

Haier

Super Match



3U19FS2ERA



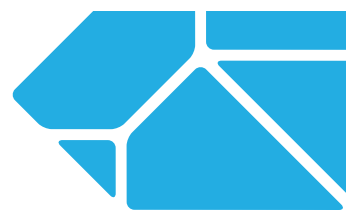
3U24GS2ERA



4U30HS2ERA



5U34HS2ERA



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Part 1 General Information





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1. Indoor / Outdoor unit models

Indoor unit models

<p>4-way Cassette Type (PB-700IB) AB09CS2ERA AB12CS2ERA(S) AB18CS2ERA(S)</p> 	<p>Slim Low ESP duct (30Pa) AD09SS1ERA(N)(P) AD12SS1ERA(N)(P) AD18SS1ERA(N)(P) AD24SS1ERA(N)(P)</p> 
<p>4-way Cassette Type (PB-950JB) AB24ES1ERA(S)</p> 	<p>Medium ESP duct (70Pa) AD12MS1ERA AD18MS1ERA AD24MS2ERA</p> 
<p>Wall Mounted Type AF09AB1HRA AF09AS1ERA</p> 	<p>Wall Mounted Type AF12AB1HRA AF12AS1ERA</p> 

Outdoor unit models

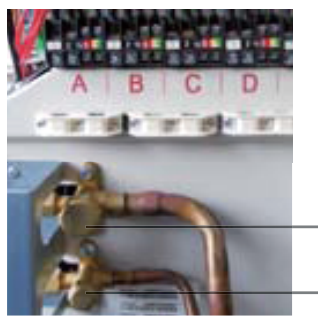
<p>3U19FS2ERA</p> 	<p>3U24GS2ERA</p> 
<p>4U30HS2ERA</p> 	<p>5U34HS2ERA</p> 

2. Feature

2.1 Easy Instalaltion, More User Friendly

- **Easy vacuum & charging**

Vacuum and charging every indoor unit just one time from general stop valve(1:4 to 1:5 outdoor unit)



General stop valve

- **Easy start up& maintenance**

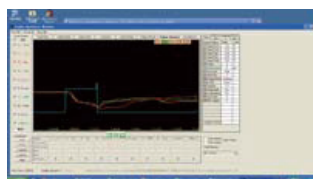
§ Wiring & piping check program: When start up, PCB programme can check wiring &piping correctness automatically, only need 10min for every indoor unit. If something wrong, the outdoor unit malfunction display screen will show code. Boost the start up correctness.



§ One screw maintenance panel:New maintenance panel is fixed on the side panel, installer only take down the maintenacan panel by take down only one screw, then to check the compressor running frequency and error from the double 8 screen.



§ In start up& maintenance, software can connect with outdoor unit by TD-02, read all indoor unit & outdoor unit running parameter, also with the function to show parameter curve.When malfunction happen, show failure code.



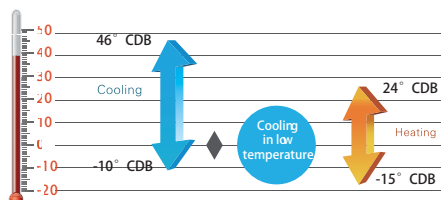
2.2 Wider Installation

- **Wider range operation:**

Wider range operation of outside temperature

Cooling: from -10°C to 46°C

Heating: from -15°C to 24°C



2.3 Easy control

The universal wireless controller for console, cassette, convertible, duct can be used for everyone easily



Separate cool, heat, dry, quiet buttons easy to use

Part 2 Indoor units

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4-Way Cassette

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1. Features



AB09CS2ERA
AB12CS2ERA(S)
AB18CS2ERA(S)



AB24ES1ERA(S)



Compact Design(Only for units AB12-AB18)

The panel dimension is 700mm*700mm, smaller and universal. Harmony with the environment.

The unit dimension is 570mm*570mm*260mm for easy installation.

It is universal and harmonious with standard ceiling 600mm*600mm, which avoids the breakage for ceiling during installation.

Built-in High Head Drain Pump

One standard drain-head height up to 600mm is possible, creating the ideal solution for perfect water drainage.

Fresh Air Inlet(AB12-AB18)

Pre-set fresh air inlet can introduce the outside fresh air into the room, greatly improve the indoor air quality, away from "air conditioner symptom".

Antifouling and Movable Blade

The movable blade has antifouling design and can effectively control the airflow and air direction. It is clean to use without polluting the ceiling. It has standard long acting filter screen to make the cleaning time largely extended. When there are many units, the operation of cleaning and maintenance will be largely reduced.

2. Specification

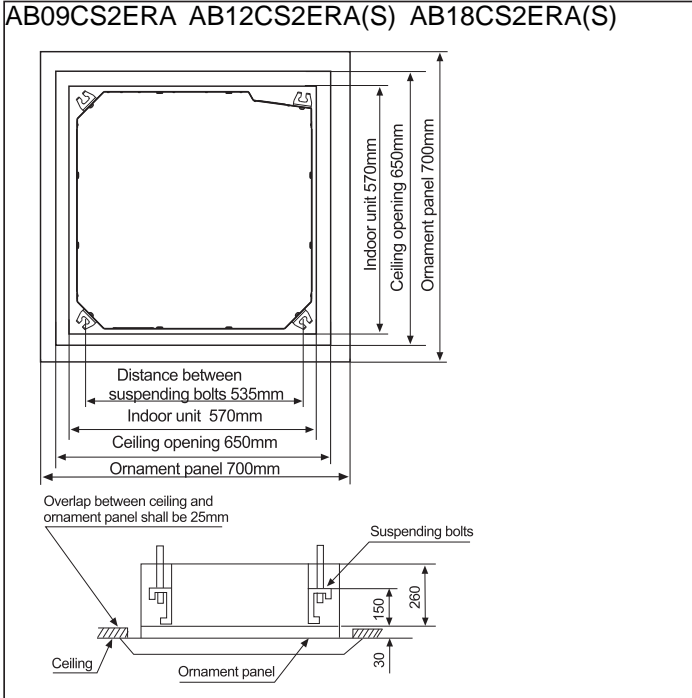
Item		Model	AB09CS1ERA		
Function		—	Cooling	Heating	
capacity		W	2600	2900	
sensible heat ratio		W	0.71	/	
Dehumidifying capacity		10 ⁻³ ·xm ³ /h	1.0		
indoor unit	power supply		1PH, 220-230V~, 50/60Hz		
	Fan	Type × Number	—	centrifugal*1	
		Speed(H-M-L)	r/min	690/620/560	
		Fan motor output/input power	W	10/33	
		Air-flows (H/M/L)	m ³ /h	620/520/450	
		Speed (Hi/Me/Lo)	rps	700/640/580	
	Heat exchanger	Type / Diameter	mm	inner grooved pipe/Φ7.0	
		Row	—	1	
		Total area	m ²	0.272	
		Temp.scope	°C	2.0-7.0	
	Dimension (L×W×H)	External	mm×mm×mm	570*570*260	
		Package	mm×mm×mm	718*680*380	
	Drainage pipe (material,I.D/O.D)		mm	PVC 26/32	
	control type(Remote/Wired)			Remote or Wired	
	Fresh air hole dimension		mm	95	
	Electricity Heater		kW	none	
	Noise level(H-M-L)	Sound power level	dB(A)	50/46/42	
		Sound pressure level	dB(A)	40/36/32	
	weight(Net/Shipping)		kg/kg	17/20	
	Controller (O-Optional, S-Standard)		Wired	YR-E14(O)	
Infrared			YR-HD(S)		
panel	panel model(color)		PB-700IB(White)		
	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	2.8/4.8	
Piping	Refrigerant	Type	R410A		
	Pipe	Liquid	mm	Φ6.35(1/4)	
		Gas	mm	Φ9.52(3/8)	
	Connecting method			Flared	

Item		Model	AB12CS2ERA		
Function		—	Cooling	Heating	
capacity		W	3500	3700	
sensible heat ratio		W	0.71	/	
Dehumidifying capacity		10 ⁻³ xm ³ /h	1.6		
indoor unit	power supply		1PH, 220-230V~, 50/60Hz		
	Fan	Type × Number	—	centrifugal*1	
		Speed(H-M-L)	r/min	690/620/560	
		Fan motor output/input power	W	10/33	
		Air-flows (H/M/L)	m ³ /h	620/520/450	
	Heat exchanger	Type / Diameter	mm	inner grooved pipe/∅ 7.0	
		Row	—	2	
		Total area	m ²	/	
	Dimension (LxWxH)	External	mmxmmxmm	570*570*260	
		Package	mmxmmxmm	718*680*380	
	Drainage pipe (material,I.D/O.D)		mm	PVC 26/32	
	control type(Remote/Wired)			Remote or Wired	
	Fresh air hole dimension		mm	95	
	Electricity Heater		kW	none	
	Noise level(H-M-L)	Sound power level	dB(A)	50/46/42	
		Sound pressure level	dB(A)	40/36/32	
	weight(Net/Shipping)		kg/kg	18.5/22	
Controller (O-Optional,S-Standard)		Wired	YR-E14(O)		
		Infrared	YR-HD(S)		
panel	panel model(color)		PB-700IB(White)		
	Dimension	External(L*W*H)	mmxmmxmm	700*700*60	
		Package(L*W*H)	mmxmmxmm	740*750*115	
	Weight(Net/Shipping)		kg/kg	2.8/4.8	
Piping	Refrigerant	Type	R410A		
	Pipe	Liquid	mm	∅6.35(1/4)	
		Gas	mm	∅9.52(3/8)	
	Connecting method			Flared	

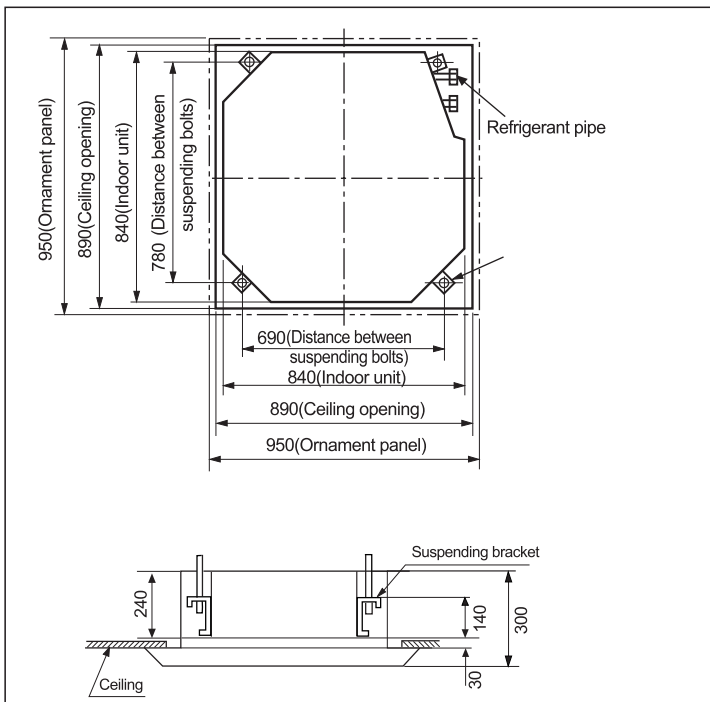
Item		Model	AB18CS2ERA		AB24ES1ERA		
Function		—	Cooling	Heating	Cooling	Heating	
capacity		W	5000	5.2	7100	7100	
sensible heat ratio		W	0.71	/	0.72	/	
Dehumidifying capacity		10 ⁻³ xm ³ /h	/		2.5		
indoor unit	power supply		1PH, 220-230V~, 50/60Hz		1PH, 220-230V~, 50/60Hz		
	Fan	Type × Number	—	centrifugal*1		centrifugal*1	
		Speed(H-M-L)	r/min	795/690/550		670/550/460	
		Fan motor output/input power	W	14/40		38/133	
		Air-flows (H/M/L)	m ³ /h	700/620/500		1300/1100/870	
	Heat exchanger	Type / Diameter	mm	inner grooved pipe/∅ 7.0		inner grooved pipe/∅ 7.0	
		Row	—	2		2	
		Total area	m ²	/		/	
	Dimension (LxWxH)	External	mmxmmxmm	570*570*260		840/840/240	
		Package	mmxmmxmm	718*680*380		930/930/330	
	Drainage pipe (material,I.D/O.D)		mm	PVC 26/32		PVC 26/32	
	control type(Remote/Wired)			Remote or Wired		Remote or Wired	
	Fresh air hole dimension		mm	95		95	
	Electricity Heater		kW	none		none	
	Noise level(H-M-L)	Sound power level	dB(A)	55/50/47		59/57/52	
		Sound pressure level	dB(A)	42/37/35		46/44/39	
	weight(Net/Shipping)		kg/kg	18.5/22		25.5/30.5	
	Controller (O-Optional, S-Standard)		Wired	YR-E14(O)		YR-E14(O)	
			Infrared	YR-HD(S)		YR-HD(S)	
panel	panel model(color)		PB-700IB(White)		PB-950JB		
	Dimension	External(L*W*H)	mmxmmxmm	700*700*60		950/950/60	
		Package(L*W*H)	mmxmmxmm	740*750*115		985/985/115	
Weight(Net/Shipping)		kg/kg	2.8/4.8		6.0/7.5		
Piping	Refrigerant		Type		R410A		
	Pipe	Liquid	mm	∅6.35(1/4)		∅9.52(3/8)	
		Gas	mm	∅12.7(1/2)		∅15.88(3/4)	
	Connecting method			Flared		Flared	

