes running.

18.FAN Button

Used to select fan speed:LOW,MID,HIGH,AUTO.

19.TIMER OFF Display

20.CLOCK Display

21.FILTER Display

22.TEMPERATURE Display

23.AUTO SWING Display

24.HIGH/SO Display

25.SIGNAL SENDING Display

26.FRESH AIR Display

27.ELECTRICAL HEATING Display

28.Some other buttons

All these functions are not available now.

29.HEALTH Display

Displays when healthy run function is set.

30.DEHUMIDIFICATION Display

31.Operation MODE Display

AUTO RUN	COOL RUN	DRY RUN	HEAT RUN	FAN RUN

32.SLEEP State Display

33.BATTERY Energy Display

Notify the user when it is time to change the batteries.

34.LOCK State Display

35.FAN SPEED Display

LO	
MID	
HI	
AUTO	

36.TIMER ON Display

Remote Controller' Operation

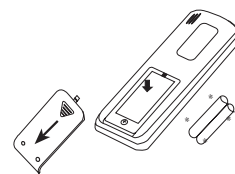
- When in use, direct signal transmission head to the receiver placed on the indoor unit

- The distance between the remote controller and the receiver should be max 7m and there should be no obstacle between them.
- Do not throw the remote controller; prevent it from being damaged.
- When operating the remote controller in an area where electronically controlled lights are installed or wireless handsets are used, please move closer to the indoor unit as the function of the remote controller might be affected by signals emitted by the above mentioned equipments.

Battery loading

Battery loading

Batteries are fitted as follows:



Remove the battery compartment lid

Slightly press and disengage the battery compartment

lid marked with "▽" and then hold the remote

controller by the upper section and then remove

the battery compartment lid by pressing in the direction

of the arrow as shown in the figure above.

Loading the battery

Ensure that batteries are correctly placed in the compartment as required for positive and negative terminals.

Replacing the battery compartment lid

The battery compartment lid is reinstalled in the reverse sequence.

Display review

Press the button to see if batteries are properly fitted.

If no display appears, refit the batteries.

Confirmation indicator

If no indication is displayed after press ON/OFF button, reload the batteries.

Caution:

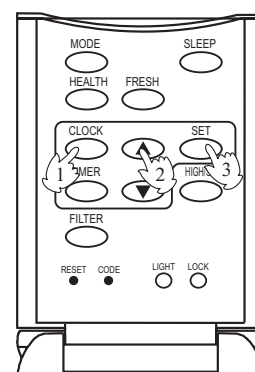
If the remote controller does not operate as designed after fitting new batteries of the same type, press the Reset button (marked ↓) with a pointed article.

Clock Set

When unit is started for the first time and after replacing batteries in remote controller, clock should be adjusted as follows:

- 1.Press CLOCK button, clock indication of " AM " or " PM " flashes.
- 2.Press ▲ or ▼ to set correct time. Each press will increase or decrease 1 min. If the button is kept pressed, time will increase or decrease quickly.
- 3.After time setting is confirmed, press "SET" : AM or PM stop flashing, while clock starts working.

Note:AM means morning and PM means afternoon.

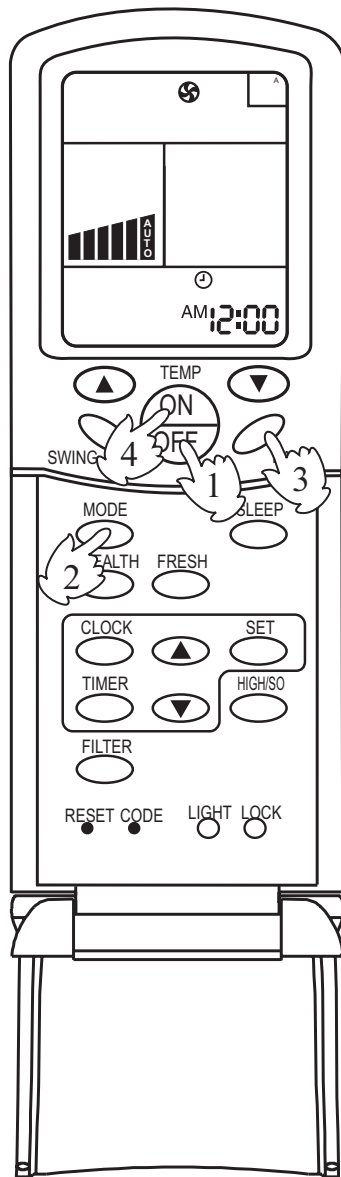


Note:

It is recommended that the batteries be removed from the compartment if the remote controller is not used for an extended period.

The remote controller is programmed for automatic test of operation mode after the batteries are replaced. When the test is conducted, all icons will appear on the screen and then disappear if the batteries are properly fitted.

Fan Operation



1. Unit start

Press ON/OFF button to start your air conditioner.

Previous operation status appears on LCD (except for TIMER, SLEEP, and SWING setting).

2. Select operating mode

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



Then select FAN

3. Adjust fan speed

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



Air conditioner will run at the selected fan speed.

When in AUTO mode, unit will adjust fan speed according to room temperature automatically.

4. Unit stop

Press ON/OFF button to stop unit.

About FAN mode

When the air conditioner runs in FAN mode, it is not possible to select AUTO FAN or to set temperature.

AUTO, COOL, HEAT and DRY Operation

1. Unit start

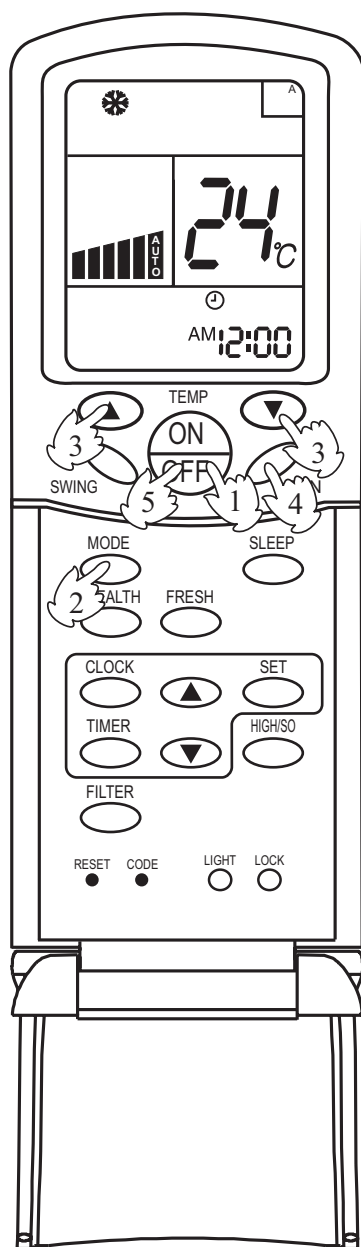
Press ON/OFF button, unit starts.

Previous operation status appears on LCD (except for TIMER, SLEEP and SWING setting)

2. Select operation mode

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





Then select AUTO run or select COOL operation or
select DRY operation or select HEAT operation

3. Temperature setting

Press TEMP button.

- ▲ Every time the button is pressed, temp. setting increases 1°C; if the button is kept pressed, temp. setting will increase quickly.
- ▼ Every time the button is pressed, temp. setting decreases 1°C; if the button is kept pressed, temp. setting will decrease quickly.

Set proper temperature

4. Adjust FAN button

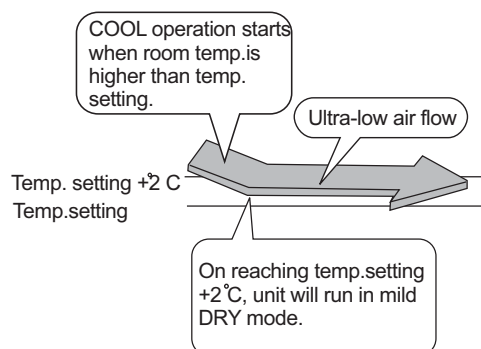
Press FAN button. At each press, fan speed changes as follows:



Air conditioner will run at the selected fan speed.

5. Unit stop

Press ON/OFF button, unit stops.



In ATUO mode, the temperature setting is not displayed on LCD. In this mode, during running air conditioner will select COOL, HEAT or FAN mode automatically according to the room temperature.

In DRY mode, when room temperature becomes 2°C higher than temperature setting, unit will run intermittently at LOW speed regardless of FAN setting. When room temperature is lower than temperature setting, unit will only run FAN operation.

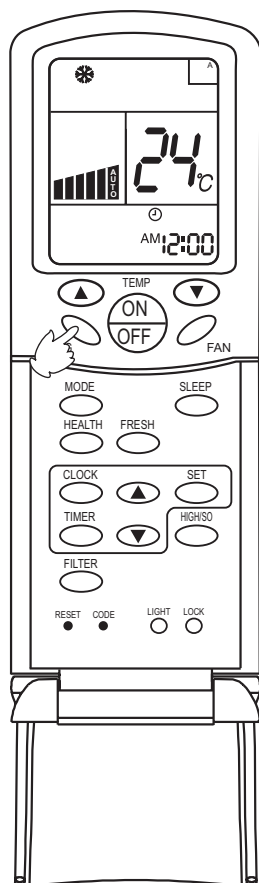
In HEAT mode, warm air will blow out after a short period of time due to cold-draft prevention function.

Adjusting air flow direction

AUTO SWING

Press SWING button. Up and down airflow varies upwards and downwards. Left and right airflow varies left and right sides. When the automatic swing louver moves to the proper angle, press SWING button can fix the airflow direction.

- Always use SWING button on the remote controller to adjust flaps. Adjusting them by hand may result in air conditioner's abnormally running.



- In COOL or DRY mode, do not leave the louver in downward position for a long time, as the water vapor close to the grille may condense and water may drop from the air conditioner.
- Please carefully set temperature when children, old or weak people use the air conditioner.
- In case of great humidity, If the vertical flaps are completely turned towards left or right, the louver will drop water.
- Never adjust the louver directly by hand, as this could make it work abnormally. If the louver work abnormally, stop unit, restart and adjust the louver by remote controller.

After unit stops:

Displays on the LCD disappear.

All indicators on the indoor unit go out.

Swing louver automatically close the air outlet.

Hints:

As in COOL mode air flows downwards, adjusting airflow horizontally will be much more helpful for a better air circulation. As in HEAT mode air flows upwards, adjusting airflow downward will be much more helpful for a better air circulation. Be careful not to catch a cold when cold air blows downward directly.

Sleep Function

Before going to bed you can press down the SLEEP button and the air conditioner will run so as to make you sleep more comfortably. Before using this function, the clock must be set.

Use of SLEEP function

After the unit's start, set running mode and then press SLEEP button once to make the air conditioner have the previous-set sleep time (first power-on is "1h"). The sleep symbol will appear.

▲/▼: Press time button, you can choose the time in 1~8 hours. Each time the button is pressed, the time increases/decreases 1 hour: "xh" and "OFF" indications appear on the display.

Operation Mode

1. In COOL, DRY mode

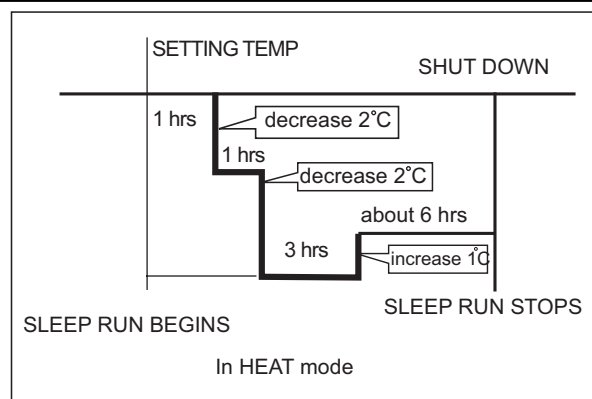
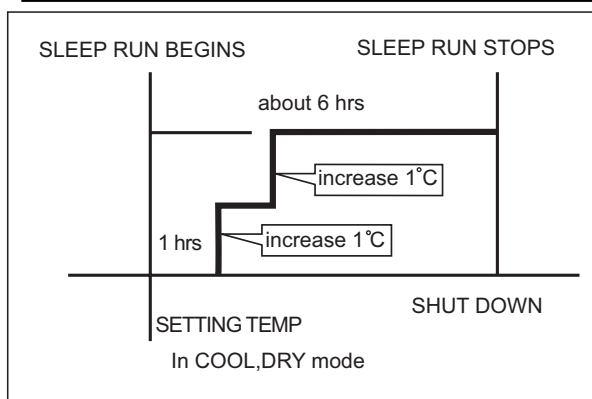
One hour after sleeping operation start, the temperature is 1°C higher than the setting one. After another hour, temperature rises 1°C: sleep run continuously for another 6 hours and then stops. The actual temperature is higher than the setting one which is to prevent from being too cold to your sleep.

2. In HEAT mode

One hour after sleeping operation start, the temperature is 2°C lower than the setting one. After another hour, temperature decreases by 2°C more. Temperature will automatically rise by 1°C after another 3 hours' continuous operation. The actual temperature is lower than the setting one which is to prevent from being too hot to your sleep.

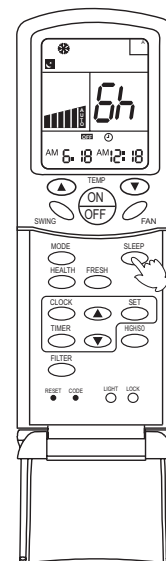
3. In AUTO mode.

The air conditioner will run in corresponding sleep operation according to the automatically selected operation mode.