3. Dimension

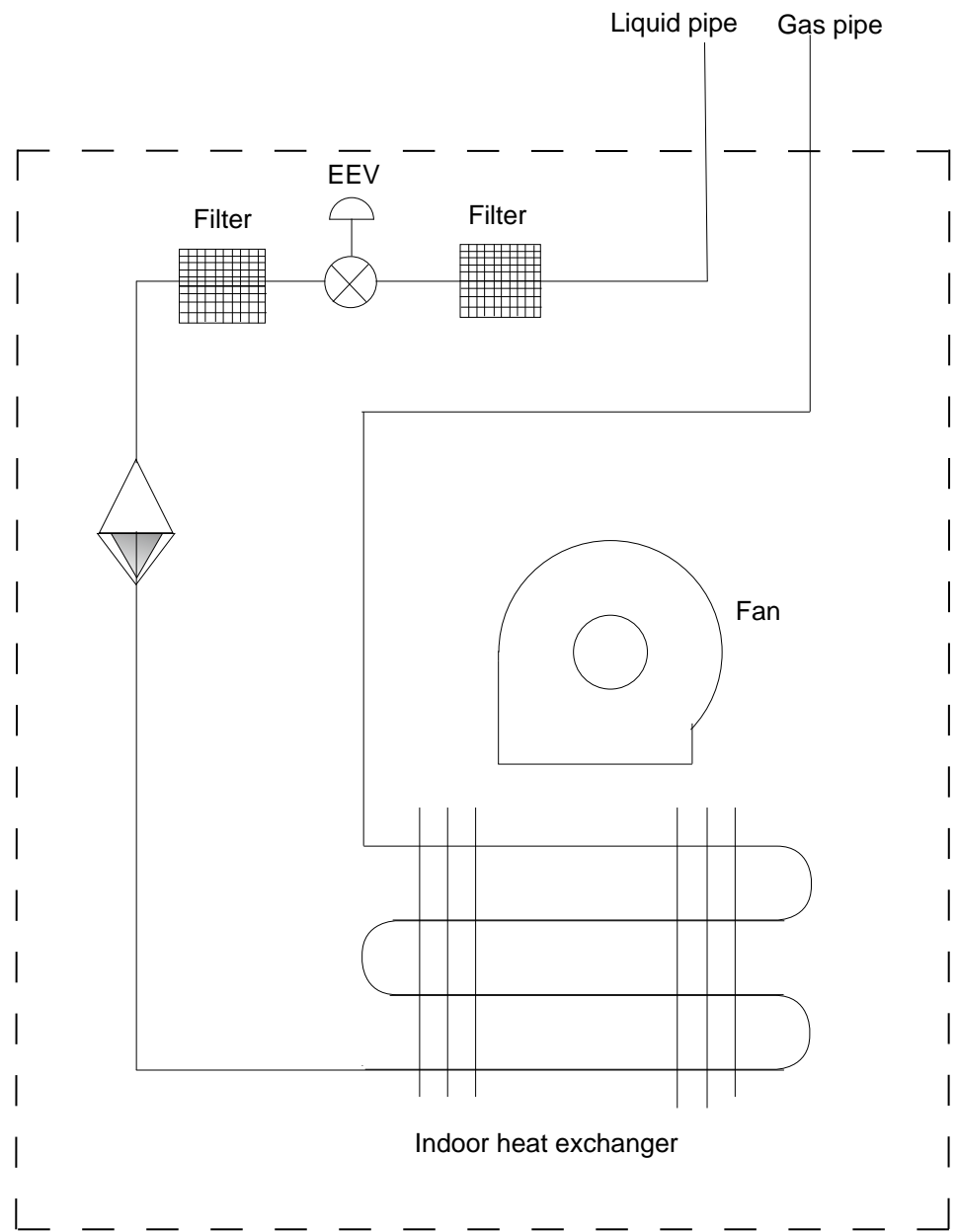
(1) Position of ceiling opening between unit and suspending bolt.



AB24ES1ERA

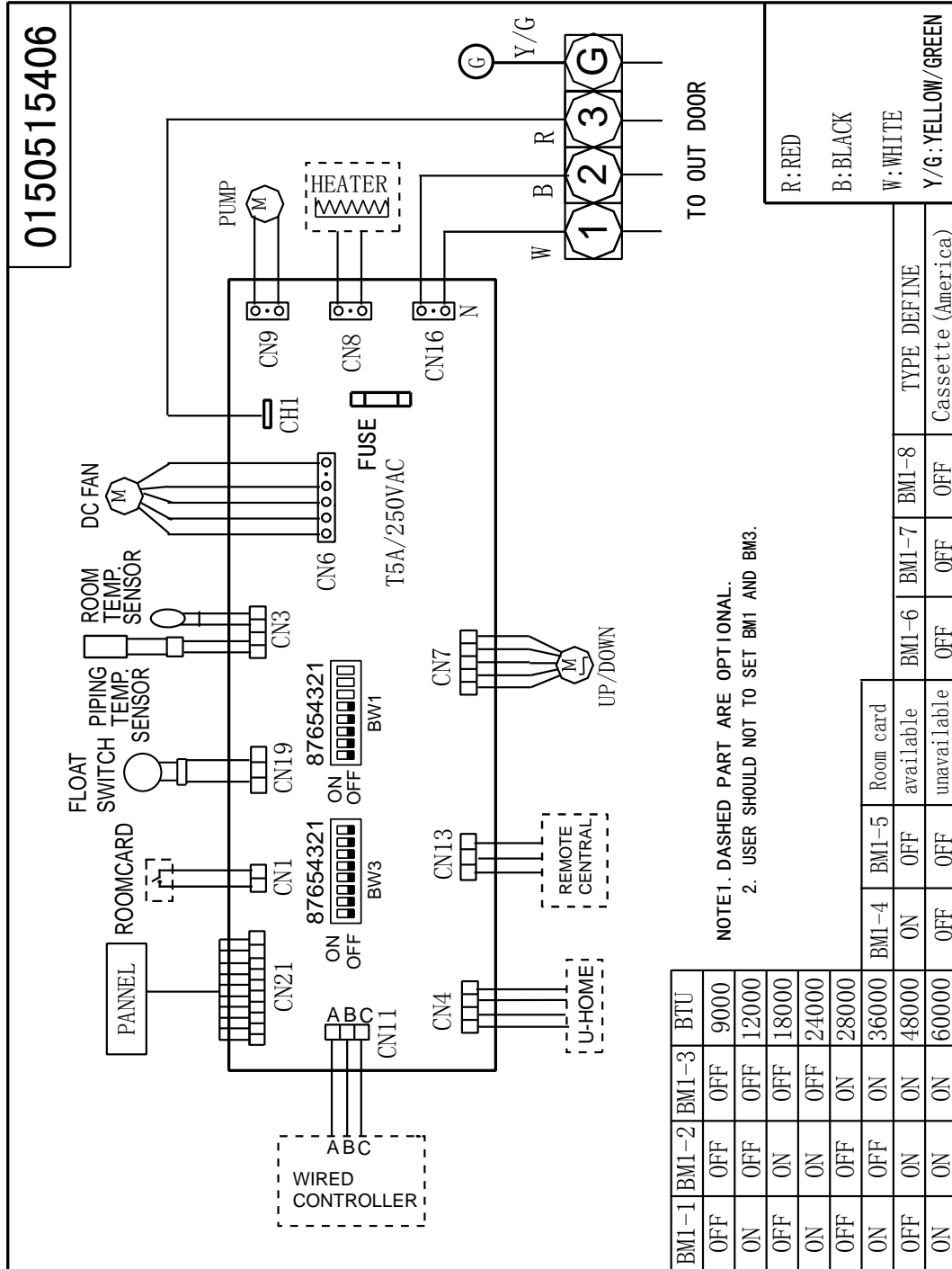


4. Piping diagram

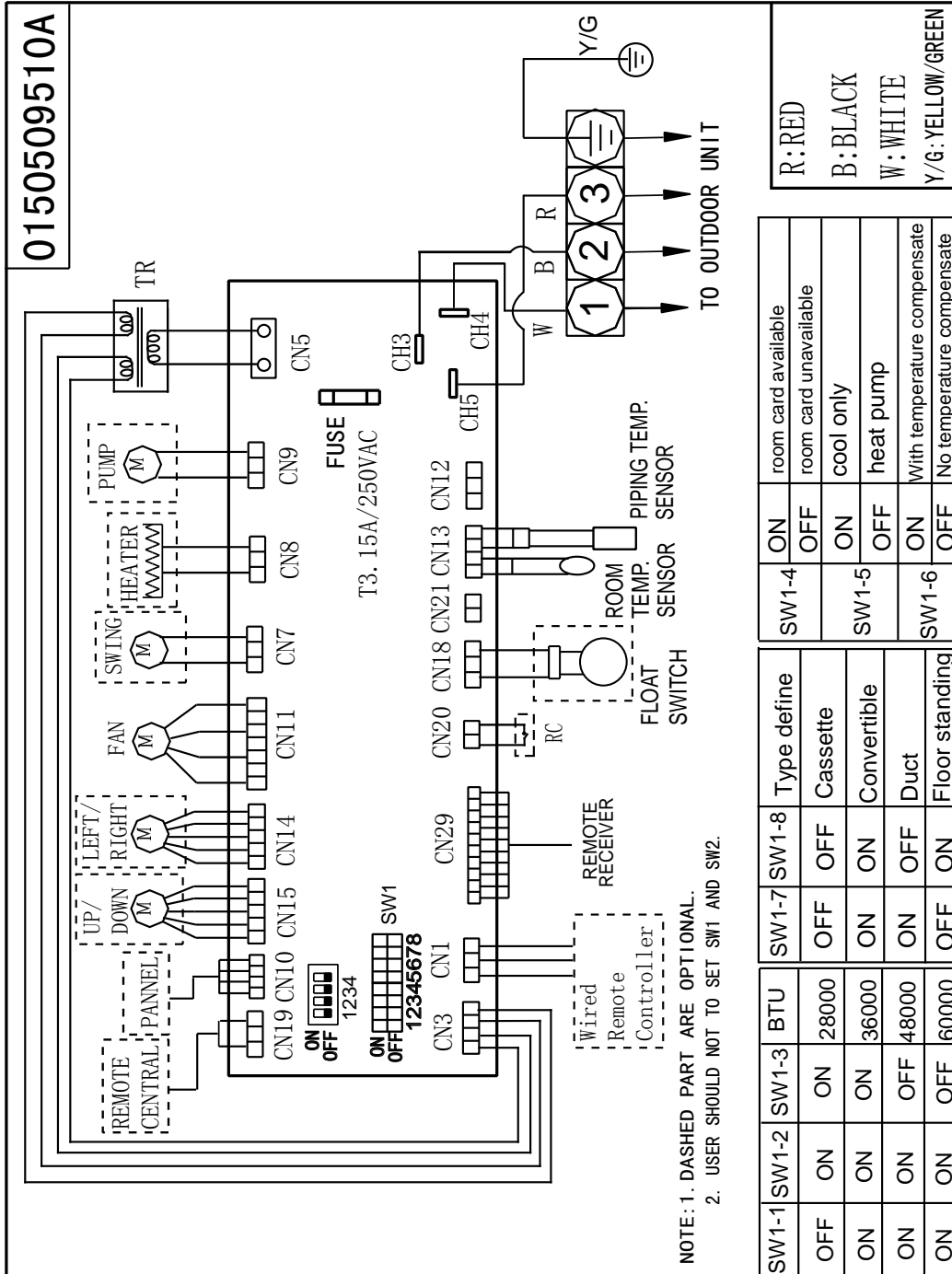


5. Wiring diagram

AB09CS2ERA AB12CS2ERA(S) AB18CS2ERA(S)



AB24ES1ERA(S)



SW1-1	SW1-2	SW1-3	BTU	SW1-7	SW1-8	Type define	room card available	R: RED
OFF	ON	ON	28000	OFF	OFF	Cassette	room card unavailable	B: BLACK
ON	ON	ON	36000	ON	ON	Convertible	cool only	W: WHITE
ON	ON	OFF	48000	ON	OFF	Duct	heat pump	Y/G: YELLOW/GREEN
ON	ON	OFF	60000	OFF	ON	Floor standing	With temperature compensate	
				SW1-4	ON		No temperature compensate	
				SW1-5	OFF			
				SW1-6	ON			
				SW1-6	OFF			

6. Air velocity and temperature distribution

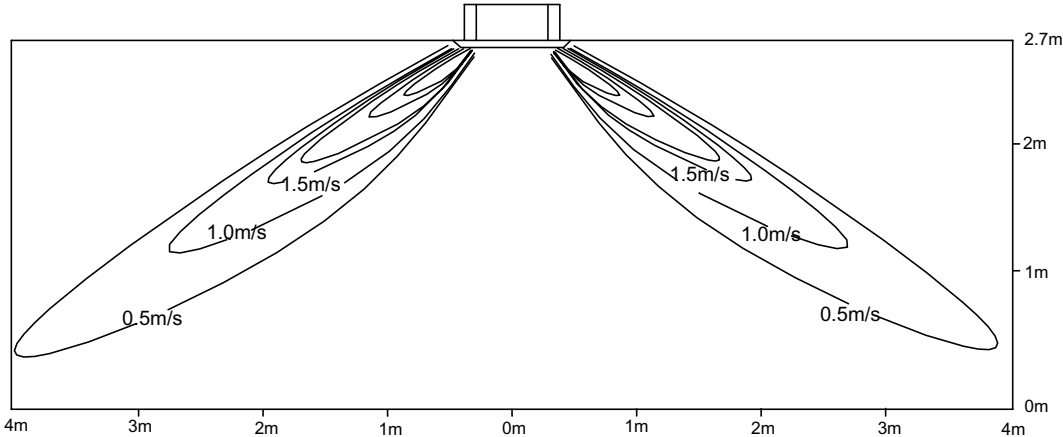
AB09/12CS2ERA:

a. Cooling / Air Velocity Distribution

Cooling

Blow angle:40

Air Velocity Distribution

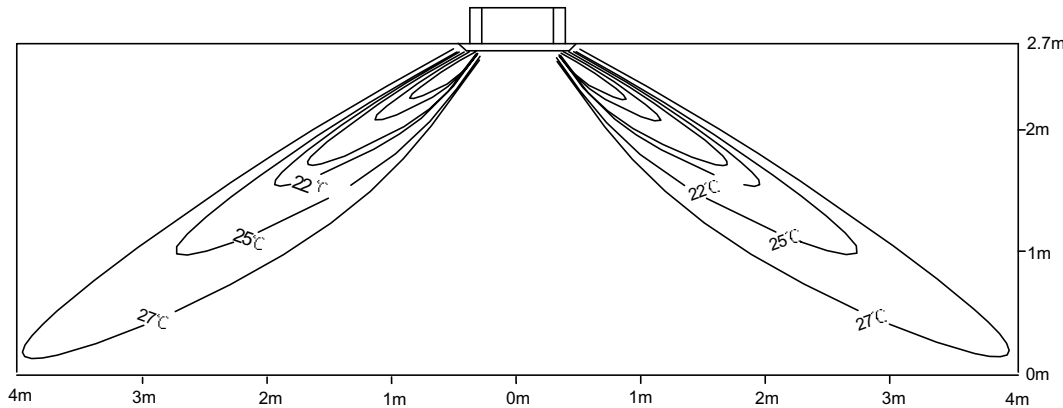


b. Cooling / Temperature Distribution

Cooling

Blow angle:40

Temperature Distribution

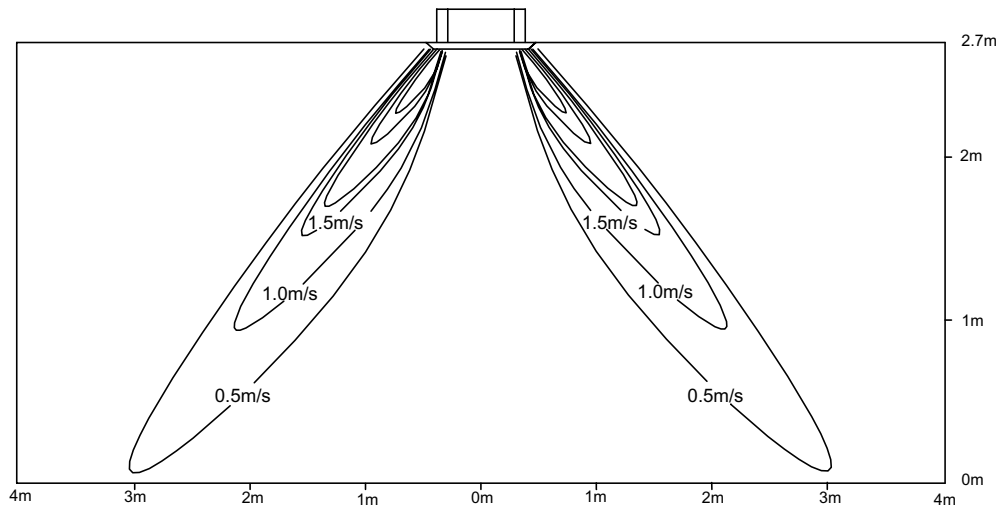


c. Heating / Air Velocity Distribution

Heating

Blow angle: 70

Air velocity Distribution

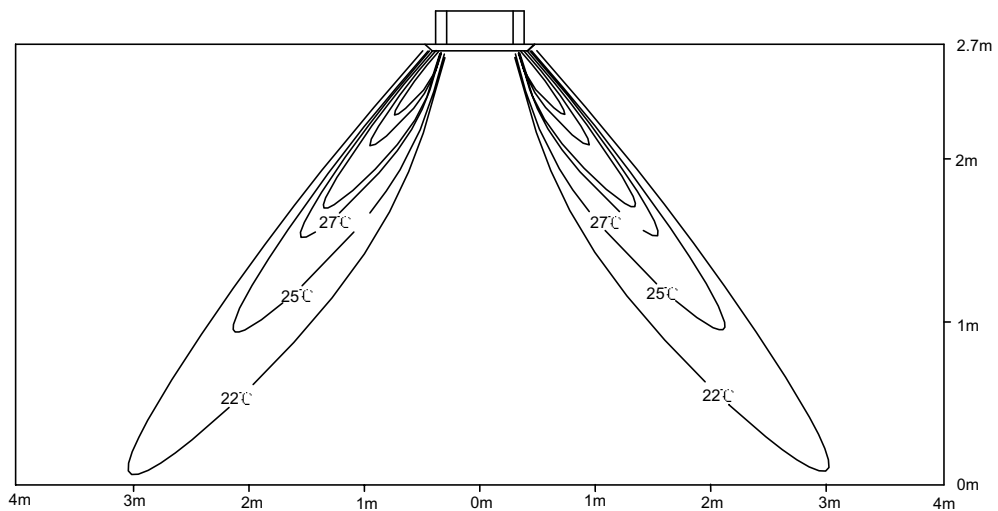


d. Heating / Temperature Distribution

Heating

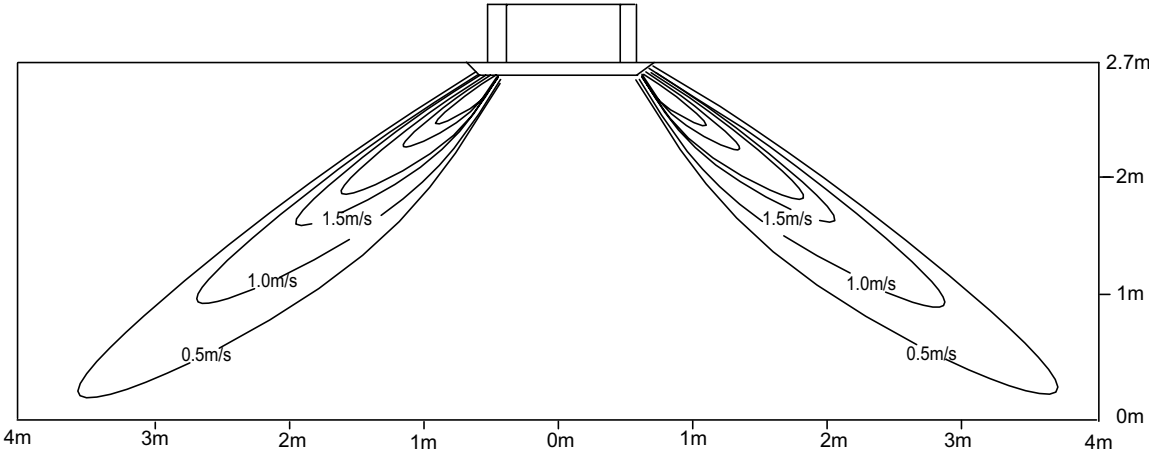
Blow angle: 70

Temperature Distribution

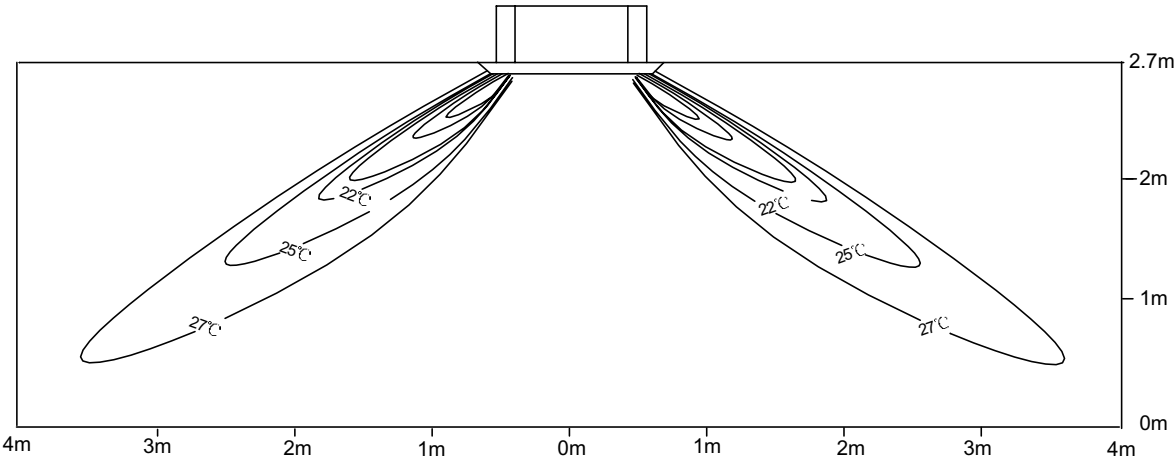


AB18CS2ERA(S) AB24ES1ERA(S)

- a. Cooling / Air Velocity Distribution
- Cooling
Blow angle:40
Air Velocity Distribution

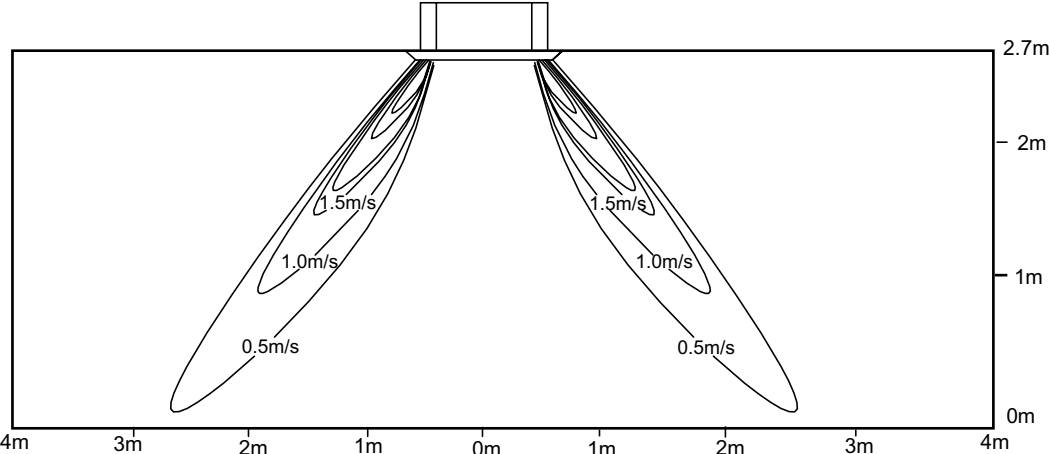


- b. Cooling / Temperature Distribution
- Cooling
Blow angle:40
Temperature Distribution



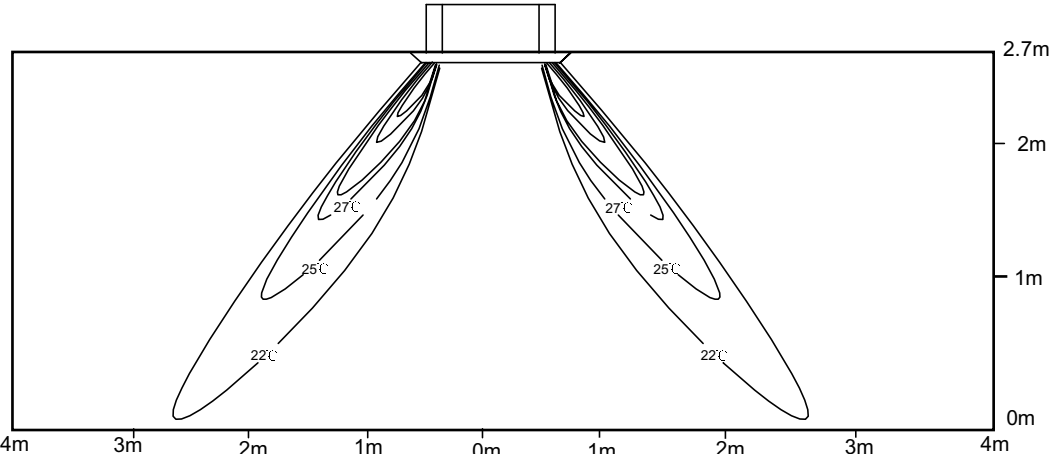
c. Heating / Air Velocity Distribution

Heating
Blow angle:70
Air velocity Distribution

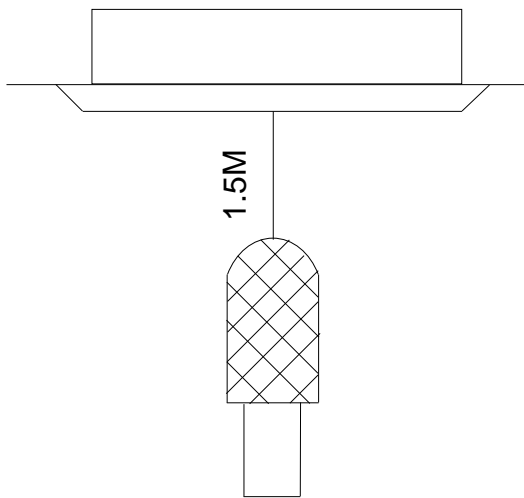


d. Heating / Temperature Distribution

Heating
Blow angle:70
Temperature Distribution



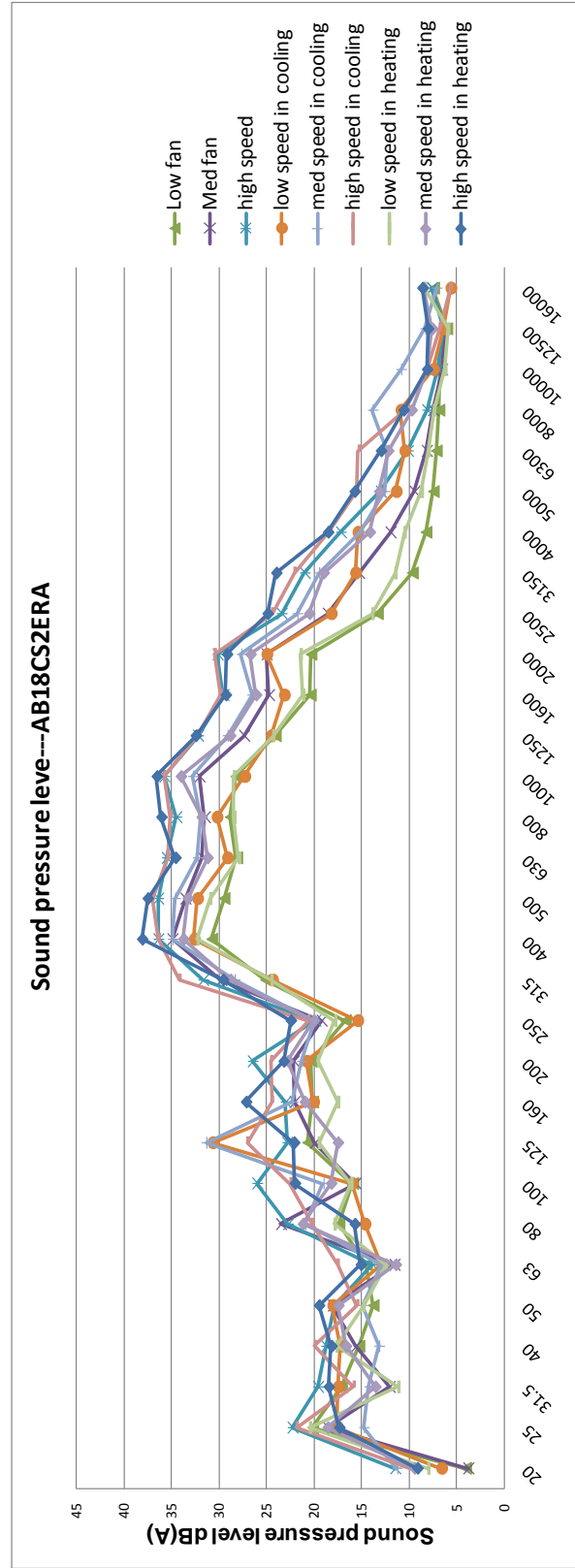
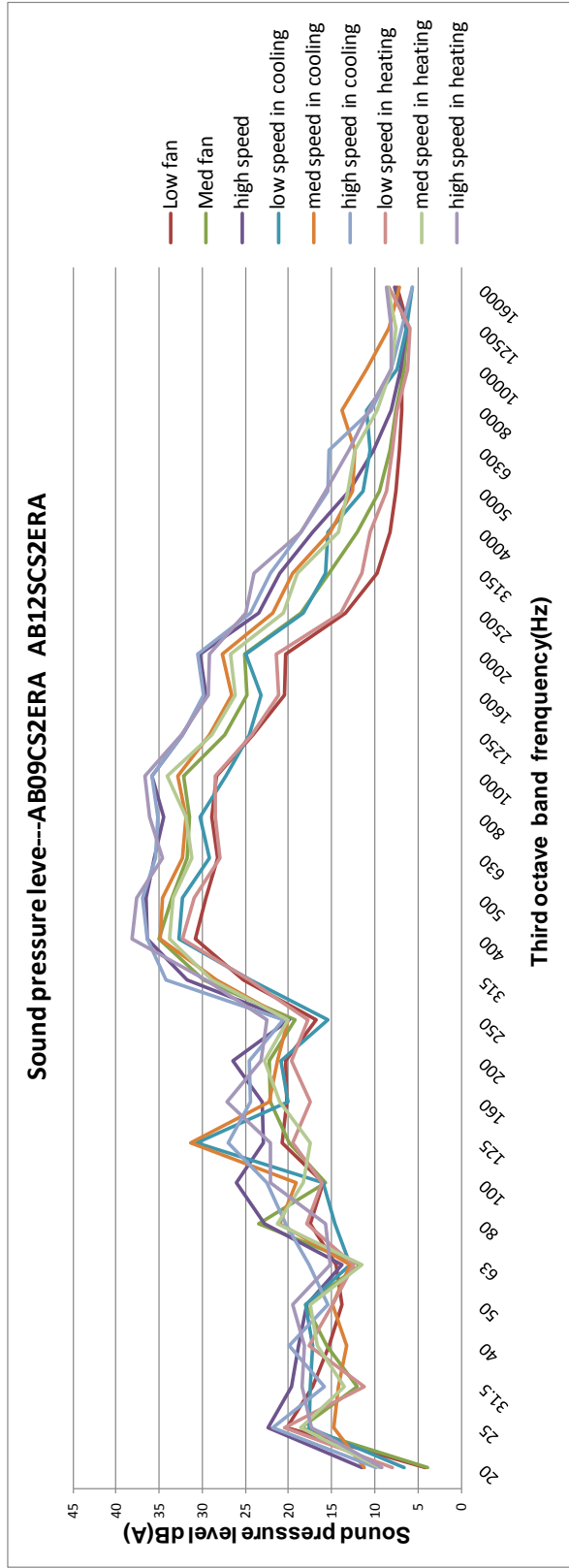
7. Sound Pressure Level