Notes:

- After setting SLEEP function, it is not possible to set clock.
- If set-sleep time does not reach 8 hours, unit will automatically stop operation after set time is reached.
- Set "TIMER ON" or "TIMER OFF" in COOL, DRY mode function first, then set SLEEP. After set SLEEP function, the TIMER function cannot be set.



Timer ON/OFF Function

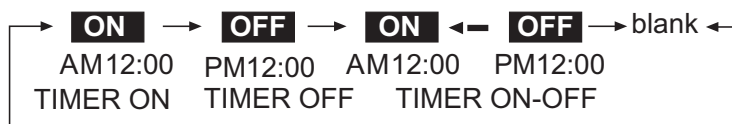
Set clock correctly before starting TIMER operation

1. Unit start

After unit start, select your desired operation mode (operation mode will be displayed on LCD)

2. TIMER mode selection

Press TIMER button on the remote controller to change TIMER mode. Every time the button is pressed, display of TIMER mode changes as follows:



Then select TIMER mode as needed (TIMER ON or TIMER OFF).

Now **ON** or **OFF** will flash.

3. TIMER setting (press time adjust buttons $\blacktriangle$ $\blacktriangledown$)

$\blacktriangle$ Every time the button is pressed, time increases 10 minutes. If the button is kept pressed, time changes quickly.

$\blacktriangledown$ Every time the button is pressed, time decreases 10 minutes. If the button is kept pressed, time changes quickly. It can be adjusted within 24 hours at will.

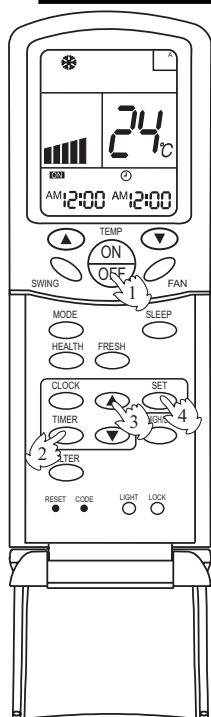
4. Confirm setting

After setting correct time, press SET button to confirm time. Now **ON** or **OFF** stop flashing.

Time displayed: unit starts or stops at X hour X min (TIMER ON or TIMER OFF)

5. Cancel TIMER mode

Just press TIMER button several times until TIMER mode disappears.



Hints:

After replacing batteries or if a power failure occurs, TIMER setting must be reset. Remote controller has memory function. When you use TIMER mode next time, just press SET button after mode selection if timer setting is the same as the previous one.

Note:

After setting TIMER function, the remote controller displays TIMER time. If you want to see clock time, just press CLOCK button once: clock time will be displayed (if you press the button again continuously, you can adjust clock). 5 seconds later, the display will show TIMER time again.

Timer ON-OFF Function

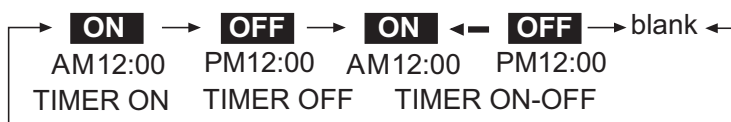
Set clock correctly before starting TIMER operation

1. Unit start

After unit start, select your desired operation mode (operation mode will be displayed on LCD)

2. TIMER mode selection

Press TIMER button on the remote controller to change TIMER mode. Every time the button is pressed, display of TIMER mode changes as follows:



Then select TIMER ON-OFF mode. **ON** will flash.

3. Time setting for TIMER ON

Press time button ▲

▲ Every time the button is pressed, time increases 10 minuts.
If the button is kept pressed, time will changes quickly.

▼ Every time the button is pressed, time decreases 10 minuts.
If the button is kept pressed, time will changes quickly.
It can be adjusted within 24 hours at will.
AM refers to morning and PM refers to afternoon.

4. Timer confirming for TIMER ON

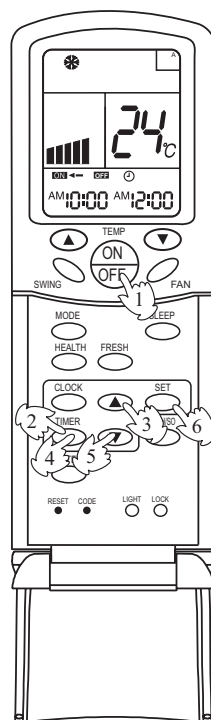
After setting correct time, press TIMER button to confirm time. Now **ON** stops to flash, while **OFF** starts flashing. Time displayed : unit starts at X hour X min.

5. Timer setting for TIMER OFF

Press time buttons ▲ and follow the same procedures in " Time setting for TIMER ON"

6. Time confirming for TIMER OFF

After time setting, press SET button to confirm time. **OFF** stops to flash.
Time displayed: unit starts at X hour X min.



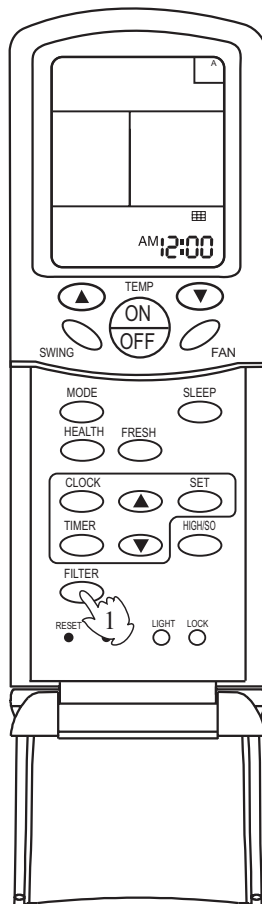
7. Canel TIMER mode

Just press TIMER button several times until TIMER mode disappears. According to the time setting sequence of TIMER ON and TIMER OFF, either start-stops or stops-start can be realized.

If the time setting of TIMER ON is the same as TIMER OFF, TIMER ON-OFF function cannot be set.

Filter Up/Down

(Only for 600*600 panel of single unit)



After the air conditioner has operated for a certain period, dust has accumulated on the filter, and the filter up/down function can be used to clean it.

1. Whether unit starts or stops, continuously press FILTER button for 3 seconds, and enter the filter up/down waiting status (when unit stops, the yellow TIMER indicator flashes, and filter and clock indication are displayed on the remote controller. Only the FILTER button, the temperature buttons "▲" "▼" and time buttons ◆ are active).

2. Press temperature "▼" button or time "▼" button in filter up/down waiting status: the up/down mechanism makes the filter moving downward and does not stop until it has reached the maximum limit.

3. Press temperature "▲" button or time "▲" button in filter up/down waiting status: the up/down mechanism makes the filter to moving upward till near the surface board and then automatically adjusts it to reset (when adjusting to reset, it will not be controlled by the remote controller till the adjustment is finished).

4. During moving downward, press temperature "▲" button or time "▲" button: moving stops.

5. During moving downward, press temperature "▼" button or time "▼" button: moving stops.

6. Continuously press FILTER button 3 seconds again to cancel the filter up/down waiting mode (unit stops, the yellow timer indicator stops flashing, the filter goes back to the original position, the remote controller goes back to off status and only clock is displayed).

Note:

If the filter does not thoroughly go back to the original position, only needs to operate several times repeatedly.

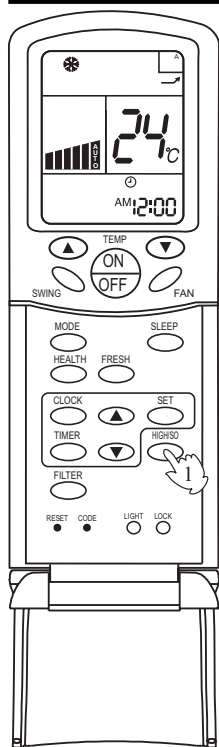
" High mode " Operation

Outline of operation in "High Mode"

This function is suitable when the set temperature must be reached in the shortest delay. The button "HIGH/SO", referred to this function, is effective in Cooling/Heating mode (not in Auto/Dry/Fan modes).

NOTICE:

- When the air conditioner is operating in " High Mode " , unevenness of room air temperature may occur due to the intensive operation in a short time.
- Anyway, operation in "High Mode", does not last for more than 15 minutes, then regular operation is automatically restored.



ON

Press the HIGH/SO button once

The indication  appears on the display of the remote controller and operation in "High Mode" starts.

The AUTO fan speed is automatically set and the corresponding indication is also displayed.

OFF

Press the HIGH/SO button twice

If the button is pressed once, the indication  is displayed on the remote controller. If you press the button once again, the indication disappears, regular operation is restored and fan speed goes back to the mode set before "High Mode" operation.

" Soft mode " Operation

Outline of operation in "Soft Mode"

Operation in "Soft Mode", more silent, is suitable when noises should be reduced, e.g.. for reading or sleeping. The button "HIGH/SO", referred to this operation, is effective in Cooling/Heating mode (not in Auto/Dry/Fan modes).

ON

Press the HIGH/SO button twice

The indication  appears on the display of the remote controller and operation in "Soft Mode" starts. The AUTO fan speed is automatically set and the corresponding indication is also displayed.

OFF

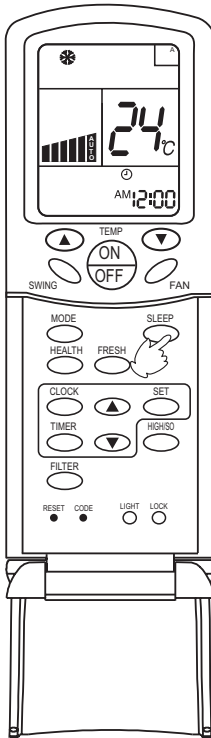
Press the HIGH/SO button twice

If the button is pressed once, the indication  is disappears from the remote controller's display. If you press the button once again, regular operation is restored and fan speed goes back to the mode set before "Soft Mode" operation.

NOTICE:

- When the air conditioner is operating in " High Mode " , unevenness of room air temperature may occur due to the intensive operation in a short time.
- Anyway, operation in "High Mode", does not last for more than 15 minutes, then regular operation is automatically restored.

Auto restart function setting



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.

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 "Sleeping" button on the remote controller 10 times within 5 seconds, and after the buzzer rings 2 times, 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.

If the unit has not the "sleep" button or function, please realize the function by pressing "swing" with the same method.

Note:

This kind of remote controller can be used for all UNITARY FREE indoor units except for AP182ACBEA.

9. Electrical Control Functions

AB182ACERA electric control function:

1. General features

1.1 The running mode includes AUTO, COOL, DRY, FAN and HEAT; can set the compulsory cooling function; AUTO/HIGH/LOW 3-speed for indoor motor; can set the TIMER ON, TIMER OFF, TIMER ON/OFF and SLEEP function; auto-check water level and control the water drainage of water pump; the swing is controlled by stepping motor; 3-minute protection for compressor; anti-overload protection, anti-freezed protection and bad-sensor protection; check indoor ambient temperature, indoor coil temperature and outdoor coil temperature; can be controlled by central controller.

1.2 LED indication: when the unit is switched on by the controller, the POWER LED will be ON, when being switched off, the POWER LED will be OFF. If the controller is in TIMER and SLEEP mode, the TIMER LED will be on; if it is not in TIMER and SLEEP mode, the TIMER LED will be off. When the compressor is running, the compressor LED will be on; when it stops, this LED will be off.

1.3 Temperature compensation control: select the 4 degree compensation or no compensation by the dip switch on indoor PCB.

1.4 There is set temperature in AUTO mode as default.

1.5 T_r stands for room temperature; T_s stands for set temperature; T_c stands for defrosting temperature; t stands for compensation temperature; ΔT stands for temperature difference.

1.6 $\Delta T = T_r - T_s + t$ ($t=0$ in cooling mode)

1.7 $\Delta T = T_s - T_r + t$ (t =compensation value, with compensation in heating mode; $t=0$, without compensation in heating mode)

2. Indoor AUTO FAN control

2.1 If the unit enters AUTO FAN for the first time, when $\Delta T > 2$, select high speed; when $\Delta T \leq 0$, select low speed; or it will select med speed; when thermostat is OFF, fan will be low speed. (the conversion temperature difference is 1 degree).

2.2 If the present fan speed is AUTO HIGH, when $\Delta T < 2$, fan speed will change to AUTO MED.

2.3 If the present fan speed is AUTO MED, when $\Delta T < 0$, fan speed will change to AUTO LOW; when $\Delta T > 3$, fan speed will change to AUTO HIGH.

2.4 If the present fan speed is AUTO LOW, when $\Delta T > 1$, fan speed will change to AUTO MED.

2.5 Fan speed conversion in AUTO FAN mode: the conversion will delay for 3 minutes from HIGH to LOW, and no delay from LOW to HIGH.

2.6 When the fan speed is HIGH/LOW/MED, on the condition that the protection does not act, the unit will run at the set fan speed; when the protection acts, for the sake of the normal operation, the fan speed will be forced to conversion; in Dry mode, fan motor will be changed as request.

3. AUTO mode control

3.1 When entering AUTO for the first time, the unit will select the running mode due to the below conditions, then perform the selected mode.

$T_r \geq T_s - 3^\circ\text{C}$ select COOL mode (includes FAN mode)

$T_r < T_s - 3^\circ\text{C}$ select HEAT or FAN mode

3.2 After entering the AUTO mode, the mode can change over among COOL, HEAT or FAN modes according to the indoor ambient temperature (conversion temperature difference is $\pm 3^\circ\text{C}$).