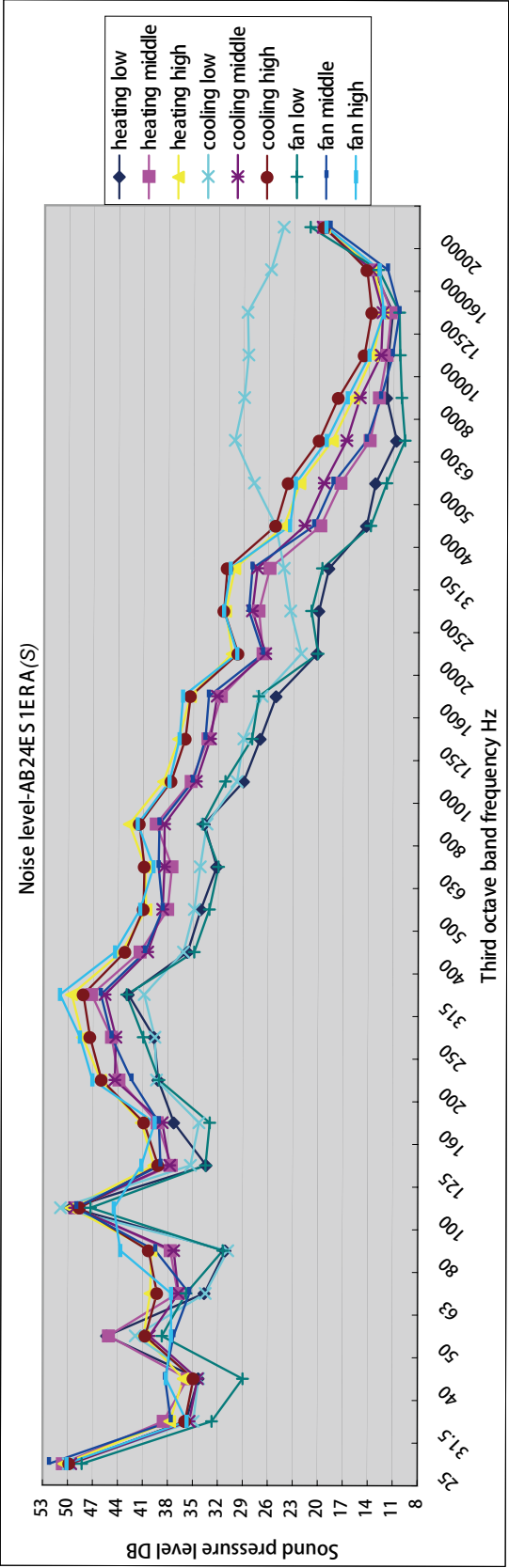


1) Testing illustrate:

2) Testing condition:

- a: Unit running in the normal condition
- b: Test in the semi-anechoic chamber
- c: Noise level varies from the actual factors such as room structure, etc.





8. Installation

Installation Procedure

1 BEFORE INSTALLATION <Don't discard any accessories until comp>

- Determine the way to carry unit to installation place.
- Don't remove packing until unit reaches installation place.
- If unpacking is unavoidable, protect unit properly.

2 SELECTION OF INSTALLATION PLACE

(1) Installation place shall meet the following and agreed by customers:

- Place where proper air flow can be ensured.
- No block to air flow.
- Water drainage is smooth.
- Place strong enough to support unit weight.
- Place where inclination is not evident on ceiling.
- Enough space for maintenance.
- Indoor and outdoor unit piping length is within limit. (Refer to Installation Manual for outdoor unit.)
- Indoor and outdoor unit, power cable, inter unit cable are at least 1 m away from T.V & radio. This is helpful to avoid picture disturbance and noise. (Even if 1 m is kept, noise can still appear if radio wave is strong)

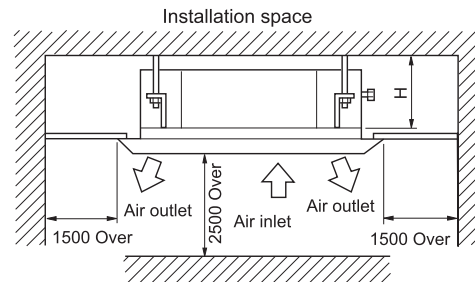
(2) Ceiling height

Indoor unit can be installed on ceiling of 2.5-3m in height. (Refer to Field setting and Installation Manual of ornament panel.)

(3) Install suspending bolt.

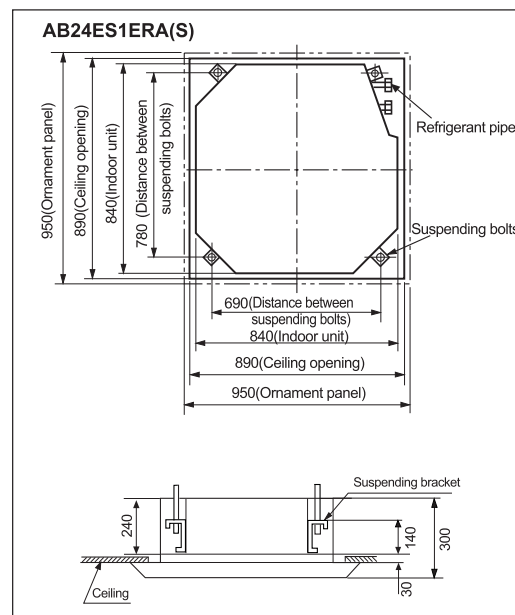
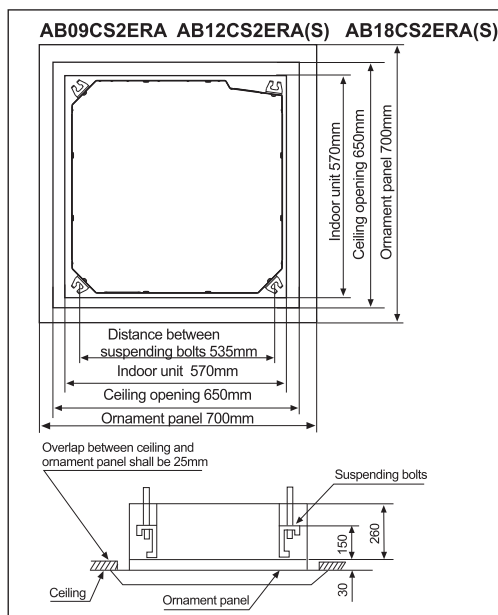
Check if the installation place is strong enough to hold weight. Take necessary measures in case it is not safe. (Distance between holes are marked on paper pattern. Refer to paper pattern for place need be reinforced)

Model	H
AB09CS2ERA AB12CS2ERA(S) AB18CS2ERA(S)	320
AB24ES1ERA(S)	300



3 PREPARATION FOR THE INSTALLATION

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



Installation Procedure

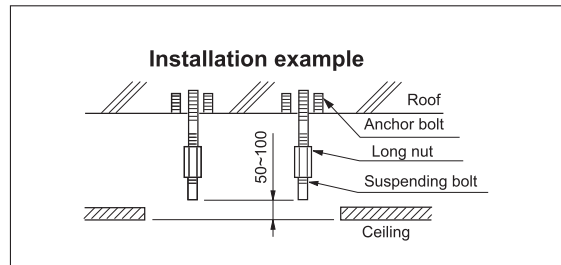
(2) Cut an opening in ceiling for installation if necessary. (when ceiling already exists.)

- Refer to paper pattern for dimension of ceiling hole.
- Connect all piping (refrigerant, water drainage), wiring (inter unit cable) to indoor unit, before installation.
- Cut a hole in ceiling, may be a frame should be used to ensure a smooth surface and to prevent vibration.
- Contact your real estate dealer

(3) Install a suspending bolt. (Use a M10 bolt)

- To support the unit weight, anchor bolt shall be used in the case of already exists ceiling. For new ceiling, use built in type bolt or parts prepared in the field.
- Before going on installing adjust space between ceiling.

Note: All the above mentioned parts shall be prepared in field.



4 INSTALLATION OF INDOOR UNIT

In the case of new ceiling

(1) Install unit temporarily

Put suspending bracket on the suspending bolt. Be sure to use nut and washer at both ends of the bracket.

(2) As for the dimensions of ceiling hole, see paper pattern. Ask your real estate dealer for details.

Center of the hole is marked on the paper pattern.

Center of the unit is marked on the card in the unit and on the paper pattern.

Mount paper pattern (5) onto unit using 3 screws (6). Fix the corner of the drain pan at piping outlet.

<After installation on the ceiling>

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

(4) Check unit's horizontal level.

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

(5) Remove the washer mounting (2) and tighten the nut above.

(6) Remove the paper pattern.

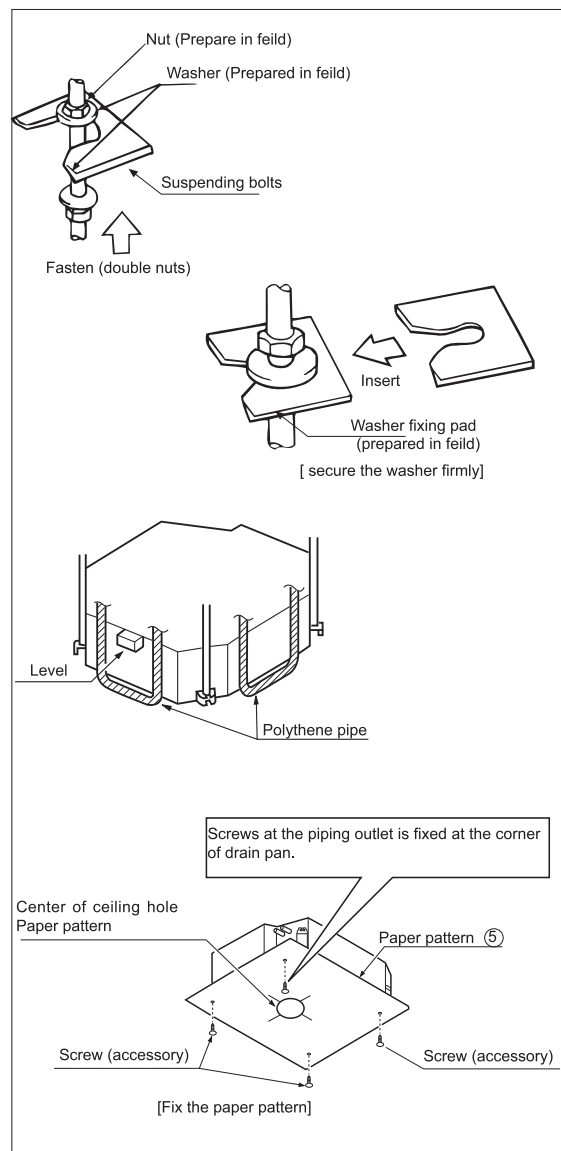
In the case of ceiling already exists

(1) Install unit temporarily

Put suspending bracket on the suspending bolt. Be sure to use nut and washer at both ends of the bracket. Fix the bracket firmly.

(2) Adjust the height and position of the unit. (Refer to preparation for the installation (1)).

(3) Proceed with (3) and (4) of "In the case of new ceiling".



Installation Procedure

⑤ REFRIGERANT PIPING (As for outdoor piping, please refer to installation Manual of outdoor unit.)

- Outdoor is precharged with refrigerant.
- Be sure to see the Fig.1, when connecting and removing piping from unit.
- For the size of the flare nut, please refer to Table 1.
- Apply refrigerant oil at both inside and outside of the flare nut. Tighten it band tight 3-4 turns then tighten it.
- Use torque specified in Table 1. (Too much force may damage flare nut, causing gas leakage).
- Check piping joints for gas leakage. Insulate piping as shown in Fig. below.
- Cover joint of gas piping and insulator ⑦ with seal.