3.3 If the unit is in COOL mode, when it arrives compressor-stop temperature, the compressor will stop; after compressor stops for 15 minutes, the unit will check the room temperature, if $T_r < T_s - 3^\circ\text{C}$,

the unit will enter HEAT or FAN mode, or the unit will still be in COOL mode;

3.4 For the heat pump unit, if the unit is in HEAT mode at present, when it arrives compressor-stop temperature, the compressor will stop; after the compressor stops for 15 minutes, the unit will check the room temperature, if $T_r > T_s + 3^\circ\text{C}$, the unit will enter COOL mode, or it will still be in HEAT mode.

3.5 For cooling only unit, if the unit is at FAN mode, if $T_r > T_s + 3^\circ\text{C}$, the unit will enter COOL mode.

3.6 When the unit is in HEAT mode, if indoor heat exchanger temperature rises up to over 63°C , the unit will change into COOL mode. And within 1 hour, the heat exchanger temperature will not be limited, the heating operation will stop temporarily. 1 hour later, the unit will select the proper mode due to the above condition.

4. COOL mode control

4.1 4-way valve being powered off, compressor run/stop will depends on the temperature difference between the room temperature and the set temperature.

4.2 In cooling mode, every time the compressor starts up, within 6 minutes, the compressor will not be limited by the temperature sensor, but the set temperature change, shutoff signal and protection action will not be limited by 6-minute protection, and the compressor can stop immediately.

4.3 $\Delta T \geq 1$ compressor will run;

$\Delta T \leq -1$ compressor will stop;

$-1 < \Delta T < 1$ compressor will stay in original state

4.4 Anti-frozen protection (invalid in compulsory operation, trial running, heating mode)

When the unit has run for over 6 minutes after compressor starts up, if indoor coil temperature $T_g < 1^\circ\text{C}$, the compressor and the outdoor motor will stop, and the unit will change to FAN mode; 9 minutes later after compressor stops and when indoor coil temperature rises to 10°C , the unit will resume to COOL mode, the compressor and the outdoor motor will run again.

4.5 Temperature cutoff protection

In cooling mode, the unit will check indoor coil temperature every time the compressor has run for 1 minutes, when indoor coil temperature $T_g > T_r + 5$, the unit will stop and 3 minutes later restart up; if the temperature cutoff occurs for 3 times continuously, the unit will stop and alarm.

5. DRY mode control

5.1 When the unit enters DRY mode for the first time, the compressor, outdoor motor and indoor motor will perform according to the below conditions:

$\Delta T > 2$, the compressor and the outdoor motor will run continuously, indoor motor will run at the set speed, this area is defined as Area A;

$0 \leq \Delta T \leq 2$, the compressor and the outdoor motor will always run for 10 minutes and then stop for 6 minutes, indoor motor will be LOW speed, this area is defined as Area B;

$\Delta T < 0$, the compressor and the outdoor motor will stop, indoor motor will run at Low speed, this area is defined as Area C.

5.2 After the unit is running in DRY mode, the system will change over among Area A, Area B, and Area C (the conversion temperature difference $\pm 1^\circ\text{C}$)

If the system is in Area A, when $\Delta T < 1$, change to Area B;

If the system is in Area C, when $\Delta T > 1$, change to Area B;

If the system is in Area B, when $\Delta T > 3$, change to Area A;

When $\Delta T < -1$, change to Area C.

The inverter unit DRY operation:

$T_r - T_s > 2^{\circ}\text{C}$, running in COOL mode;

$T_r - T_s \leq 2^{\circ}\text{C}$, the compressor will run at 34Hz and 60Hz by turns, the duration time is 6 minutes at 34Hz, and the duration time is 10 minutes at 60Hz;

$T_r - T_s < 15^{\circ}\text{C}$, ($T_s = 16^{\circ}\text{C}$), the compressor will run intermittently, run for 10 minutes and stop for 6 minutes by turns at 60Hz.

6. FAN mode control

The compressor and the outdoor motor will stop running, indoor motor can be set at high/med/low speed, the fan blade can swing or stay at one position. In this mode, you can set the TIMER and SLEEP function.

7. HEAT mode control

7.1 4-way valve control: in heating mode, compressor startup----4-way valve being electrified 10 seconds ahead; compressor running----4-way valve retains original state; compressor shutoff----4-way valve being powered off 2 minutes and 50 seconds later (except for defrosting, 4-way valve being electrified 5 seconds ahead, and being powered off 55 seconds later).

7.2 In heating mode, for everytime the compressor startup (thermostat ON), within 6 minutes, the 4-way valve will not be limited by the temperature sensor, but for the set temperature change, shutoff signal and the protection, the compressor can stop immediately without 6-minute limitation.

7.3 $\Delta T \geq 1$ compressor running, indoor motor runs at anti-cold air mode;

$\Delta T \leq -1$ compressor stops, indoor motor runs at blowing remaining heat mode;

$-1 < \Delta T < 1$ compressor retains original state

7.4 Overheat protection (for the unit with outdoor PCB, the outdoor motor is controlled by outdoor unit, but the compressor is still controlled by indoor unit, and their temperature points will not be accordant completely)

In heating mode, compressor has started up and indoor motor has run for over 30 seconds, if indoor coil temperature $T_g > 60^{\circ}\text{C}$, outdoor motor will stop; if $T_g < 56^{\circ}\text{C}$, and outdoor motor has stop for 45s, outdoor motor will run again; if $T_g > 73^{\circ}\text{C}$, the compressor will stop and indoor motor will run according to the thermostat state. After the compressor stops for 3 minutes and T_g reduces to 48°C , the unit will resume to heating mode, and the compressor and the outdoor motor will run again.

7.5 Temperature cutoff protection

In heating mode (besides the defrosting), the unit will check indoor coil temperature every time the compressor has run for 1 minutes, when indoor coil temperature $T_g < T_r - 5$, the unit will stop and 3 minutes later restart up; if the temperature cutoff occurs for 3 times continuously, the unit will stop and alarm.

7.6 Anti-cold air function in heating mode

After entering heating mode, or last defrosting is over, the compressor will start up, if $T_g < 28^{\circ}\text{C}$, indoor motor will stop; if $38^{\circ}\text{C} > T_g \geq 28^{\circ}\text{C}$, indoor motor will run at low speed; if $T_g \geq 38^{\circ}\text{C}$ or the compressor has run for over 4 minutes, indoor motor will run at the set speed; once the motor has started up, it will not stop because of T_g reduction.

7.7 Blowing remaining heat function

In heating mode, the thermostat is OFF, the compressor stops, indoor motor will run at low speed until $T_g < 28^{\circ}\text{C}$ and has run for 50 seconds at least.

7.8 Note: in heating mode, "the compressor stops----indoor motor delays to stop" adjust if the pipe

blows remaining heat; “the compressor startup----indoor motor delays to start up” adjust if the pipe is anti-cold air; in other conditions, the compressor and the indoor motor are allowable not to be in company. In cooling mode, the motor will run according to the control, not together with the compressor.

7.9 Defrosting function in heating mode

In defrosting and when the compressor resumes to run for 3 minutes after defrosting is over, the unit will not adjust the sensor failure.

Manual defrost: In heating mode, the set temperature 30℃ and in high speed, in 5 seconds, press SLEEP button 6 times continuously, then the buzzer will sound 3 times, you can enter the manual defrosting. At this moment, the unit will not adjust the enter condition of defrost and begin to defrost function directly, whose procedure is as the same as the auto defrost; the quit condition is that the defrosting time is up to 5 minutes.

Auto defrost:

Project 1: with outdoor PCB

a. Enter condition

In heating mode, the compressor has run for 45 minutes continuously.

The compressor has run for 60 minutes in all and has run for over 5 minutes continuously.

If one of the above conditions can be met, and indoor unit receives the defrosting temp. arrival signal from outdoor, the unit begins to defrost and sends the defrosting beginning signal to outdoor.

b. Quit condition

The defrosting temp. arrival signal from outdoor is cancelled or the defrosting time is over 12 minutes (including each 1-minute conversion time for before and after defrosting), the defrosting is over and sends the defrosting cancelled signal to outdoor unit.

Project 2: For the unit without outdoor PCB and defrosting sensor

a. Enter condition

- Indoor occurs overload protection and outdoor motor stops, if outdoor motor can not enter overheat state in 10 minutes after it runs again, also the compressor runs for 45 minutes in all and has run for over 20 minutes continuously, Tg is below 43℃;
- The compressor runs for 20 minutes continuously, Tg will reduce 1℃ for every 6 minutes, and Tg is below 40℃, 5 minutes later after the compressor restarts up.
- The compressor runs for 3 hours in all and has run for over 20 minutes continuously, Tg is below 40℃;
- The temperature difference between Tg and Tr is below 16℃ and the compressor runs for 45 minutes in all and has run for over 20 minutes continuously, Tg is below 40℃

If one of the above conditions can be met, the unit will enter the defrost.

b. Quit condition

The defrosting time is over 10 minutes (excluding conversion time for before and after defrosting).

Project 3: For the unit without outdoor PCB but with defrosting sensor

a. Enter condition

In heating mode, after the compressor starts up, the compressor and the outdoor motor have run for at least 5 minutes;

The compressor total running time is over 30 minutes, Tg<-18℃, enter defrosting (signal time over 5 minutes);

The compressor total running time is over 30 minutes, $T_p < -6^{\circ}\text{C}$, enter defrosting (signal time over 5 minutes);

b. Quit condition

The defrosting time is over 10 minutes (excluding conversion time for before and after defrosting).

Or $T_p > 12^{\circ}\text{C}$, quit defrosting.

After defrosting begins, the loads will operate as below:

a. In defrosting:

For the unit with outdoor PCB: the operation of the compressor and the 4-way valve is controlled by indoor unit, the outdoor motor operation is controlled by outdoor unit.

For the unit without outdoor PCB: the compressor and the outdoor motor stop, meanwhile, indoor motor will stop too. 55 seconds later, 4-way valve will close. Another 5 seconds later, the compressor starts up.

b. Quit defrosting:

The compressor will not stop, outdoor motor starts up and after it runs for 30 seconds, 4-way valve will open, indoor motor will run as anti-cold air state.

For the unit with auxiliary electric heating function:

- a. If the auxiliary electric heating function is working when the defrosting condition is met, please stop electric heater firstly, 20 seconds later, defrosting can begin;
- b. After defrosting, the unit will adjust the working state of electric heater according to the setting before defrosting.

8. Auxiliary electric heating function (valid in heating mode or heating state in AUTO mode)

Enter condition:

- 1) $\Delta T > 1$
- 2) Thermostat ON and running for 1 minute
- 3) $T_r < 26^{\circ}\text{C}$
- 4) Indoor motor running
- 5) Electric heating function start signal available (cancelled)
- 6) The system working in heating mode or in heating state of AUTO mode
- 7) $T_g < 48^{\circ}\text{C}$

If the above conditions can all be met, the electric heating function will work.

Quit condition:

- 1) $\Delta T \leq 1$
- 2) Thermostat OFF
- 3) $T_r > 26^{\circ}\text{C}$
- 4) Indoor motor stops
- 5) Electric heating function start signal not available (cancelled)
- 6) The system in non-heating operation
- 7) $T_g > 52^{\circ}\text{C}$

If one of the above conditions can be met, the electric heater will stop.

9. Special functions

9.1 CLOCK setting and TIMER function

The unit can set 24-hour TIMER ON/OFF, and the min. unit is 1 minute, after being set, the timer lamp of indoor will be on, and after the timer is over, the timer lamp will be off.

TIMER ON: RUN LED is off, compressor LED is off, and TIMER LED is on, the unit is in stop state. When timer is over, the unit begins to run, and the timer LED is off. The unit operation begins from receiving the timer signal for the last time. The SLEEP function only can be set before the TIMER ON begins.

TIMER OFF: the unit running, the timer LED on, while the timer is over, timer LED off, the unit will stop, the sleep can be set, the sleep time will replace the original time of TIMER ON/OFF.

TIMER ON/OFF set at the same time: when the timer on/off is set, the timer LED will be off; the sleep function can be set, the sleep time will replace the original time of TIMER ON/OFF.

9.2 SLEEP function (energy saving function at night)

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

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

9.2.3 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 will 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 before the TIMER ON time arrives.

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.

9.3 Emergency operation

Press emergency button for over 1 second continuously, when loosing it, the buzzer will sound once.

Emergency operation: AUTO cooling state, the set temperature 24°C, indoor motor at high speed, not adjusting the temperature sensor abnormal and the protection, the thermostat ON, 3 minutes later, the compressor starts up, and another 3 minutes later, quit the trial running and enter the normal operation as the setting;

Press again, enter the shutoff state.

9.4 Compulsory cooling operation

In OFF state, press compulsory button for over 10 seconds continuously, loose it and the buzzer will sound twice, then the unit enters the compulsory cooling operation, or after the panel receives the compulsory cooling signal, the unit enters the compulsory cooling state. For the first time, there is no compressor 3-minute protection, the unit will run for 5 minutes in cooling mode, and indoor/outdoor motors are in high speed; in the 5 minutes, the system will not adjust the protection and not be limited by the ambient temperature, but the compressor will be limited by 3-minute

protection. 5 minutes later, the unit will enter the normal state. In the compulsory cooling state, you can press any button to quit the state. For the unit with outdoor PCB, the compressor and the outdoor motor will be controlled by outdoor PCB.