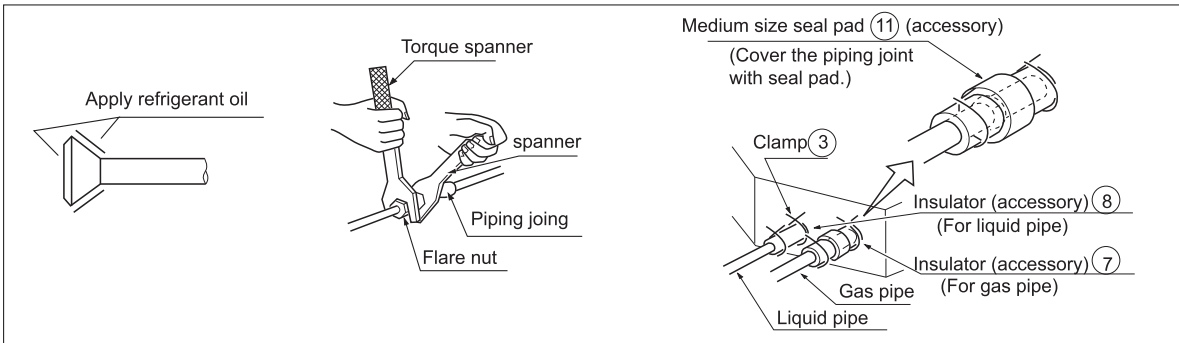


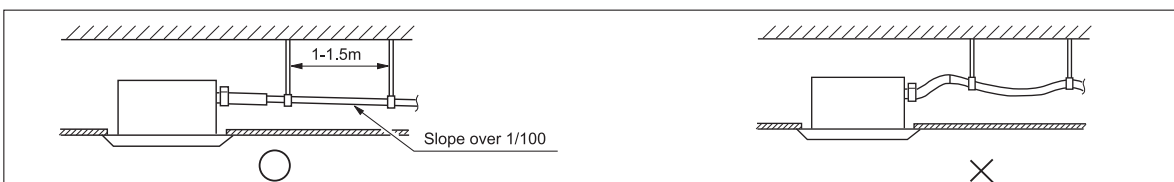
Table 1

Pipe size	Tighten torque	A(mm)	Flare shape
φ6.35	1420~1720N.cm (144~176kgf.cm)	8.3~8.7	
φ9.52	3270~3990N.cm (333~407kgf.cm)	12.0~12.4	
φ12.7	4950~6030N.cm (490~500kgf.cm)	12.4~16.6	
φ15.88	6180~7540N.cm (630~770kgf.cm)	18.6~19.0	
φ19.05	9720~11860 N.cm (990~1210 kgf.cm)	22.9~23.3	

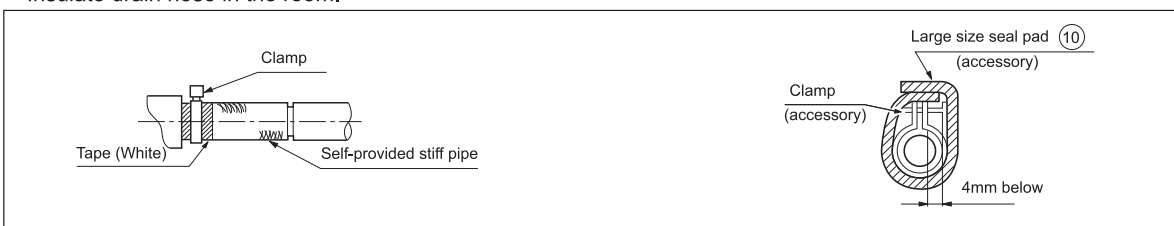
⑥ INSTALLATION OF WATER DRAINAGE PIPE

(1) Install water drainage pipe

- Pipe dia, shall be equal or larger than that of unit piping.(pipe of polyethylene; size: 25mm; O.D:32mm)
- Drain pipe should be short, with a downward slope at least 1/100 to prevent air bag from happening.
- If downward slope can't be made, take other measures to lift it up.
- Keep a distance of 1-1.5m between suspending brackets, to make water hose straight.



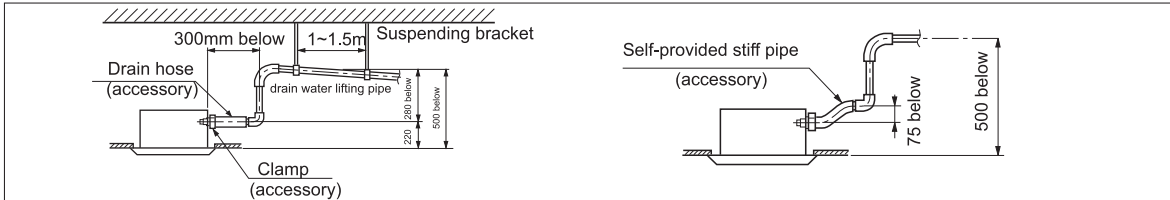
- Use the self-provided stiff pipe and clamp ① with unit. Insert water pipe into water plug until it reaches the white tape. Tighten the clip until head of the screw is less than 4mm from hose.
- Wind the drain hose to the clip using seal pad ⑨.
- Insulate drain hose in the room.



Installation Procedure

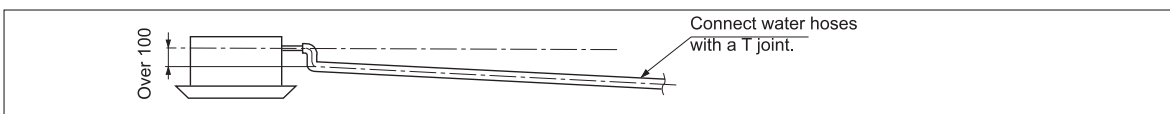
<Cautions for the drain water lifting pipe >

Installation height shall be less than 280mm.
There should be a right angle with unit, 300mm from unit.



Note:

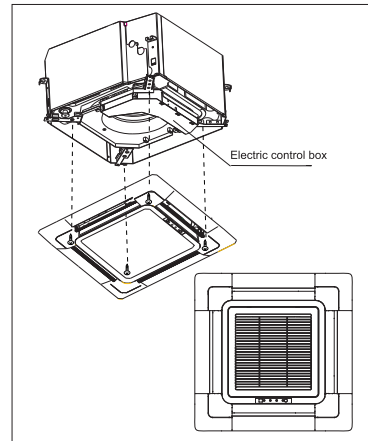
The slope of water drain hose (1) shall be within 75mm, don't apply too much force on it.
If several water hoses join together, do as per following procedure.



Specification of the water hoses shall meet the requirements for the unit running.

(2) Check if water drainage is smooth after installation.

- 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 install the ornament panel.
- Fasten the screws to make the height difference between the two sides of indoor unit less than 5mm.
- First fix it with screws temporarily.
- Fasten the two temporarily fixing screws and other two, and tighten the four screws.
- Connect the wires of synchro-motor.
- Connect the wire of signal.
- If no response of remote controller, check whether the wiring is correct, restart remote controller 10 seconds after shut off power supply.



<Limits of panel board installation>

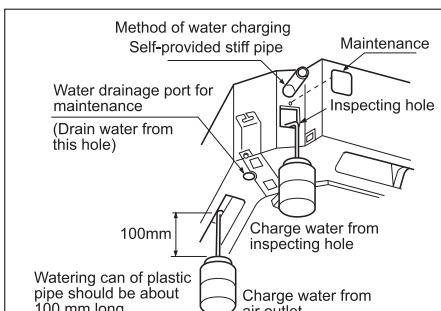
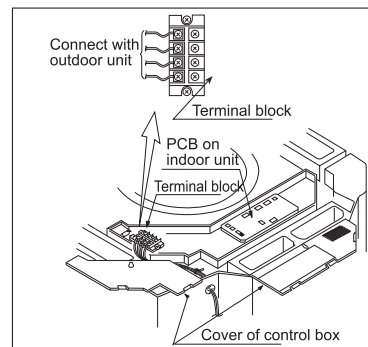
- Install the panel board in the direction shown in the figure. The incorrect direction will result in water leakage, meanwhile swing and signal receiving are displayed that cannot be connected.
- Charge, through air outlet or inspecting hole, 1200ccd water to see water drainage.

After wiring

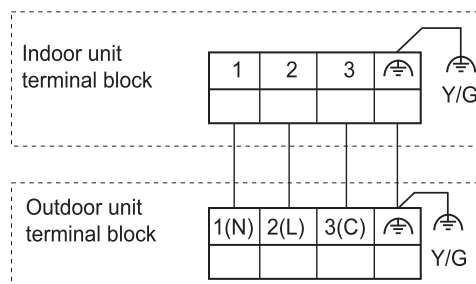
- Check water drainage in cooling operation.

When wiring is not complete

- Remove cover of control box, connect 1PH power to terminal 1 and 2 on terminal block.,use remote controller to operate the unit.
- Note, in this operation, fan will be running.
- Upon confirmation of a smooth water drainage, be sure to cut off power supply.



AB09CS2ERA
AB12CS2ERA(S)
AB18CS2ERA(S)
AB24ES1ERA(S)



Installation Procedure

7 WIRING

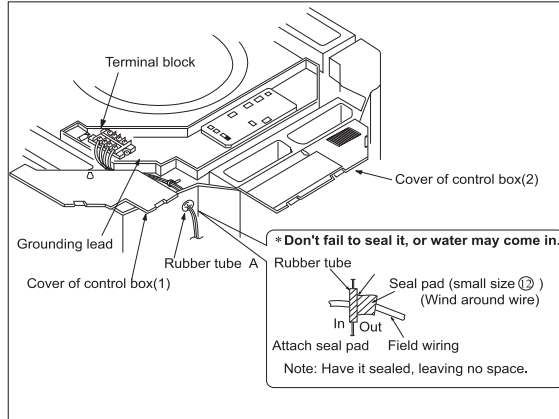
- All supplied parts, materials and wiring operation must in appliance with local code and regulations.
- Use copper wire only.
- When make wiring, please refer to wiring diagram also.
- All wiring work must be done by qualified electricians.
- A circuit breaker must be installed, which can cut power supply to all system.
- See Installation Manual of outdoor unit for specifications of wires, circuit breaker, switches and wiring etc.

Connecting of unit

Remove cover of switch box (1), drag wires into rubber tube A, then, after proper wiring with other wires, tighten clamp A. Connect wires of correct pole to the terminal block inside.

Wind seal ② around wires. (Be sure to do that, or dew may occur).

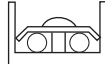
- Upon condensation, replace control box cover (1) and (2).



⚠ WARNING:

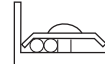
Observe the following when connecting power supply terminal block:
 Don't connect wires of different specifications to the same terminal block.
 (Loose wire may cause overheating of circuit)
 Connect wires of same specifications as shown in right Fig.

Connect wires of the same specifications at two sides.



O

Don't connect wires of the same specifications at one side.



X

Don't connect wires of the different specifications.



X

8 WIRING EXAMPLE

As for outdoor unit circuit, please see Installation Manual of outdoor unit.

Note: All electric wires have their own poles, poles must match that on terminal block.

Pay special care to the following and check after installation

Item to be checked	Improper installation may cause	Check
Is indoor unit firmly installed?	Unit might fall down, make vibration or noise.	
Is gas leakage check performed?	This may lead to gas shortage.	
Is unit properly insulated?	Dew or water drop may occur.	
Is water drainage smooth?	Dew or water drop may occur.	
Is power voltage meet that stipulated on the nameplate?	Problem may occur or parts got burned.	
Is wiring and piping correctly arranged?	Problem may occur or parts got burned.	
Is unit safely grounded?	There might be a danger of electric shock.	
Is wire size correct?	Problem may occur or parts got burned.	
Are there any obstacles on air inlet and outlet grill of indoor and outdoor unit?	This may cause poor cooling.	
Is record made for piping length and refrigerant charging amount?	It is hard to control refrigerant charging amount.	

Attention: after finishing installation, confirm no refrigerant leakage.

Duct indoor

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1. Features



AD09~12SS1ERA(N)(P)



AD18~24SS1ERA(N)(P)



AD12~18MS1ERA
AD24MS2ERA



Super thin design

Super thin design make all the models only 185mm height, which is super slim and most advanced in the industry, this feature will bring slimest ceiling drop.



Super Slient

New fan design, the shape and large diameter is designed for silent, optimize the air path, with DC fan motor, brings minimum 21dB(A) super quiet performance.



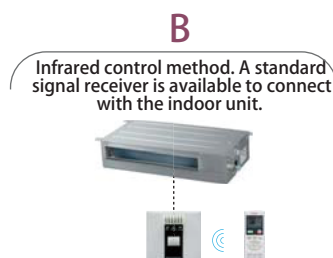
Adjuster ESP Easy Way

ESP can be adjusted by wired controller YR-E16, so installer don't need to climb the ladders to adjust the ESP.



Multiple Control

The indoor unit can use one wired remote controller, also it can use a remote controller.



2. Specification

Item		Model	AD09SS1ERA(N)(P)		
Function		—	Cooling	Heating	
capacity		W	2700	2800	
sensible heat ratio		W	0.71	/	
Dehumidifying capacity		10 ⁻³ xm ³ /h	1.0		
indoor unit	power supply		1PH, 220-230V~, 50Hz		
	Fan	Type x Number	—	centrifugal*1	
		Speed(H-M-L)	r/min	850/750/650	
		Fan motor output/input power	W	11/15	
		Air-flows (H/M/L)	m ³ /h	530/460/390	
	Heat exchanger	Type / Diameter	mm	inner grooved pipe/φ 7.0	
		Row	—	2	
		Total area	m ²	0.11	
		Temp.scope	°C	2.0-7.0	
	Dimension (LxWxH)	External	mmxmmxmm	850x420x185	
		Package	mmxmmxmm	1045x540x270	
	Drainage pipe (material,I.D/O.D)		mm	PVC 27/31	
	control type(Remote/Wired)			Remote or Wired	
	Fresh air hole dimension		mm	none	
	Electricity Heater		kW	none	
Noise level(H-M-L)	Sound power level	dB(A)	43/39/36		
	Sound pressure level	dB(A)	33/29/26		
weight(Net/Shipping)		kg/kg	18.3/23.3		
Piping	Refrigerant	Type	R410A		
	Pipe	Liquid	mm	Φ6.35(1/4)	
		Gas	mm	Φ9.52(3/8)	
	Connecting method			Flared	

Item		Model	AD12SS1ERA(N)(P)		
Function			cooling	heating	
Capacity		KW	3.50 (0.9 ~ 4.5)	4.00 (1 ~ 4.8)	
Sensible heat ratio			0.71	/	
Total power input		KW	1.03(0.28 ~ 1.8)	1.07(0.28 ~ 1.8)	
Max. power input		W	1800	1800	
EER or COP		W/W	3.39	3.73	
Dehumidifying capacity		10 ⁻³ ×m ³ /h	1.6		
Power cable			H05RN-F 4G 4.0mm2		
Power source		N, V, Hz	1PH, 220-230V~, 50/60Hz		
Running /Max.Running current		A / A	5.0(1.2-8.0)/8.0	5.1(1.2-8.0)/8.0	
Start Current		A	3		
Circuit breaker		A	/	/	
Indoor unit	Unit model (color)		AD12SS1ERA(N)		
	Fan	Type × Number	CENTRIFUGALX2		
		Speed(H-M-L)	r/min	950/800/700	
		Fan motor output/ input power	W	105/70	
		Air-flow(H-M-L)	m ³ /h	600/480/420	
	Heat exchanger	Type / Diameter	mm	inner grooved pipe/φ7.0	
		Row		2	
		Total Area	m ²	/	
	Dimension	External(L×W×H)	mm×mm×mm	850/420/185	
		Package(L×W×H)	mm×mm×mm	1045x540x270	
	Drainage pipe (material , I.D./O.D.)		mm	PVC 25/29	
	Controller (O-Optional,S-Standard)		Wired	YR-E14(S)	
			Infrared	YR-HD(O)	
	Fresh air hole dimension		mm	NONE	
	Electricity Heater		kW	NONE	
	Sound power Noise level (H-M-L)		dB(A)	45/41/37	
	Sound pressure Noise level (H-M-L)		dB(A)	35/31/27	
	Pipe	Liquid Pipe(mm)		6.35	
		Gas Pipe(mm)		9.52	
		Connecting Method		flared	
Weight (Net / Shipping)		kg / kg	18.3/23.3		

Item		Model	AD12MS1ERA		
Function			cooling	heating	
Capacity		KW	3.50(0.9~4.5)	4.00(1~4.8)	
Sensible heat ratio			/	/	
Total power input		KW	1.08(0.28~1.8)	1.08(0.28~1.8)	
Max. power input		W	1800	1800	
EER or COP		W/W	3.23	3.71	
Dehumidifying capacity		10 ³ ×m ³ /h	1.6		
Power cable			H05RN-F 4G 4.0mm ²		
Power source		N, V, Hz	1PH, 220-230V~, 50/60Hz		
Running /Max.Running current		A / A	4.8(1.2-8.0)/8.0	5.6(1.2-8.0)/8.0	
Start Current		A	3		
Circuit breaker		A	/	/	
Indoor unit	Unit model (color)		AD12MS1ERA		
	Fan	Type x Number		CENTRIFUGALX1	
		Speed(H-M-L)	r/min	700/630/570	
		Fan motor output/ input power	W	140/105	
		Air-flow(H-M-L)	m ³ /h	550/460/400	
		ESP	pa	10/30/50/70	
	Heat exchanger	Type / Diameter	mm	inner grooved pipe/φ7.0	
		Row		2	
		Total Area	m ²	/	
	Dimension	External(LxWxH)	mm×mm×mm	750/720/250	
		Package(LxWxH)	mm×mm×mm	920/820/340	
	Drainage pipe (material , I.D./O.D.)		mm	PVC 25/29	
	Controller (O-Optional,S-Standard)		Wired	YR-E14 (S)/YR-E16(O)	
			Infrared	YR-HD01(O)	
	Fresh air hole dimension		mm	145	
	Electricity Heater		kW	NONE	
	Sound power Noise level (H-M-L)		dB(A)	46/43/39	
	Sound pressure Noise level (H-M-L)		dB(A)	36/33/29	
Pipe	Liquid Pipe(mm)		6.35		
	Gas Pipe(mm)		9.52		
	Connecting Method		flared		
Weight (Net / Shipping)		kg / kg	22.8/27		

Item		Model	AD18SS1ERA(N)(P)		
Function			cooling	heating	
Capacity		KW	5.0(1.8~6)	5.5(2~6.2)	
Sensible heat ratio			0.73	/	
Total power input		KW	1.53(0.55~2.1)	1.47(0.6~2.1)	
Max. power input		W	2100	2100	
EER or COP		W/W	3.26	3.73	
Dehumidifying capacity		10 ⁻³ ×m ³ /h	1.9		
Power cable			H05RN-F 4G 4.0mm ²		
Power source		N, V, Hz	1PH, 220-230V~, 50/60Hz		
Running /Max.Running current		A / A	6.8(2.3-9.5)/9.5	6.5(2.39.5)/9.5	
Start Current		A	3		
Circuit breaker		A	/	/	
Indoor unit	Unit model (color)		AD18SS1ERA(N)(P)		
	Fan	Type x Number	CENTRIFUGALX3		
		Speed(H-M-L)	r/min	950/850/750	
		Fan motor output/ input power	W	124/74	
		Air-flow(H-M-L)	m ³ /h	900/750/600	
		ESP	Pa	0/10/20/30	
	Heat exchanger	Type / Diameter	mm	inner grooved pipe/φ7.0	
		Row		3	
		Total Area	m ²	/	
	Dimension	External(LxWxH)	mm×mm×mm	1170/420/185	
		Package(LxWxH)	mm×mm×mm	1365/540/270	
	Drainage pipe (material , I.D./O.D.)		mm	PVC 25/29	
	Controller (O-Optional,S-Standard)		Wired	YR-E14(S)	
			Infrared	YR-HD(O)	
	Fresh air hole dimension		mm	NONE	
	Electricity Heater		kW	NONE	
	Sound power Noise level (H-M-L)		dB(A)	49/43/39	
	Sound pressure Noise level (H-M-L)		dB(A)	36/30/26	
	Pipe	Liquid Pipe(mm)		6.35	
		Gas Pipe(mm)		12.7	
Connecting Method		flared			
Weight	(Net / Shipping)	kg / kg	22.8/28.5		

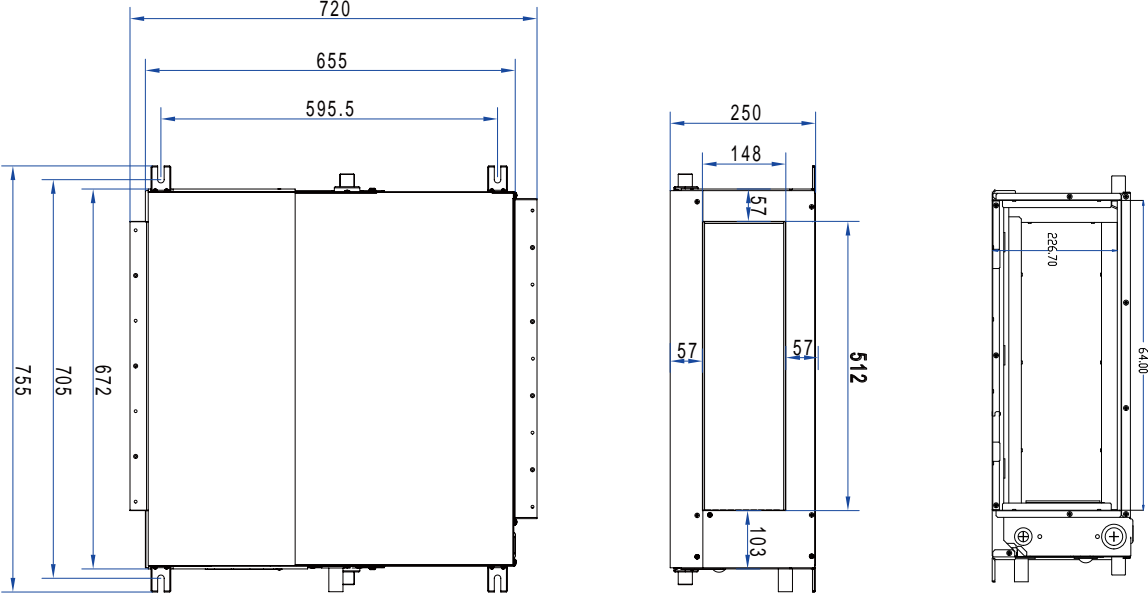
Item		Model	AD18MS1ERA		
Function			cooling	heating	
Capacity		KW	5.0(1.8~6)	5.5(2~6.2)	
Sensible heat ratio			0.73	/	
Total power input		KW	1.55(0.55~2.0)	1.48(0.6~2.0)	
Max. power input		W	2000	2000	
EER or COP		W/W	3.23	3.71	
Dehumidifying capacity		10 ³ ×m ³ /h	1.8		
Power cable			H05RN-F 4G 4.0mm ²		
Power source		N, V, Hz	1PH, 220-230V~, 50/60Hz		
Running /Max.Running current		A / A	6.6(2.3-9.5)/9.5	7.0(2.39.5)/9.5	
Start Current		A	3		
Circuit breaker		A	/	/	
Indoor unit	Unit model (color)		AD18MS1ERA		
	Fan	Type x Number	CENTRIFUGALX2		
		Speed(H-M-L)	r/min	700/610/520	
		Fan motor output/ input power	W	105/70	
		Air-flow(H-M-L)	m ³ /h	920/750/580	
		ESP	Pa	10/30/50/70	
	Heat exchanger	Type / Diameter	mm	inner grooved pipe/φ7.0	
		Row		2	
		Total Area	m ²	/	
	Dimension	External(LxWxH)	mm×mm×mm	1050/720/250	
		Package(LxWxH)	mm×mm×mm	1170/860/340	
	Drainage pipe (material , I.D./O.D.)		mm	PVC 25/29	
	Controller (O-Optional,S-Standard)		Wired	YR-E14(S)	
			Infrared	YR-HD01(O)	
	Fresh air hole dimension		mm	145	
	Electricity Heater		kW	NONE	
	Sound power Noise level (H-M-L)		dB(A)	48/45/41	
	Sound pressure Noise level (H-M-L)		dB(A)	36/33/29	
	Pipe	Liquid Pipe(mm)		6.35	
		Gas Pipe(mm)		12.7	
Connecting Method		flared			
Weight	(Net / Shipping)	kg / kg	26.5/34		

Item		Model	AD24SS1ERA(N)(P)		
Function			cooling	heating	
Capacity		KW	7.1 (2~7.6)	7.1 (3~8.3)	
Sensible heat ratio			0.74	/	
Total power input		KW	2.19 (0.6~2.6)	1.91 (0.6~2.6)	
Max. power input		W	2600	2600	
EER or COP		W/W	3.24	3.72	
Dehumidifying capacity		10 ⁻³ ×m ³ /h	2.5		
Power cable			H05RN-F 4G 6.0mm2		
Power source		N, V, Hz	1PH, 220-230V~, 50/60Hz		
Running /Max.Running current		A / A	9.8 (2.3-12)/12	9.2(2.3-12)/12	
Start Current		A	3		
Circuit breaker		A	/	/	
Indoor unit	Unit model (color)		AD24SS1ERA(N)(P)		
	Fan	Type × Number		CENTRIFUGALX3	
		Speed(H-M-L)		r/min	
		Fan motor output/ input power		W	
		Air-flow(H-M-L)		m ³ /h	
		ESP		pa	
	Heat exchanger	Type / Diameter		mm	
		Row		inner grooved pipe/φ7.0	
		Total Area		m ²	
	Dimension	External(L×W×H)		mm×mm×mm	
		Package(L×W×H)		mm×mm×mm	
	Drainage pipe (material , I.D./O.D.)		mm	PVC 25/29	
	Controller (O-Optional, S-Standard)		Wired	YR-E14(S)	
			Infrared	YR-HD(O)	
	Fresh air hole dimension		mm	NONE	
	Electricity Heater		kW	NONE	
	Sound power Noise level (H-M-L)		dB(A)	52/45/42	
	Sound pressure Noise level (H-M-L)		dB(A)	39/32/29	
Pipe	Liquid Pipe(mm)		9.52		
	Gas Pipe(mm)		15.88		
	Connecting Method		flared		
Weight (Net / Shipping)		kg / kg	24.6/30.3		

Item		Model	AD24MS2ERA		
Function			cooling	heating	
Capacity		KW	7.1(2.0~8.2)	8.0(2.5~8.5)	
Sensible heat ratio			0.74	/	
Total power input		KW	2.19(0.6~2.6)	2.16(0.6~2.6)	
Max. power input		W	2600	2600	
EER or COP		W/W	3.23	3.71	
Dehumidifying capacity		10 ³ ×m ³ /h	2.5		
Power cable			H05RN-F 4G 6.0mm2		
Power source		N, V, Hz	1PH, 220-230V~, 50/60Hz		
Running /Max.Running current		A / A	10.5(2.3-12)/12	9.2(2.3-12)/12	
Start Current		A	3		
Circuit breaker		A	/	/	
Indoor unit	Unit model (color)		AD24MS2ERA		
	Fan	Type × Number	CENTRIFUGALX2		
		Speed(H-M-L)	r/min	950/860/760	
		Fan motor output/ input power	W	85/111	
		Air-flow(H-M-L)	m ³ /h	1050/840/630	
	Heat exchanger	Type / Diameter	mm	inner grooved pipe/φ7.0	
		Row		3	
		Total Area	m ²	7.668	
	Dimension	External(L×W×H)	mm×mm×mm	1050/720/250	
		Package(L×W×H)	mm×mm×mm	1170/860/340	
	Drainage pipe (material , I.D./O.D.)		mm	PVC 25/29	
	Controller (O-Optional,S-Standard)		Wired	YR-E14(S)/YR-E16(O)	
			Infrared	YR-HD01(O)	
	Fresh air hole dimension		mm	NONE	
	Electricity Heater		kW	NONE	
	Sound power Noise level (H-M-L)		dB(A)	53/51/49	
	Sound pressure Noise level (H-M-L)		dB(A)	42/38/35	
	Pipe	Liquid Pipe(mm)		9.52	
Gas Pipe(mm)		15.88			
Connecting Method		flared			
Weight (Net / Shipping)		kg / kg	31.2/36.8		

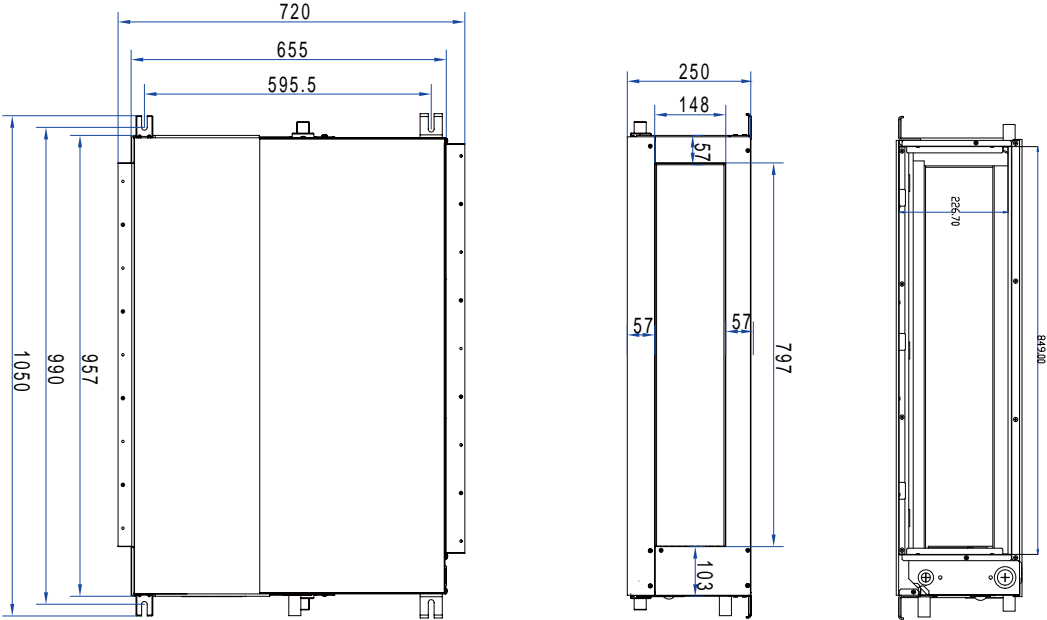
3. Dimension

AD12MS1ERA



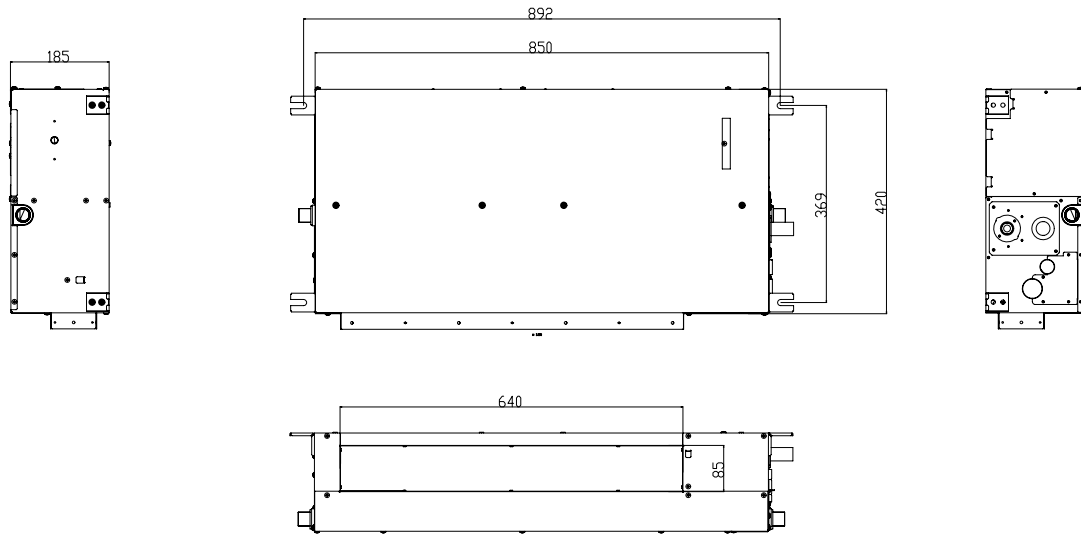
Note: The cushion pasted in the bottom plate isn't included in the thickness data.