9.5 Water level inspection and water pump control

- 1) In COOL (including cooling state of AUTO mode and the compulsory cooling) and DRY mode, as long as the compressor runs, water pump will work; and once the compressor stops, water pump will stop 5 minutes later;
- 2) In standby state of cooling mode, heating mode and fan mode (including auto fan mode), after water tank is full, the float switch will disconnect, if the controller detects this signal for 2 seconds, the water pump will begin to work. After the float resets, water pump will continue working and stops 5 minutes later;
- 3) If the water-full signal is detected for over 5 minutes, the compressor will stop; water pump will work for 5 minutes and stop for 5 minutes, then repeat as a cycle, until the float resets, the water pump will stop 5 minutes later; if water pump has repeated for 4 cycles, the float can not reset, and the unit will alarm water drainage abnormal. And the water pump will continue the cycle.

9.6 High pressure switch control:

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.

Low pressure switch control (without outdoor PCB):

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.

9.7 Exterior alarm input:

In normal state, it is off. When the exterior environment is abnormal, the system cannot ensure the normal signal input, so the air conditioning system will stop and alarm, until the normal signal resumes, the air conditioner will resume automatically.

9.8 Time shorting function

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

9.9 Auto-restart

- a. Entering condition: In 5 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 following information will be memorized: ON/OFF, running mode (AUTO, HEAT, COOL, DRY, FAN), fan speed (AUTO, HIGH, MED, LOW), the set temperature (16°C-30°C), the louver position and HEALTH; while the TIMER, SLEEP and CLOCK will not be memorized.
- c. Quit condition: in 5 seconds press SLEEP button 10 times, the buzzer will sound 2 times.

9.10 Auto check function

Before being electrified, it is in short circuit; after being electrified, 10 seconds later, it will enter

auto-check circuit. Before auto-check, please ensure the input values (sensor, pressure switch) normal, or the buzzer will sound 5 times to show there is abnormal; all the ports will output as the following sequence: run lamp-timer lamp-electric heater-water pump-compressor/compressor lamp-outdoor motor-4-way valve; after the auto-check is finished, the buzzer sounds once.

9.11 Outdoor crankcase heater (only for the unit with low ambient cooling function)

For the unit without outdoor PCB, but with low ambient cooling function, outdoor crankcase heater will be controlled by indoor unit. Once being electrified, electric heater will begin to work until the compressor is running.

10. System protection

10.1 3-minute protection for compressor startup

After the compressor stops, at least 3 minutes later, the compressor can restart up; if the unit is powered off in running, after being electrified, 3 minutes later, the compressor can restart up. Being electrified for the first time, there is 3-minute delay protection.

10.2 Anti-current rush

2 seconds later after compressor is running, outdoor motor can work.

11. Trouble code

The remote receiver can show the failure code independently.

Remote receiver, indoor PCB flash times	Display of wired controller	Display of central controller	Fault description	Possible cause	Remedy
1	01	01D	Indoor ambient temp. sensor failure	Sensor disconnected, short circuit for over 2m	Resumable
2	02	02D	Indoor coil temp. sensor failure	Sensor disconnected, short circuit for over 2m	Resumable
3	4A	11D	Outdoor ambient temp. sensor failure	Sensor disconnected, short circuit for over 2m	Resumable
4	49	12D	Outdoor coil temp. sensor failure	Sensor disconnected, short circuit for over 2m	Resumable
5	48	10D	Over-current protection	CT current over standard for 3 times in 30m	Check and reset to resume
6	53	14D	High pressure abnormal	High pressure switch acts for 3 times in 30m	Check and reset to resume
8	07	06D	Communication between wired controller and indoor abnormal	Communication abnormal for over 4m	Resumable
9	06	05D	Communication between indoor and outdoor abnormal	Communication abnormal for over 4m	Resumable
10	08	21D	Drainage system abnormal	Float switch	Resumable

				disconnected for over 25m	
11	0B	30D	Outside alarm signal input	Outside signal disconnected for over 10s	Resumable
12	03	20D	Gas pipe temp. sensor abnormal	Sensor disconnected, short circuit for over 2m	Resumable
13	0D	31D	Solenoid valve abnormal	Valve abnormal 3 times	Check and reset to resume
14	4C	15D	Discharging temp. sensor abnormal	Sensor disconnected, short circuit for over 2m	Resumable
15	05	17D	EEPROM abnormal	EEPROM data missing	Run as default
16	54	26D	Low pressure abnormal	Low pressure switch acts	Check and reset to resume
17	50	15D	Compressor overheat	Discharging temp. over 120 degree	Resume when below 100 degree
21	32	07D	Power module failure	Power module overheat, overcurrent, or short circuit	Resumable
22	54	08D	No load	Sensor abnormal or compressor not start up	Resumable

12. Jumper selection (✓ shows jumper connected, ON; ✕ shows jumper disconnected, OFF; * shows no limitation)

	Time shorting switch CN7	Emergency switch SW1(receiver)	BM1(1)	BM1(2)
Time shorting switch	Time shorting	*	*	*
Emergency switch	*	Emergency	*	*
No outdoor PCB	*	*	✕	✕
With outdoor PCB, fixed speed single split unit	*	*	✓	✕
With outdoor PCB, fixed speed multi split unit	*	*	✕	✓
With outdoor PCB, inverter single split unit	*	*	✓	✓
Inverter unit selection	BM2(1)	BM2(2)	BM2(3)	BM2(4)
Temp. compensation 4 °C available/not available	✓/✕	*	*	*
Wired control/ infrared control	*	✓/✕	*	*
Cooling only/heatpump	*	*	✓/✕	*

Master/slave controller	wired	*	*	*	√/×
----------------------------	-------	---	---	---	-----

13. Network address selection (√ shows jumper connected, ON; × shows jumper disconnected, OFF)

	BM4				BM3			
address	1	2	3	4	1	2	3	4
1	×	×	×	×	×	×	×	× shows no network home appliance
2	√	×	×	×	×	×	×	
3	×	√	×	×	×	×	×	
4	√	√	×	×	×	×	×	
5	×	×	√	×	×	×	×	√ with network home appliance
6	√	×	√	×	×	×	×	
.....								
126	√	×	√	√	√	√	√	
127	×	√	√	√	√	√	√	
128	√	√	√	√	√	√	√	

AC182ACERA electric control functions:**1.FAN operation**

Indoor fan speed can be adjusted by hand. In this case, there is no auto fan function, and the original set is the memorized state. Meantime, you can set the HEALTH function. Outdoor unit will stop.

2.AUTO operation**2.1 Indoor unit**

Set temperature: 24°C

Original fan speed: Auto

Fan speed adjustable range: Auto, Low, Med, High

(1) Working condition

After entering Auto mode, the unit will detect the indoor temperature firstly, then it will choose the working mode due to the below conditions:

- a. If T_r (room temperature) $>26^{\circ}\text{C}$, it will enter COOL mode. The operation is identical to the mode at the set temperature 26°C .
- b. When $23^{\circ}\text{C} \leq T_r \leq 26^{\circ}\text{C}$, it will be Fan mode, and will run at Fan mode.
- c. When $T_r < 23^{\circ}\text{C}$, it will enter HEAT mode, and its operation is identical to the mode at 23°C .
- d. In Auto Cool or Heat mode, when the thermistor is OFF, 20 minutes later, the unit will adjust which mode of Auto to enter.

(2) Timer ON/OFF function. The timing clock is depended on the clock on display panel.

(3) SLEEP function:

The SLEEP time is depended on indoor PCB. When it enters cooling mode, press "SLEEP" to enter cooling sleep state; when in heating mode, press "SLEEP" to enter heating sleep state.

2.2 Outdoor unit:

Auto cooling state is as the same as cooling state.

Auto heating state is as the same as heating state.

In Auto Fan state, outdoor unit will stop.

If changing from the other modes to the Auto mode, only when the thermistor is OFF, the former state will be over. Shutoff for 20 minutes later, the unit enters Auto mode.

3. Cooling operation**Outdoor unit:**

4-way valve does not work.

Fan:

T_a (indoor ambient temperature) $>28.5^{\circ}\text{C}$, High speed

$T_a < 22^{\circ}\text{C}$, Low speed

Tolerance: 6.5°C

Frequency limited condition due to T_a :

$T_a \leq 16^{\circ}\text{C}$, Max. frequency 68Hz

$16^{\circ}\text{C} \leq T_a \leq 41.5^{\circ}\text{C}$, Max. frequency 108Hz

$41.5^{\circ}\text{C} \leq T_a \leq 50^{\circ}\text{C}$, Max. frequency 75Hz

$T_a \geq 50^{\circ}\text{C}$, Max. frequency 68Hz

(1) Frequency limited conditions of current protection

current $<1.598\text{V}$, no limited

$1.744\text{V} \leq \text{current} < 1.917\text{V}$, frequency not change

$2.080V \leq \text{current} < 2.332$, frequency reduces continuously
 $\text{current} > 2.332V$, unit shutoff

Note: The current limitation for different models, you can choose it due to the different distributing voltage of the hardware current detecting circuit.

(2) Compressor overheat protection

$T_c(\text{compressor temperature}) < 97^\circ\text{C}$, no limited

$103^\circ\text{C} \leq T_c < 108^\circ\text{C}$, frequency not change

$T_c \geq 120^\circ\text{C}$, unit shutoff

97°C , all resume.

(3) Anti-freezed protection

$T_e(\text{evaporator temperature}) > 8^\circ\text{C}$, no limited

$2^\circ\text{C} \leq T_e < 5^\circ\text{C}$, frequency not change

$T_e < -1^\circ\text{C}$, 5 minutes later, the unit shutoff (commercial unit is 8 minutes)

$T_e > 8^\circ\text{C}$, all resume.

(4) In cooling mode, outdoor heat exchanger overload protection

$T_e < 53^\circ\text{C}$, not limited

$59^\circ\text{C} \leq T_e < 62^\circ\text{C}$, frequency not change

$T_e \geq 72^\circ\text{C}$, unit shutoff

$T_e < 53^\circ\text{C}$, all resume

When the unit stops, the fan motor of outdoor unit will stop.

(5) High Mode operation

In cooling state of High mode, the temperature will be added 4°C at the base of the set temperature, the compressor will run at the frequency with the added temperature. 15 minutes later, the High mode will be cancelled automatically.

In High mode, the indoor fan is High speed. The evaporator anti-freezed function, outdoor heat exchanger overload protection, compressor overheat protection and over current protection are valid (identical to that of cooling mode).

(6) Soft Mode operation

In cooling state of Soft mode, the frequency will depend on the current at the frequency set in the chip, when the current is below half of the rated current at rated condition. The fan speed is Auto Fan until you change the operation mode. The Auto Fan of Soft mode depends on the temperature difference.

$T_a - T_s \geq 5^\circ\text{C}$ High speed

$1^\circ\text{C} \leq T_a - T_s < 5^\circ\text{C}$ Med speed

$1^\circ\text{C} \leq T_a - T_s < 1^\circ\text{C}$ Low speed

Note: T_a : indoor ambient temperature; T_s : set temperature

4. Dehumidification operation

Outdoor unit:

$T_a - T_s \geq 2^\circ\text{C}$, run at cooling mode

$T_a - T_s < 2^\circ\text{C}$, the compressor will run at 34Hz and 60Hz in turn, and keeps 6 minutes at 34Hz; 10 minutes at 60Hz.

$T_a < 15^\circ\text{C}$, $T_s(\text{minimum}) = 16^\circ\text{C}$, the compressor will run fitfully, run for 10 minutes, stop for 6 minutes; and they will run in turn.

5. Heating operation

Outdoor unit:

4-way valve electrified

2-way valve shutoff

if the unit shutoff in heating mode or the state changes, the 4-way valve will be not electrified 1 minute and 50 seconds later.

(1) Fan motor

$T_a > 16.5^{\circ}\text{C}$ Low speed

$T_a < 13^{\circ}\text{C}$ High speed

Tolerance: 3.5°C

(2) Compressor frequency

The compressor frequency changing procedure refers to APPENDIX 1.

Frequency limited condition of ambient temperature:

$T_a \geq 28^{\circ}\text{C}$ Max. frequency 60Hz

$22^{\circ}\text{C} \leq T \leq 28^{\circ}\text{C}$ Max. frequency 72Hz

$16^{\circ}\text{C} \leq T \leq 22^{\circ}\text{C}$ Max. frequency 84Hz

$4^{\circ}\text{C} \leq T \leq 16^{\circ}\text{C}$ Max. frequency 108Hz

$T \leq 4^{\circ}\text{C}$ Max. frequency 120Hz

(3) In heating mode, indoor heat exchanger overload protection

$T_e < 48^{\circ}\text{C}$ no limited

$54^{\circ}\text{C} \leq T_e < 58^{\circ}\text{C}$ frequency not change

$T_e > 63^{\circ}\text{C}$ outdoor fan motor stops

$T_e < 60^{\circ}\text{C}$ outdoor fan motor resumes

72°C unit shutoff; 52°C unit resumes.

(4) Current protection

current $< 1.882\text{V}$, no limited

$2.023\text{V} \leq \text{current} < 2.201\text{V}$, frequency not change

2.32V , fan motor stops

2.25V , fan motor works

current $> 2.556\text{V}$, unit shutoff.

Note: The current limitation for different models, you can choose it due to the different distributing voltage of the hardware current detecting circuit.

(5) Compressor overheat protection

$T_c(\text{compressor temperature}) < 97^{\circ}\text{C}$, no limited

$103^{\circ}\text{C} \leq T_c < 108^{\circ}\text{C}$, frequency not change

$T_c \geq 120^{\circ}\text{C}$, unit shutoff

97°C , all resume.

(6) High mode operation

In heating state of High mode, the temperature will be added 3°C at the base of the set temperature, the compressor will run at the frequency with the added temperature. 15 minutes later, the High mode will be cancelled automatically.