AD18MS1ERA AD24MS2ERA

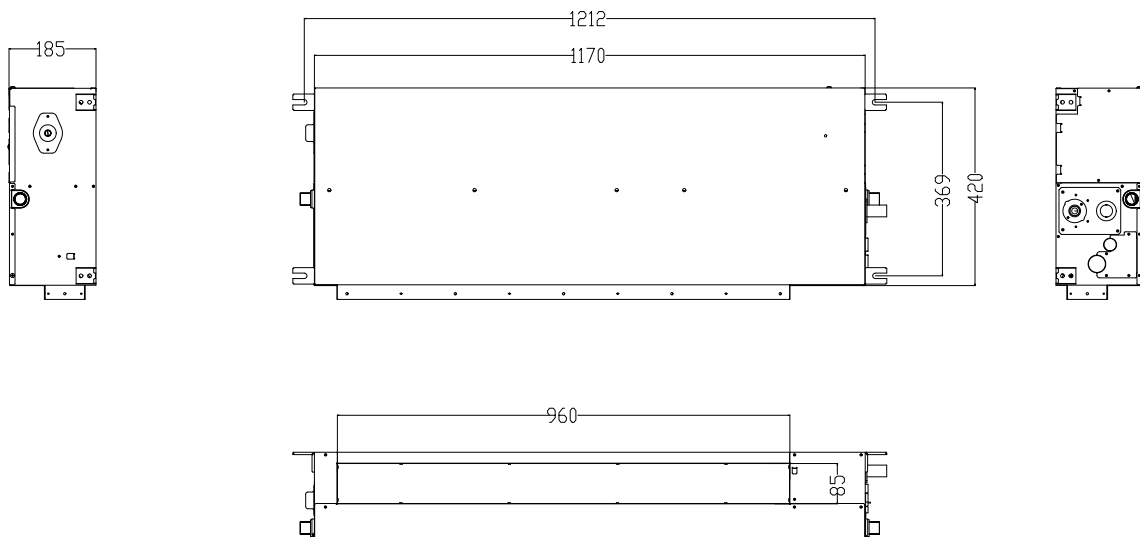


Note: The cushion pasted in the bottom plate isn't included in the thickness data.

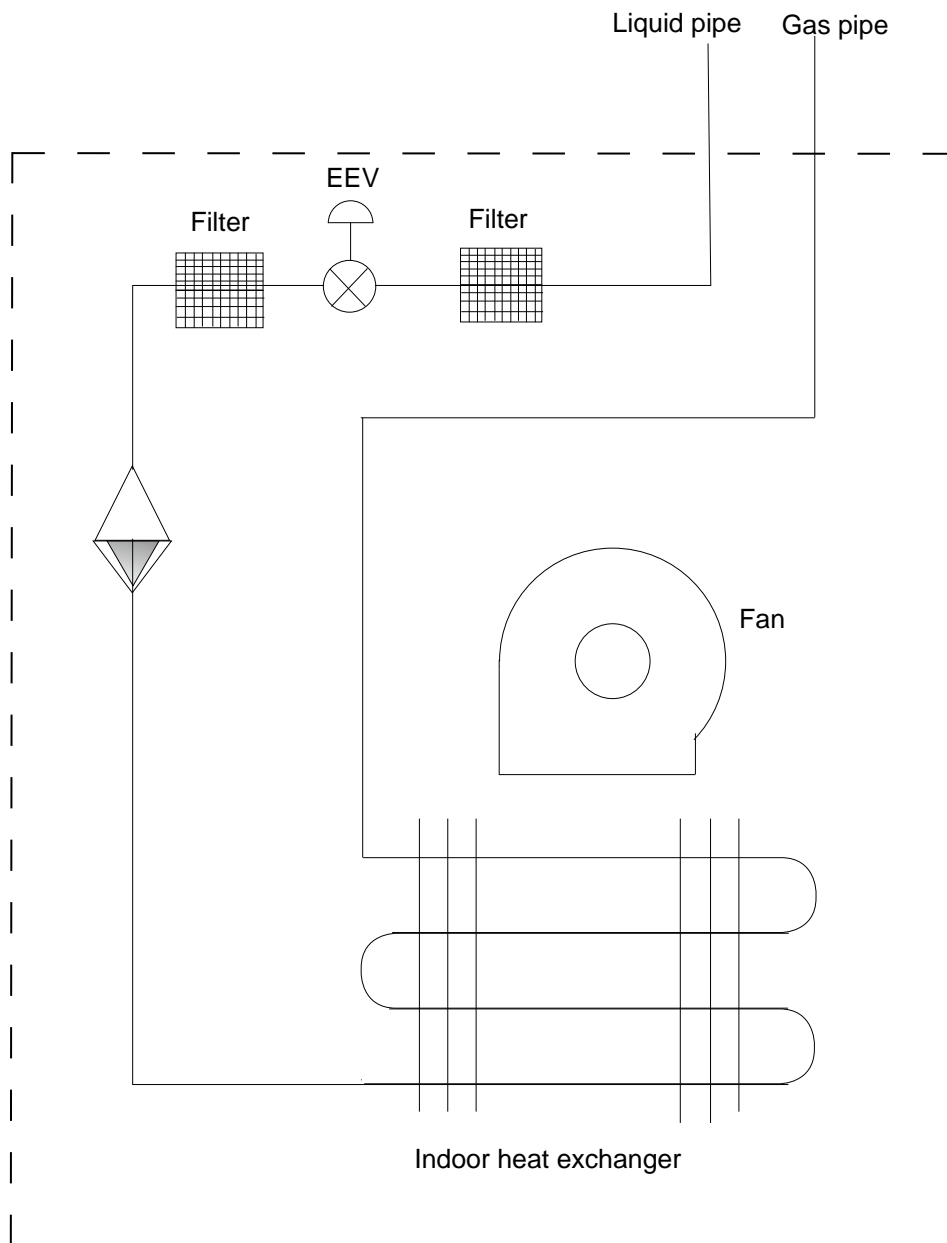
AD09SS1ERA(N)(P) AD09SS1ERA(N)(P)



AD18SS1ERA(N)(P) AD24SS1ERA(N)(P)

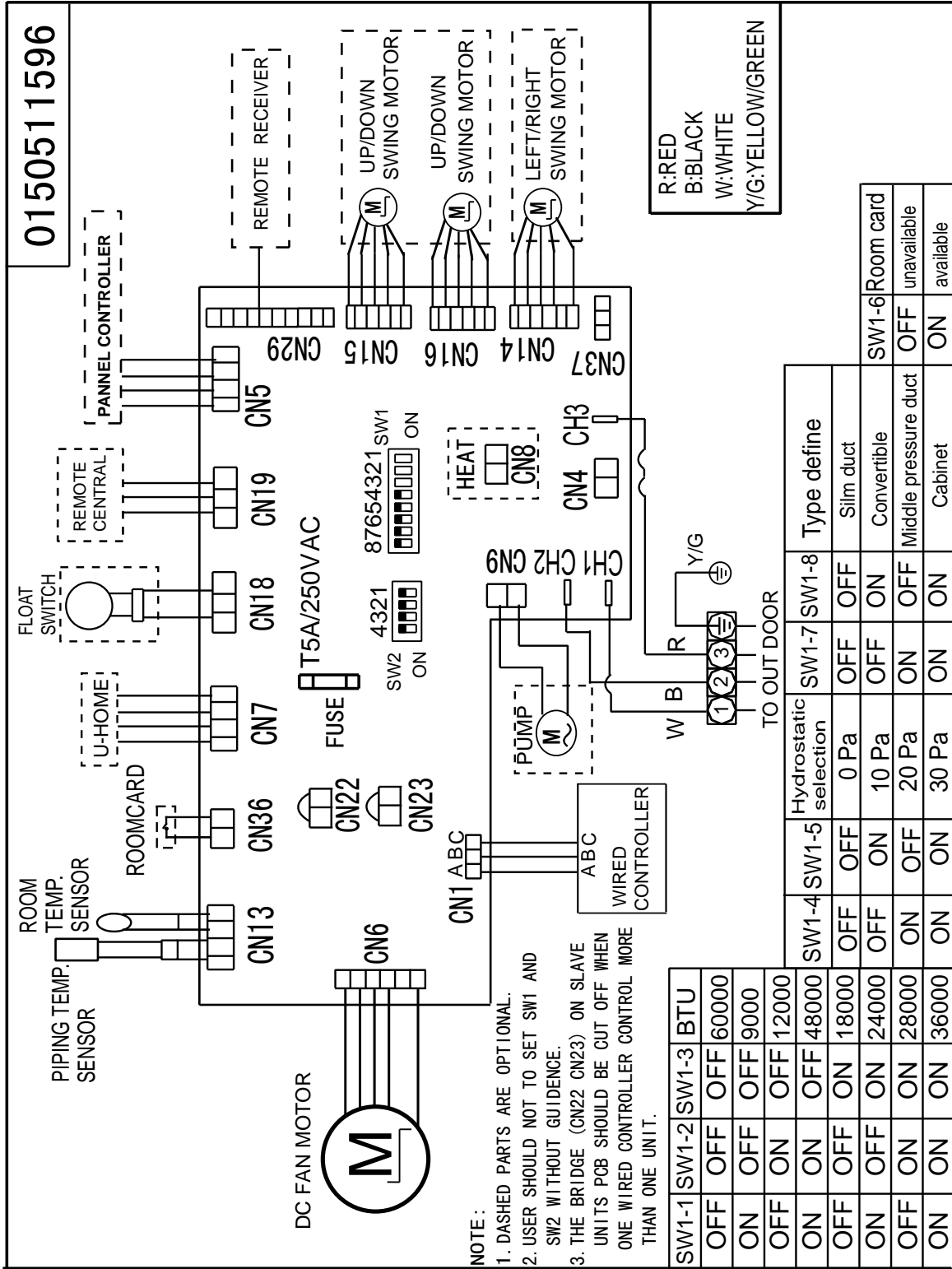


4. Piping diagram

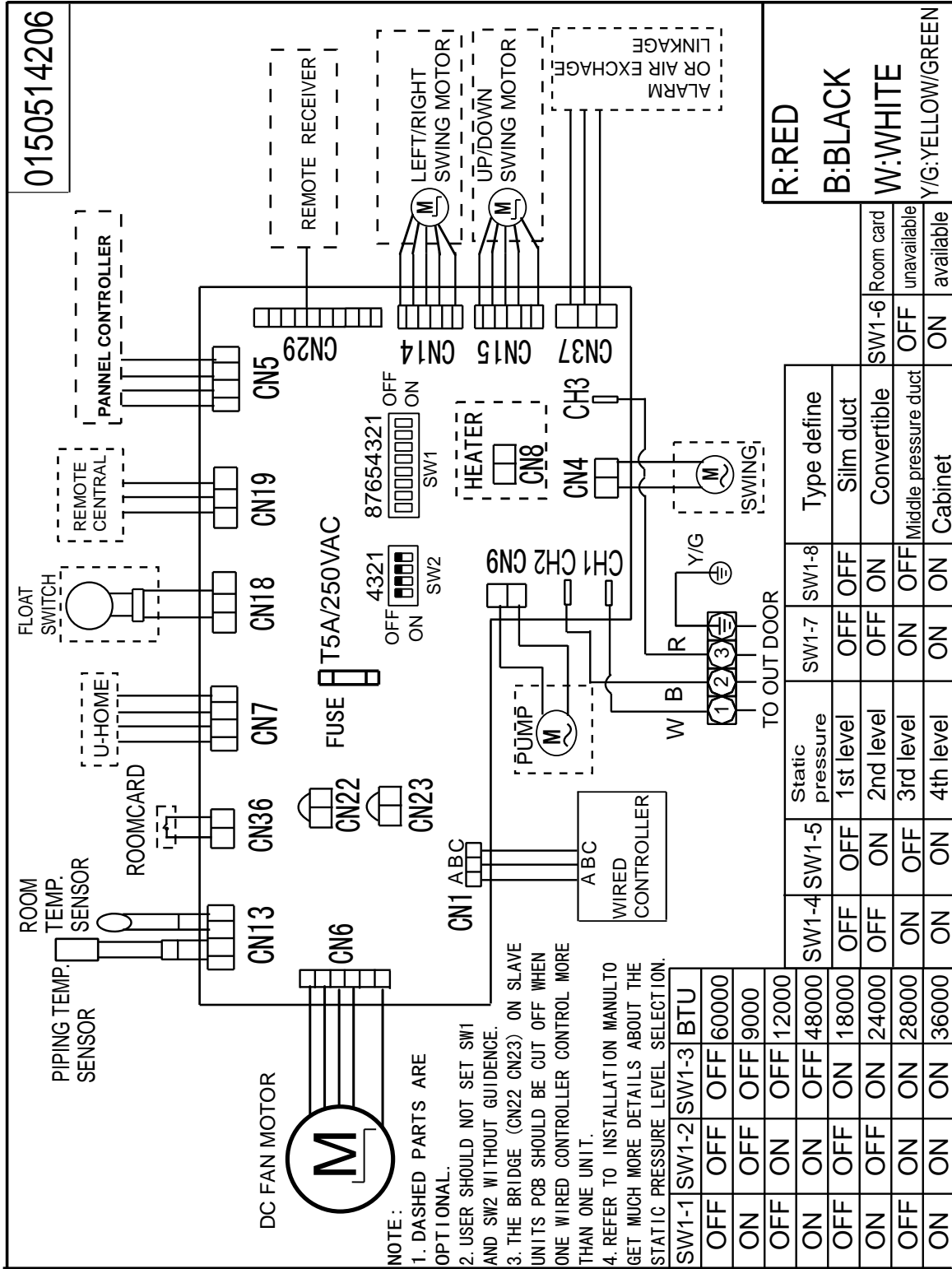


5. Wiring diagram

AD09~24SS1ERA(N)(P)