In High mode, the indoor fan is High speed. The indoor heat exchanger overload protection, compressor overheat protection and over current protection are valid (identical to that of heating mode).

(7) Soft Mode operation

In heating state of Soft mode, the frequency will depend on the current at the frequency set in the chip, when the current is below half of the rated current at rated condition. The fan speed is Auto Fan until you change the operation mode. The Auto Fan of Soft mode depends on the temperature difference.

$T_s - T_a \geq 5^{\circ}\text{C}$ High speed

$1^{\circ}\text{C} \leq T_s - T_a < 5^{\circ}\text{C}$ Med speed

$1^{\circ}\text{C} \leq T_s - T_a < 1^{\circ}\text{C}$ Low speed

Note: T_a : indoor ambient temperature; T_s : set temperature

6. Defrost

6.1 Working condition

In heating mode, the compressor will run for 45 minutes continuously, and if the one of below conditions can be met, 5 minutes later the defrost will work.

$-10^{\circ}\text{C} \leq T_a < -5^{\circ}\text{C}$, $T_e \leq -15^{\circ}\text{C}$

$-5^{\circ}\text{C} \leq T_a < 0^{\circ}\text{C}$, $T_e \leq -12^{\circ}\text{C}$

$0^{\circ}\text{C} \leq T_a$, $T_e \leq -6^{\circ}\text{C}$

In addition, if $T_e \leq -3^{\circ}\text{C}$, and the above conditions can not be met, the compressor will defrost once at the interval of 178 minutes when compressor running continuously. If $T_a < -10^{\circ}\text{C}$, and the above conditions cannot be met, the compressor will defrost once at the interval of 178 minutes when compressor running continuously.

6.2 Defrost process and finish condition

At the beginning, compressor stops, and outdoor fan motor stops.

55 seconds later, 4-way valve will be reverse, when $T_e < 23^{\circ}\text{C}$, indoor fan motor will stop.

1 minute later, compressor begins to run.

Defrosting is over, compressor stops, 30 seconds later, outdoor fan motor begins to run.

60 seconds later, 4-way valve runs and compressor starts up. The indoor fan motor will run at anti-cold air condition.

Defrost for once, unit will work for 10 minutes.

In defrosting, compressor will run at 90Hz for 6 minutes, and then will run at 60Hz.

In defrosting, if outdoor heat exchanger temperature is higher than 12°C , compressor will reduce frequency and run for 1 minute, then stop.

In defrosting, the unit will not check the indoor coil temperature sensor malfunction.

7. Others

7.1 Sensor short/open circuit

The failure code will display at two types: display board can display 9 kinds of failure code (refer to the appendix); LED indicator on indoor PCB flash times will show indoor/outdoor failure code (refer to the appendix).

In operation, if any sensor is in short/open circuit, the display board will display failure code, outdoor unit will stop. In Timer On state, if any sensor is short/open, though the timer clock arrives, the unit still does not start up, and show the failure code.

7.2 No load

If compressor frequency $\geq 56\text{Hz}$, and at this time, the voltage $< 0.024\text{V}$, then unit will stop.

7.3 Higher/lower voltage protection

If the power voltage is over 270V or lower than 130V, the unit will occur failure, outdoor unit will shut

off.

7.4 3-minute protection

After compressor stops, only 3 minutes later the compressor can re-start up.

7.5 High pressure protection

After compressor is running for 5 minutes, the unit will check the pipe pressure, when the pipe pressure is too high, 15 seconds later, compressor and outdoor fan motor will stop, and then 3 minutes later, the unit will be normal.

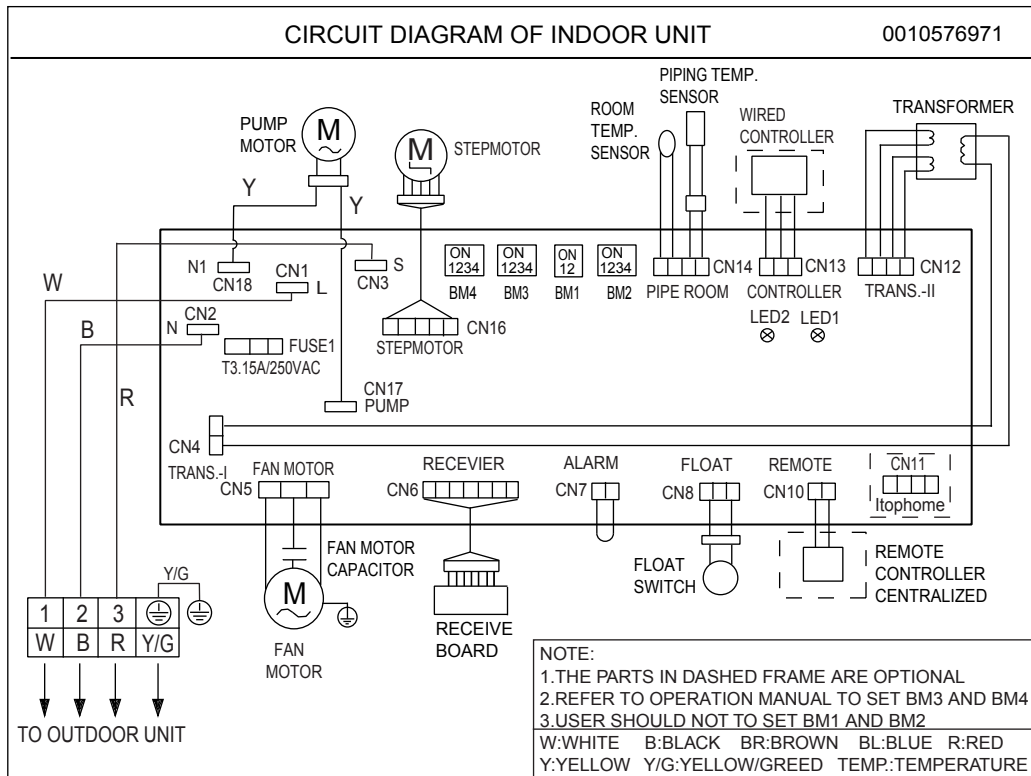
7.6 Low pressure protection

In any case except for defrost (after compressor runs for over 5 minutes), the unit will check the low pressure protection, if there is, 15 seconds later, compressor and outdoor fan motor will stop, and then 3 minutes later, the unit is normal. Within 30 minutes, if the compressor stops because of too high pressure for 3 times, the system will shut off. In shutoff, it will send failure code 08 to indoor unit.

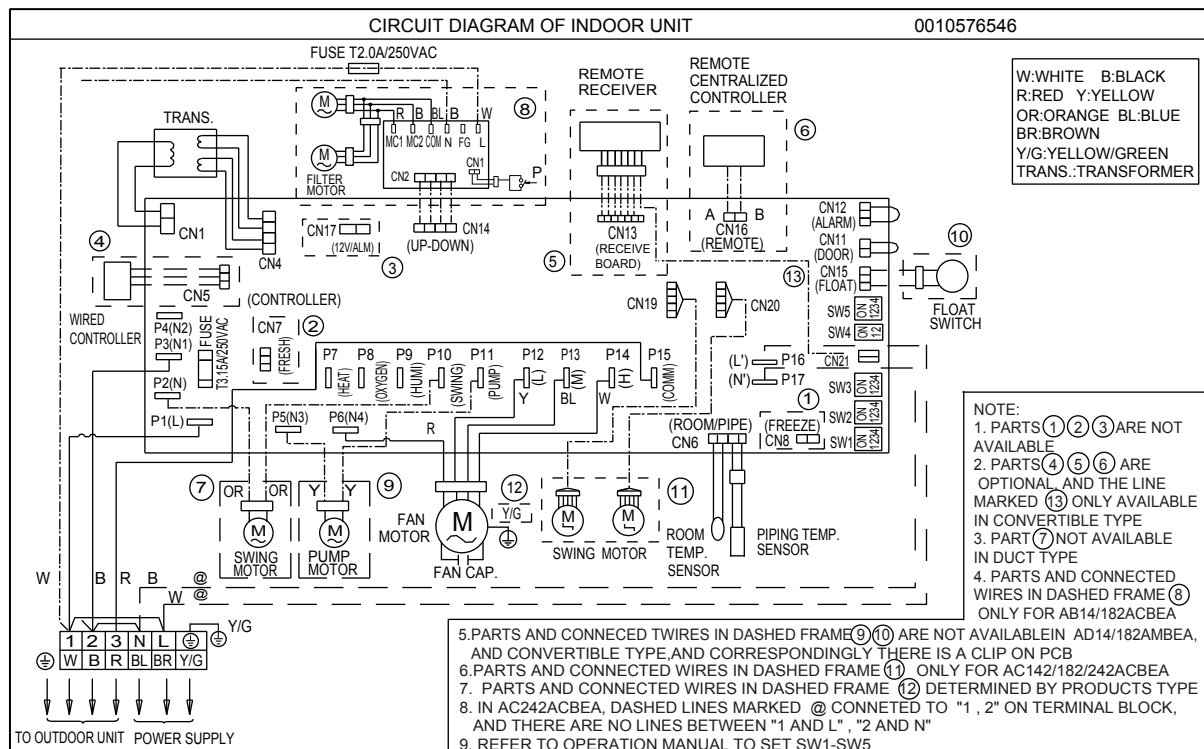
10. Electric data

10.1 Wiring diagram

Cassette unit:



Convertible unit:



10.2 Electric part specifications

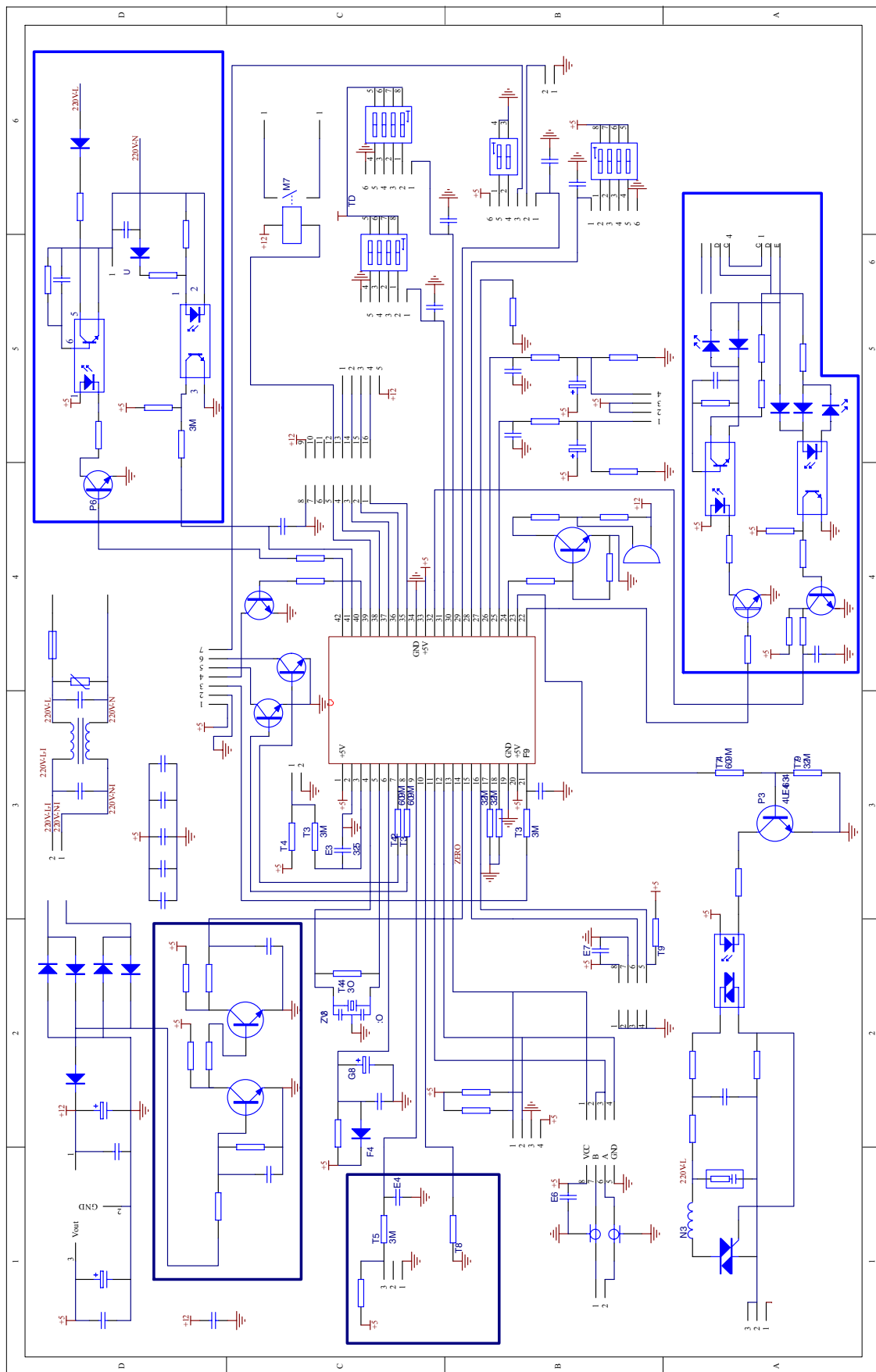
model	name	code	characteristic
AC182ACERA	coil temperature sensor	001A3900005	R25=23K Ω ±2.5% B25/50=4200K±3%
AB182ACERA	ambient temperature sensor	001A3900005	R25=23K Ω ±2.5% B25/50=4200K±3%
	coil temperature sensor	001A3900006	R25=10K Ω ±3% B25/50=3700K±3%

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

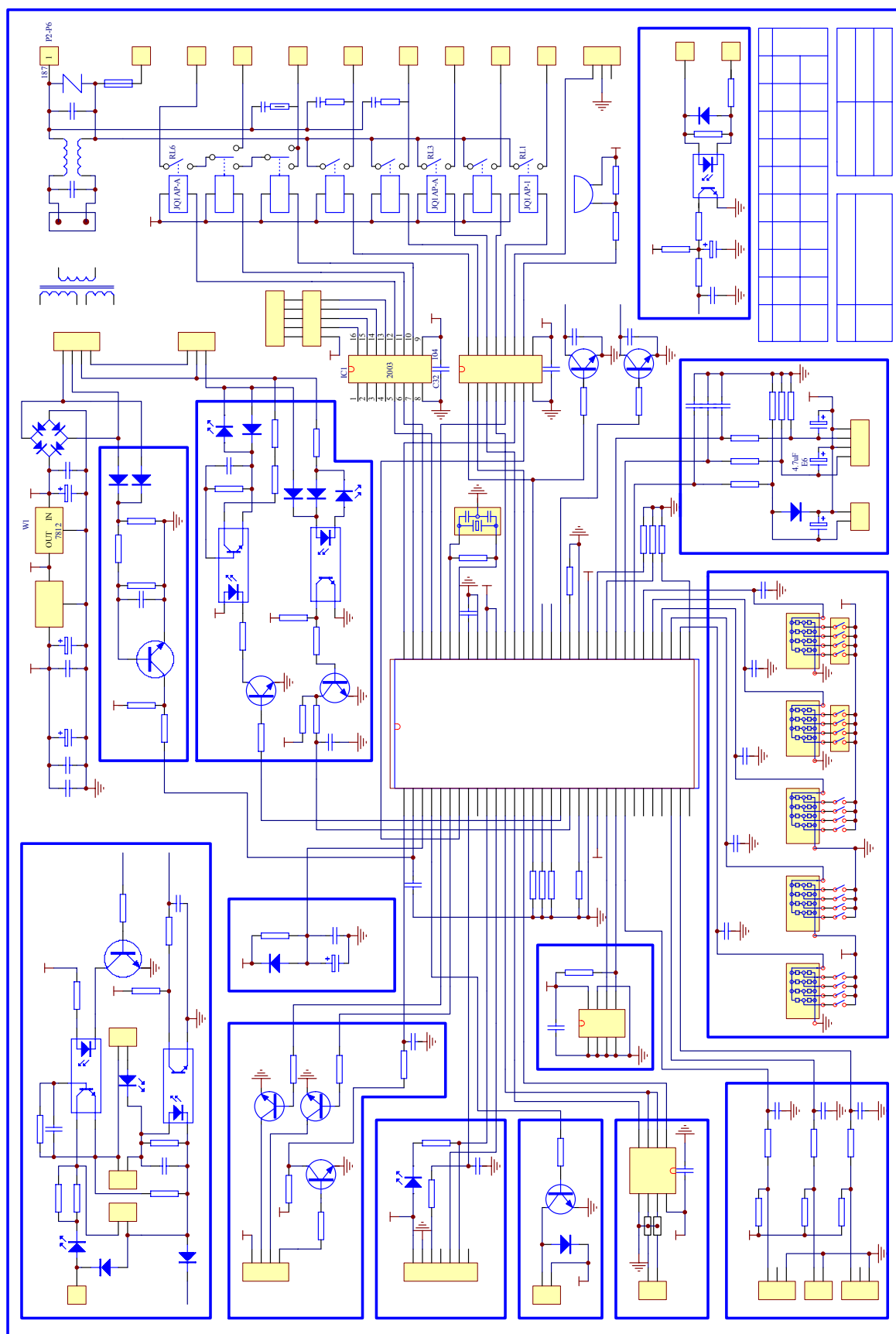
R25=10KΩ±3% B25/50=3700K±3%		R25=10KΩ±3% B25/50=3700K±3%		R25=10KΩ±3% B25/50=3700K±3%	
T(°C)	Rnom(KΩ)	T(°C)	Rnom(KΩ)	T(°C)	Rnom(KΩ)
-20°C	90.79	24	10.43	68	2.09
-19	85.72	25	10	69	2.03
-18	80.96	26	9.59	70	1.96
-17	76.51	27	9.21	71	1.9
-16	72.33	28	8.84	72	1.85
-15	68.41	29	8.48	73	1.79
-14	64.73	30	8.15	74	1.73
-13	61.27	31	7.83	75	1.68
-12	58.02	32	7.52	76	1.63
-11	54.97	33	7.23	77	1.58
-10	52.1	34	6.95	78	1.54
-9	49.4	35	6.68	79	1.49
-8	46.86	36	6.43	80	1.45
-7	44.46	37	6.19		
-6	42.21	38	5.96		
-5	40.08	39	5.73		
-4	38.08	40	5.52		
-3	36.19	41	5.32		
-2	34.41	42	5.12		
-1	32.73	43	4.93		
0	31.14	44	4.75		
1	29.64	45	4.58		
2	28.22	46	4.42		
3	26.4	47	4.26		
4	25.61	48	4.11		
5	24.41	49	3.97		
6	23.27	50	3.83		
7	22.2	51	3.7		
8	21.18	52	3.57		
9	20.21	53	3.45		
10	19.3	54	3.33		
11	18.43	55	3.22		
12	17.61	56	3.11		
13	16.83	57	3.11		
14	16.09	58	2.9		
15	15.38	59	2.81		
16	14.71	60	2.72		
17	14.08	61	2.63		
18	13.48	62	2.54		
19	12.9	63	2.49		
20	12.36	64	2.38		
21	11.84	65	2.3		
22	11.34	66	2.23		
23	10.87	67	2.16		

10.3 PCB circuit diagram:

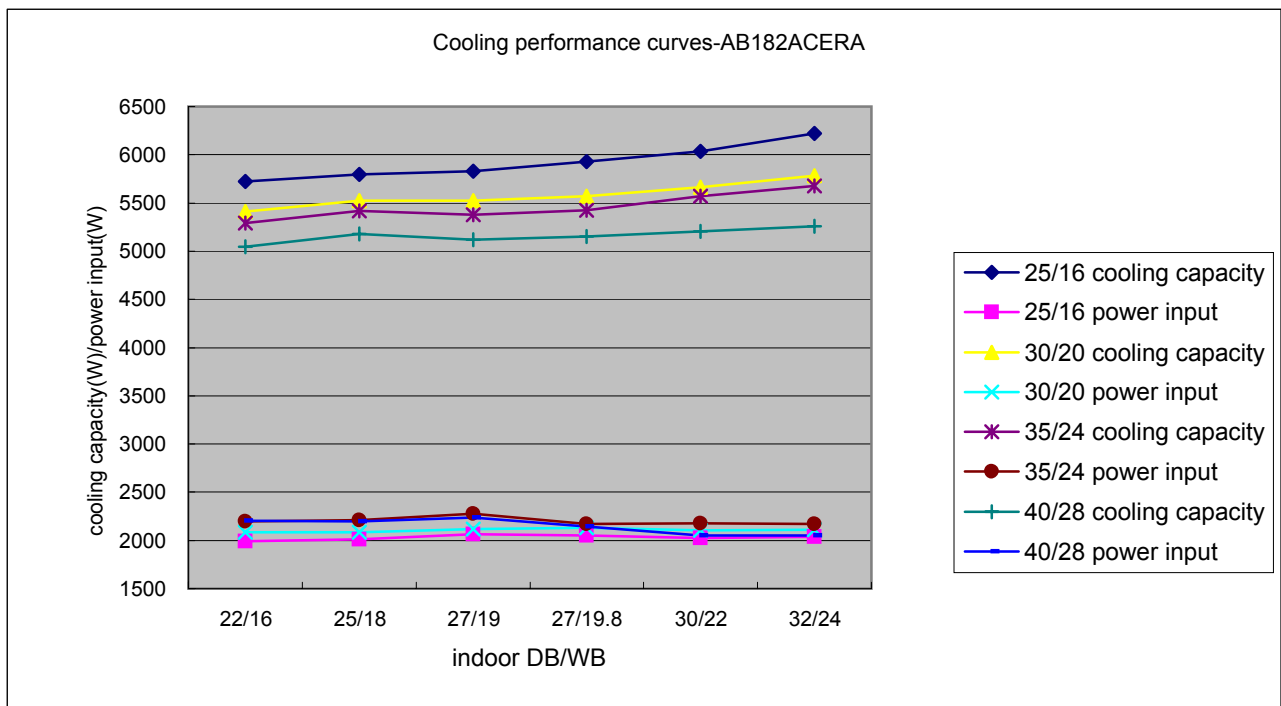
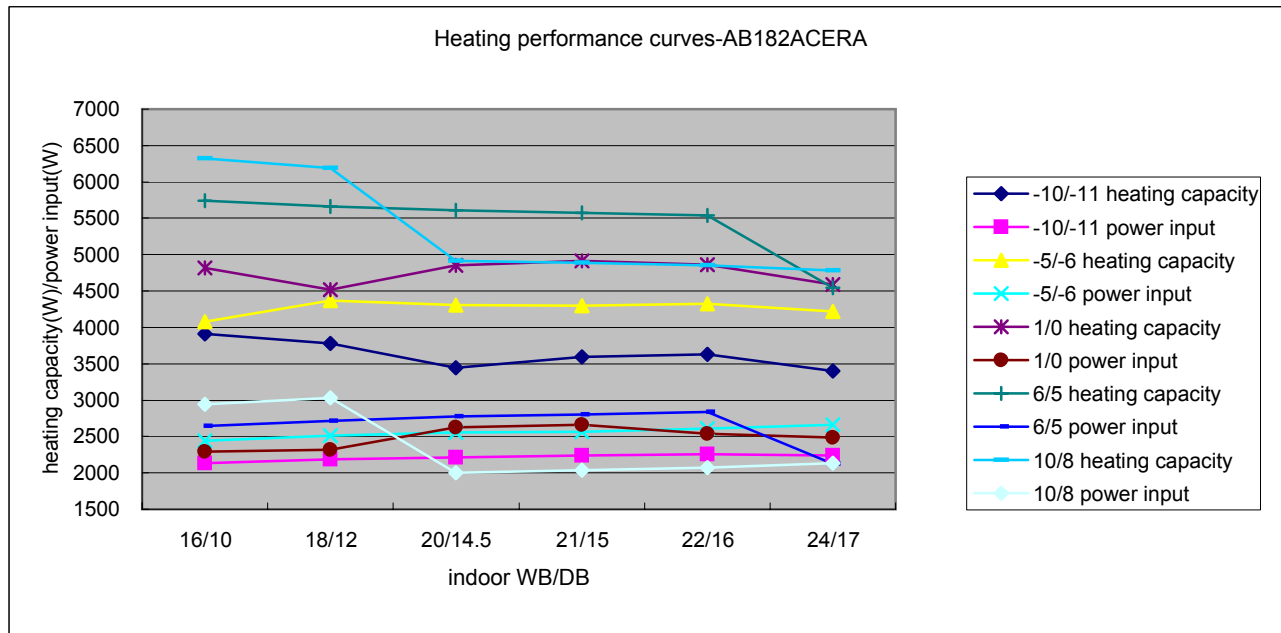
AB182ACERA:



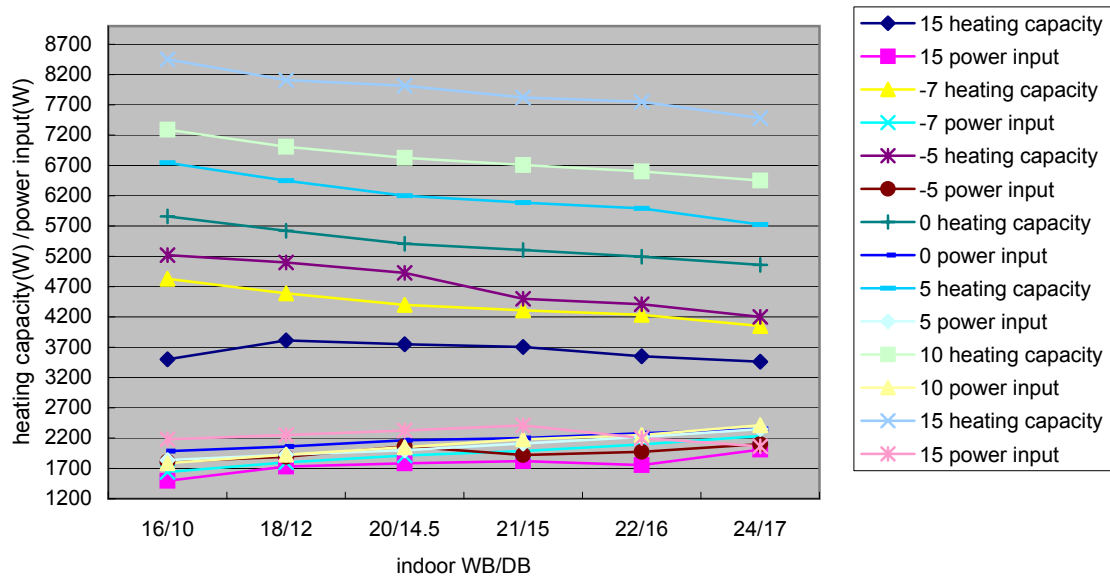
AC182ACERA:



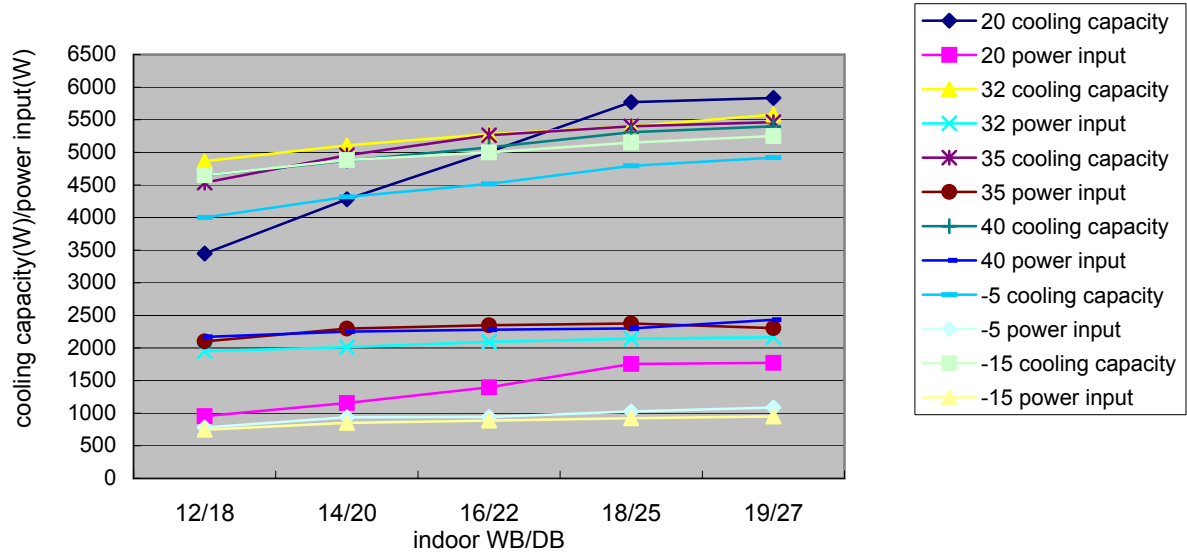
12. Performance curves



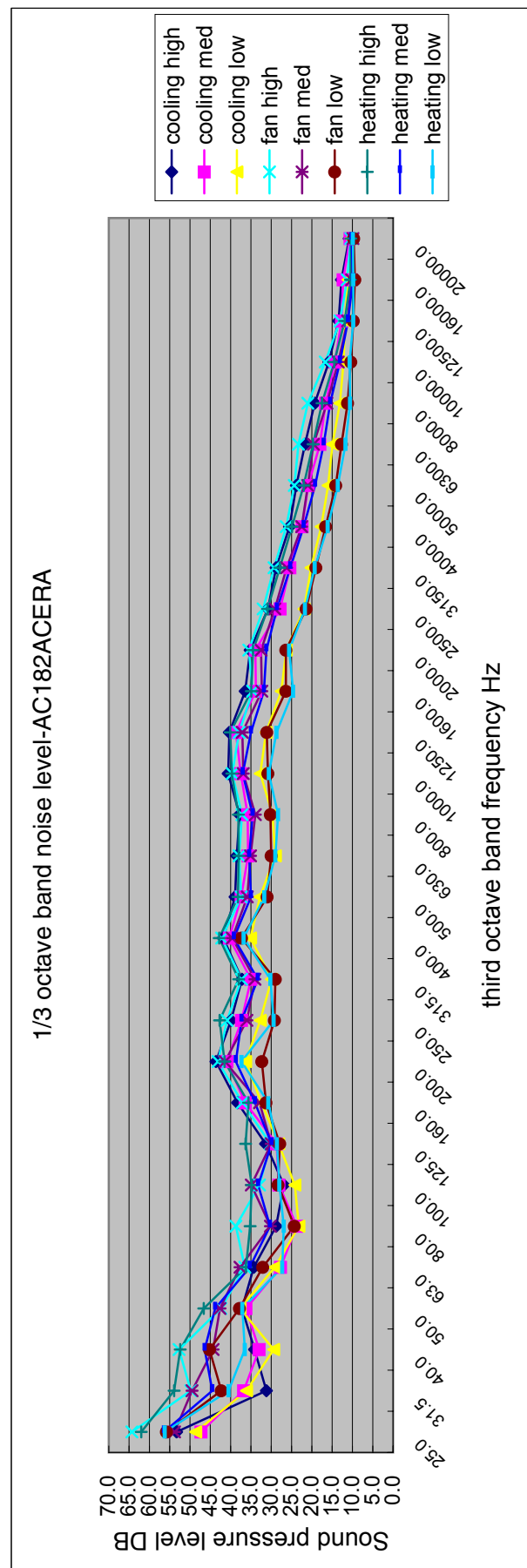
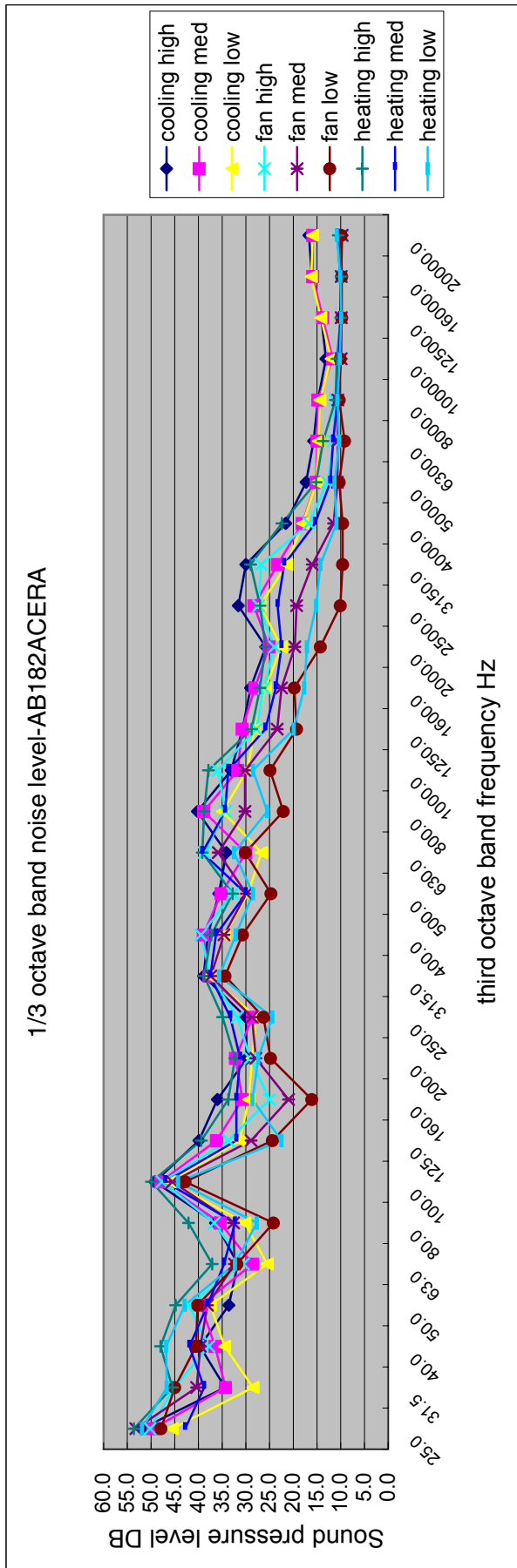
Heating performance curves-AC182ACERA



Cooling performance curves-AC182ACERA



13. Noise level



14. Air velocity distribution

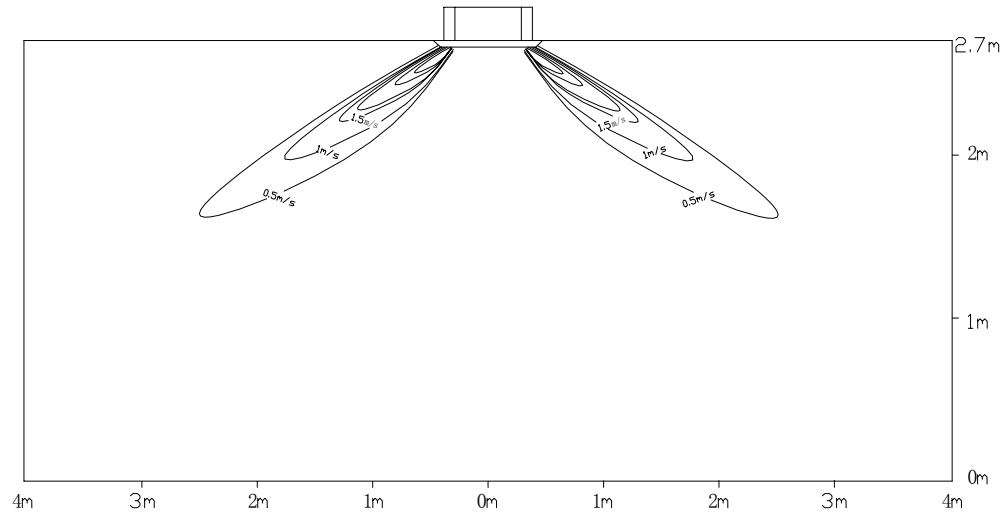
1) Cassette type

a. Cooling / Air Velocity Distribution

Cooling

Blow angle: 40

Air Velocity Distribution

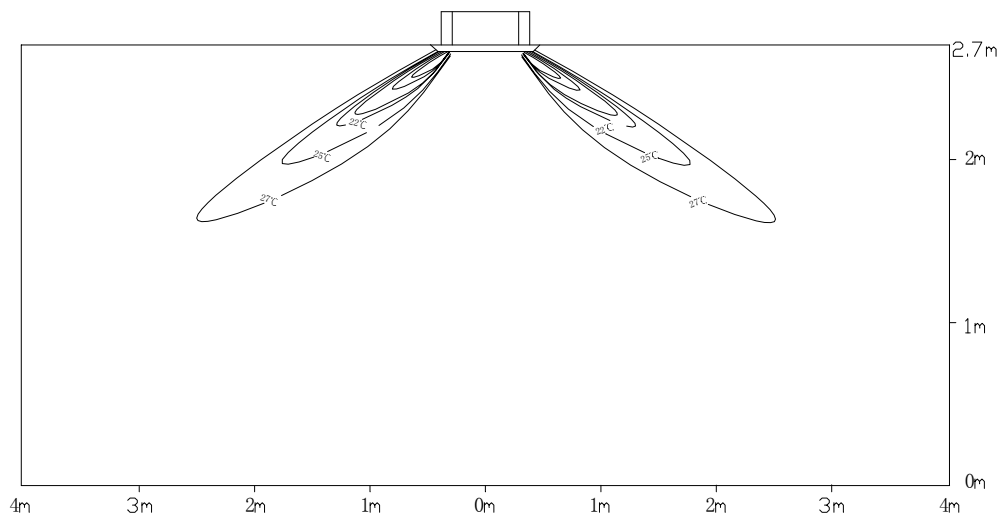


b. Cooling / Temperature Distribution

Cooling

Blow angle: 40

Temperature Distribution

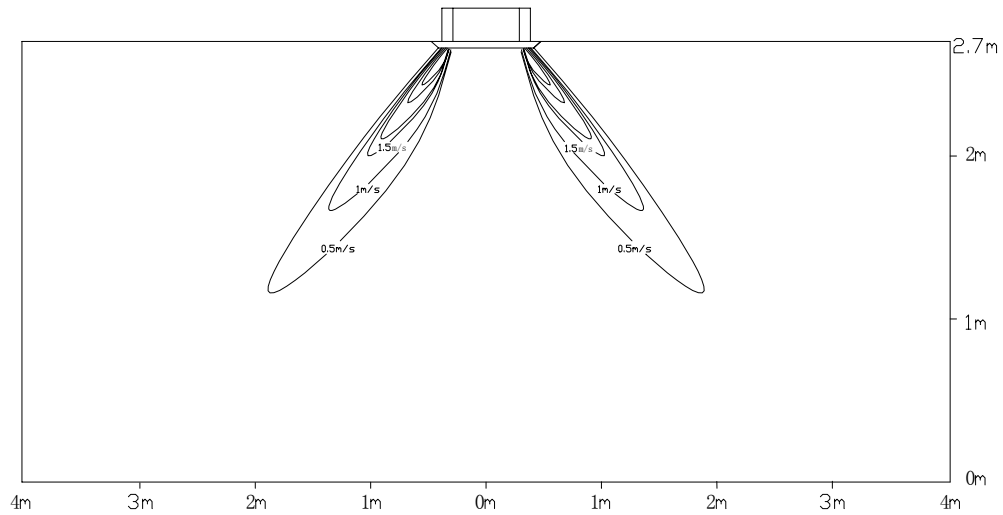


c. Heating / Air Velocity Distribution

Heating

Blow angle: 70°

Air velocity Distribution

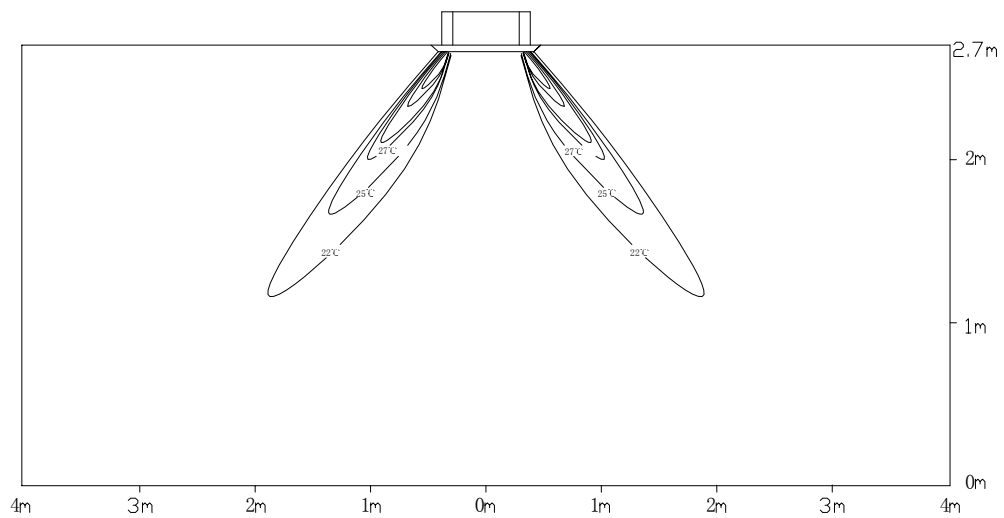


d. Heating / Temperature Distribution

Heating

Blow angle: 70°

Temperature Distribution



2)Convertible type

a) Grounding

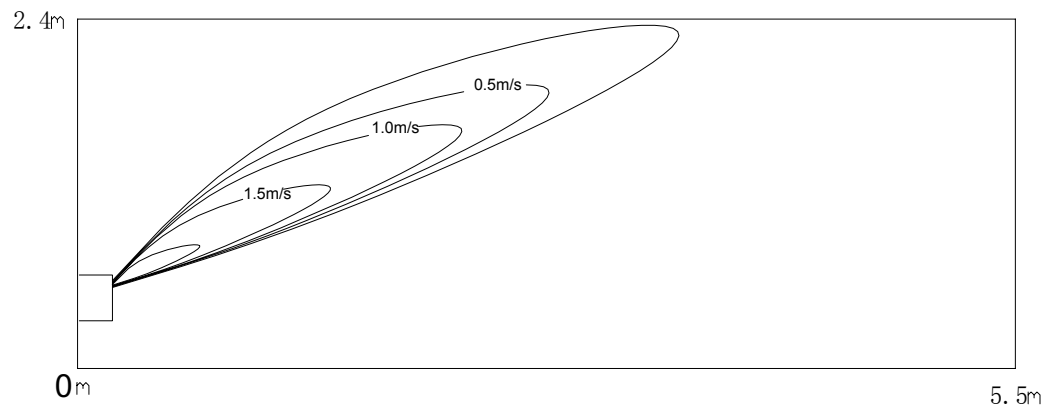
a. Cooling / Air Velocity Distribution

Cooling

Blow angle:25

Air Velocity Distribution

2



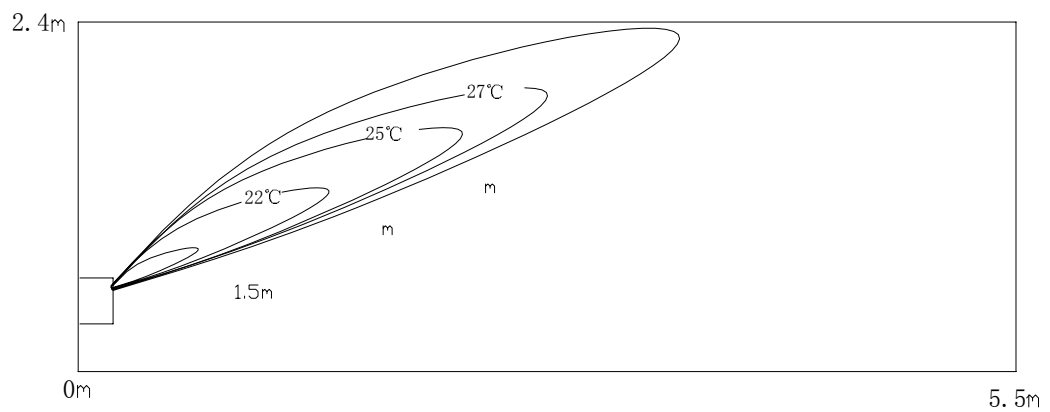
b. Cooling / Temperature Distribution

Cooling

Blow angle:25

Temperature Distribution

2



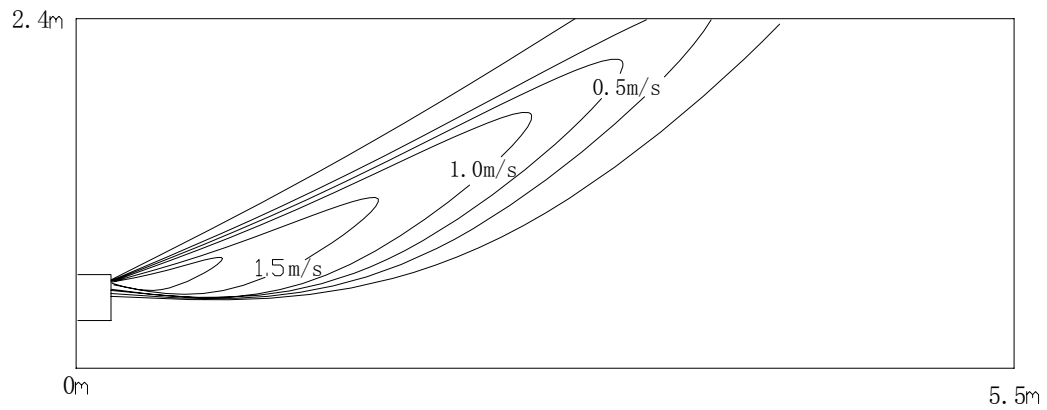
c. Heating / Air Velocity Distribution

Heating

Blow angle:5

Air velocity Distribution

2



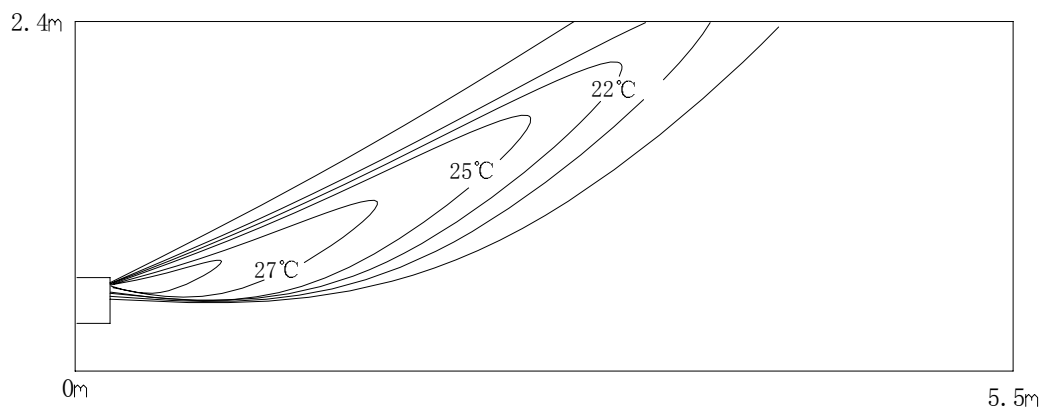
d. Heating / Temperature Distribution

Heating

Blow angle:5

Temperature Distribution

2



b) Ceiling

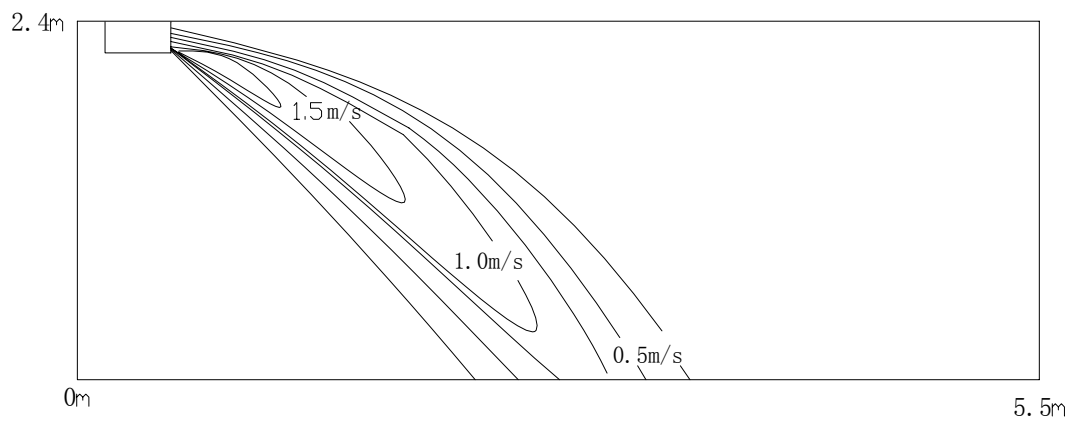
a. Cooling / Air Velocity Distribution

Cooling

Blow angle: 25

Air Velocity Distribution

2



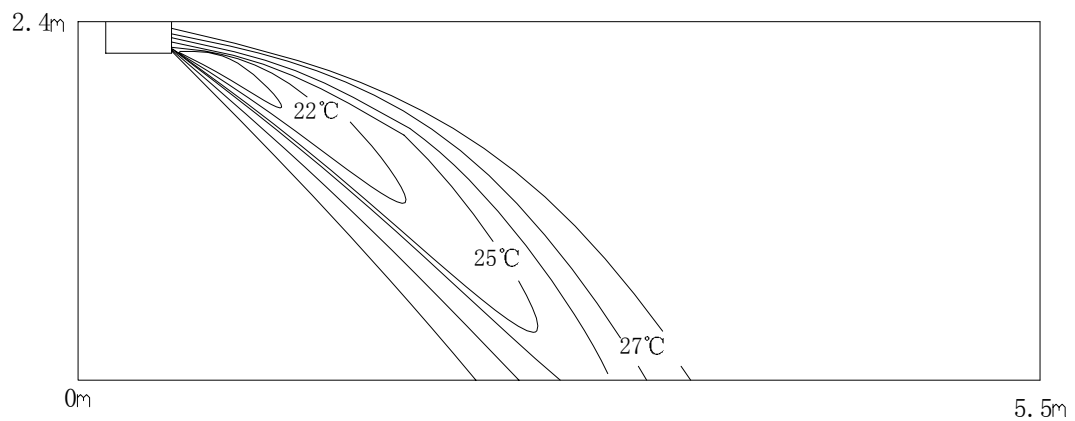
b. Cooling / Temperature Distribution

Cooling

Blow angle: 25

Temperature Distribution

2



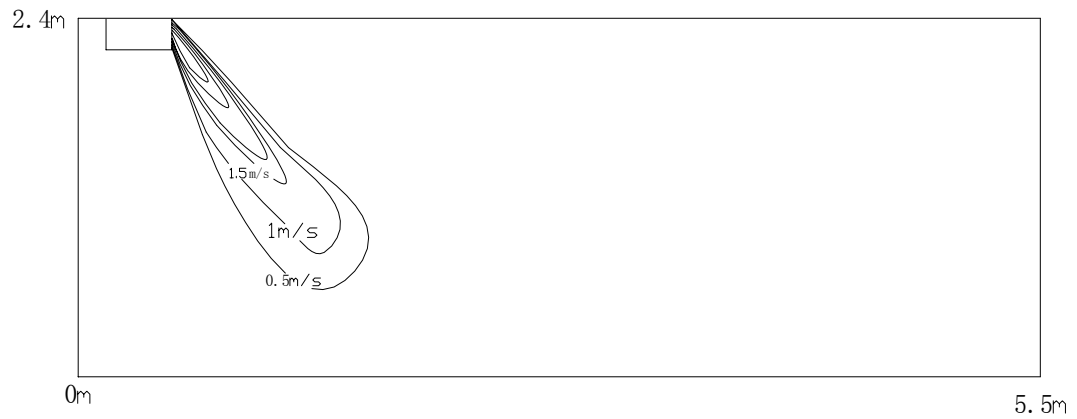
c. Heating / Air Velocity Distribution

Heating

Blow angle: 65

Air velocity Distribution

2



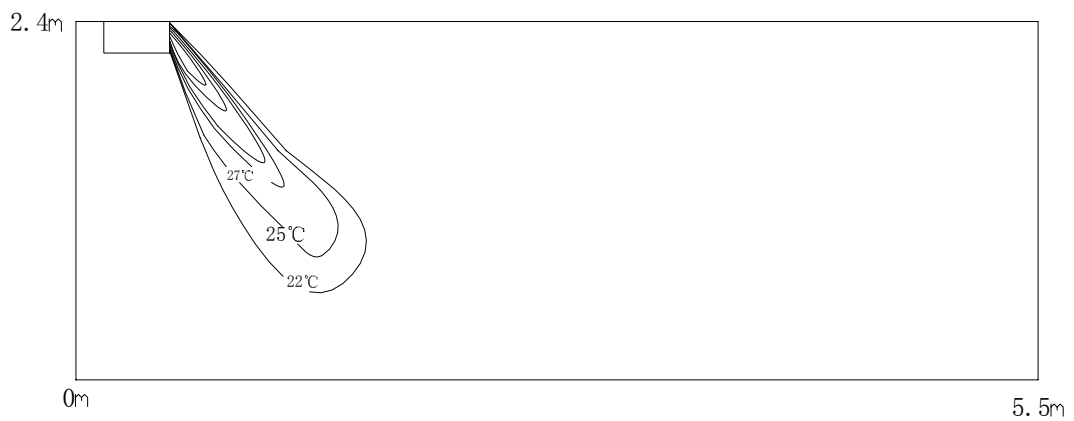
d. Heating / Temperature Distribution

Heating

Blow angle: 65

Temperature Distribution

2



Sincere Forever

Haier Group

Haier Industrial Park, No.1, Haier Road**266101, Qingdao, China****<http://www.haier.com>**