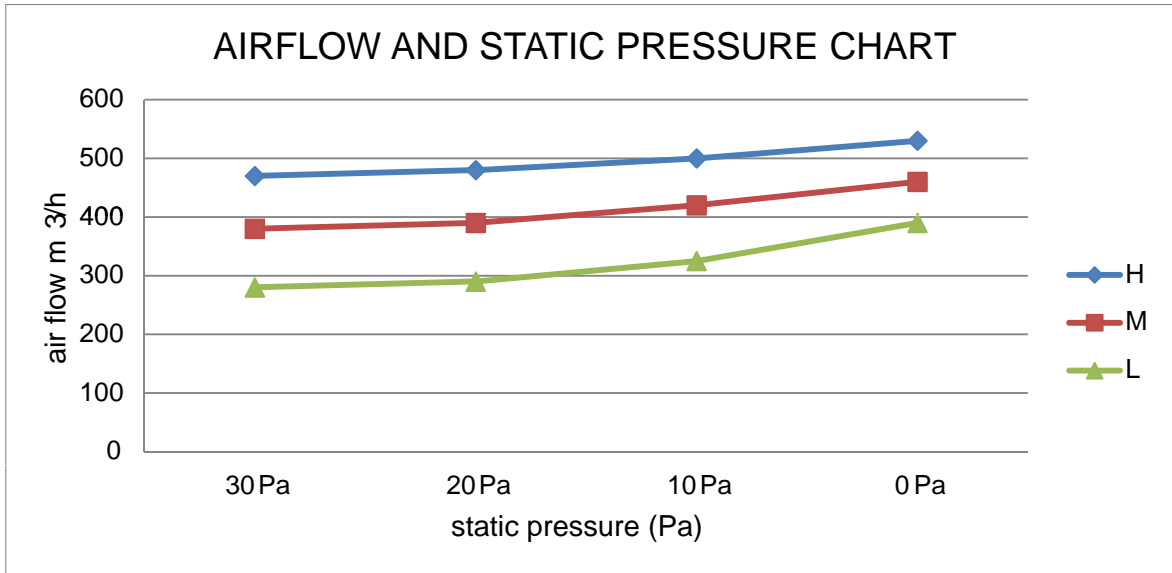


AD24MS2ERA

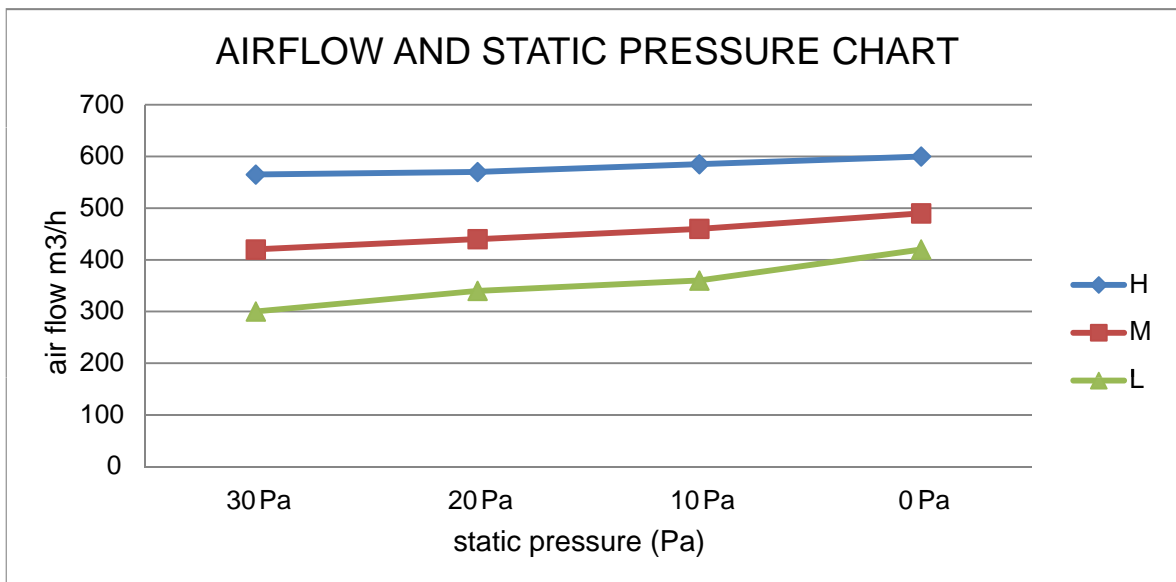


6. Air flow and static pressure curves

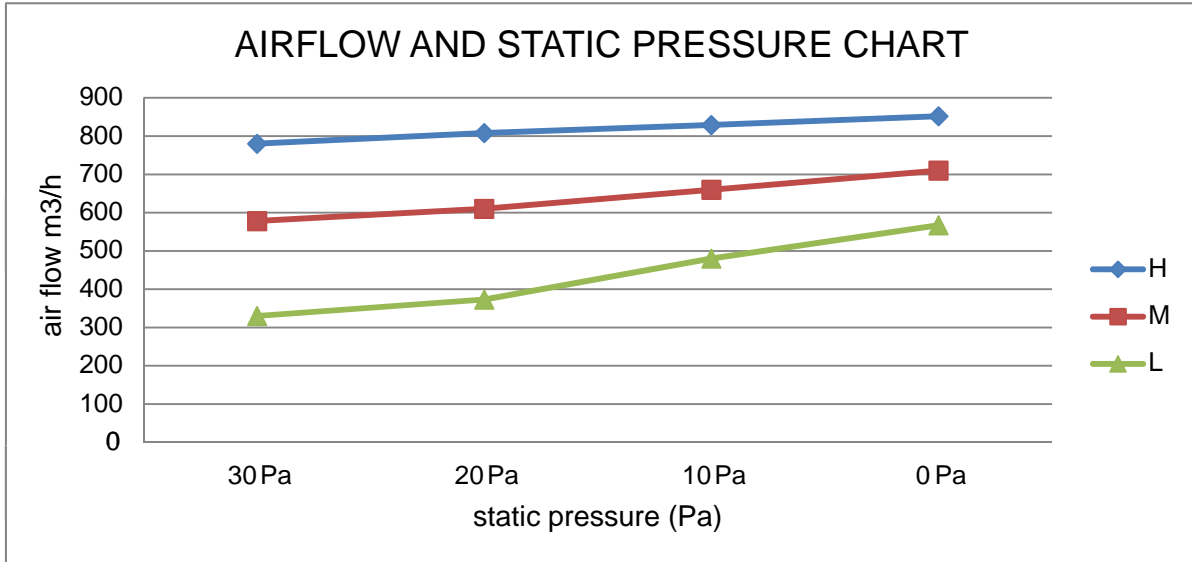
AD09SS1ERA(N)(P)



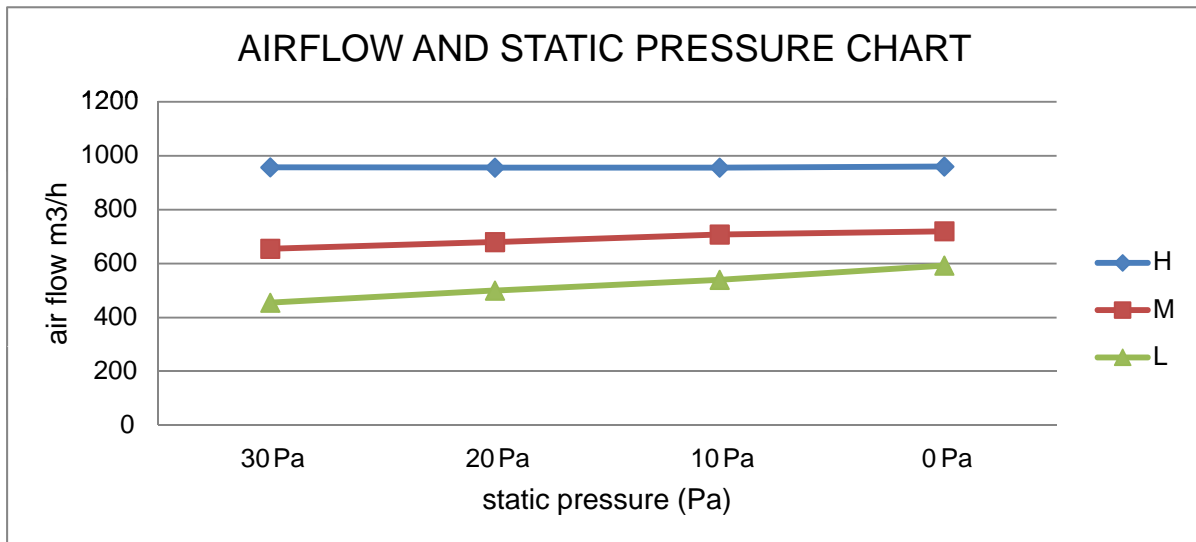
AD12SS1ERA(N)(P)

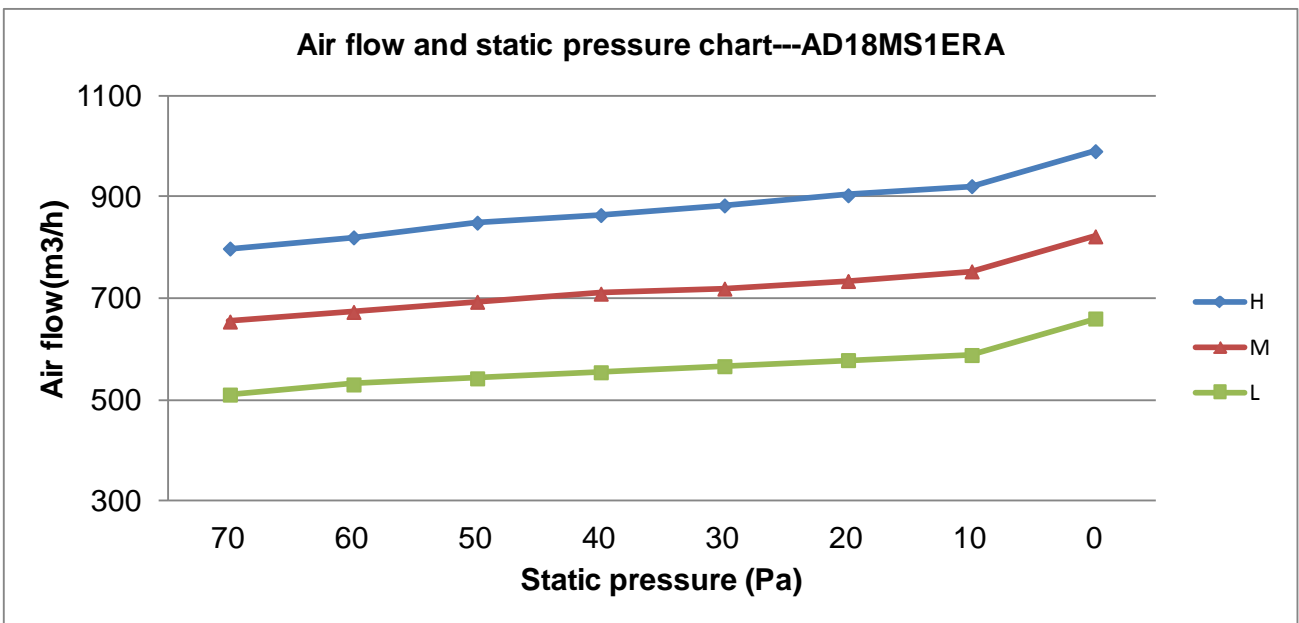
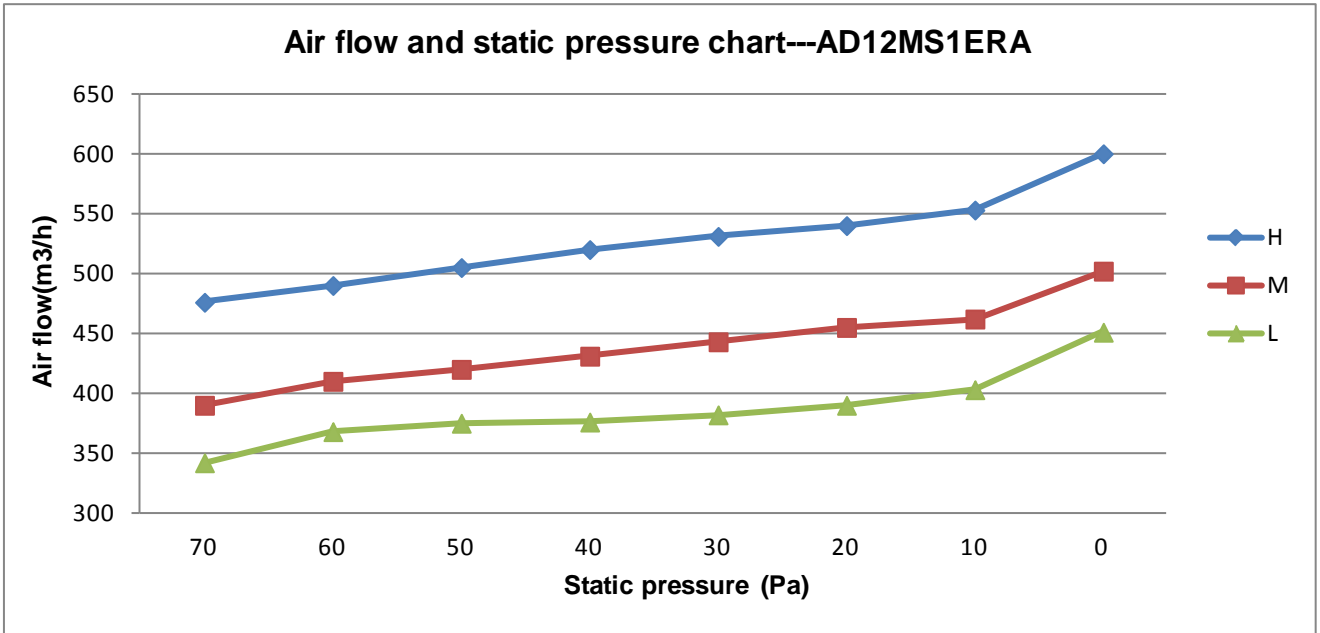


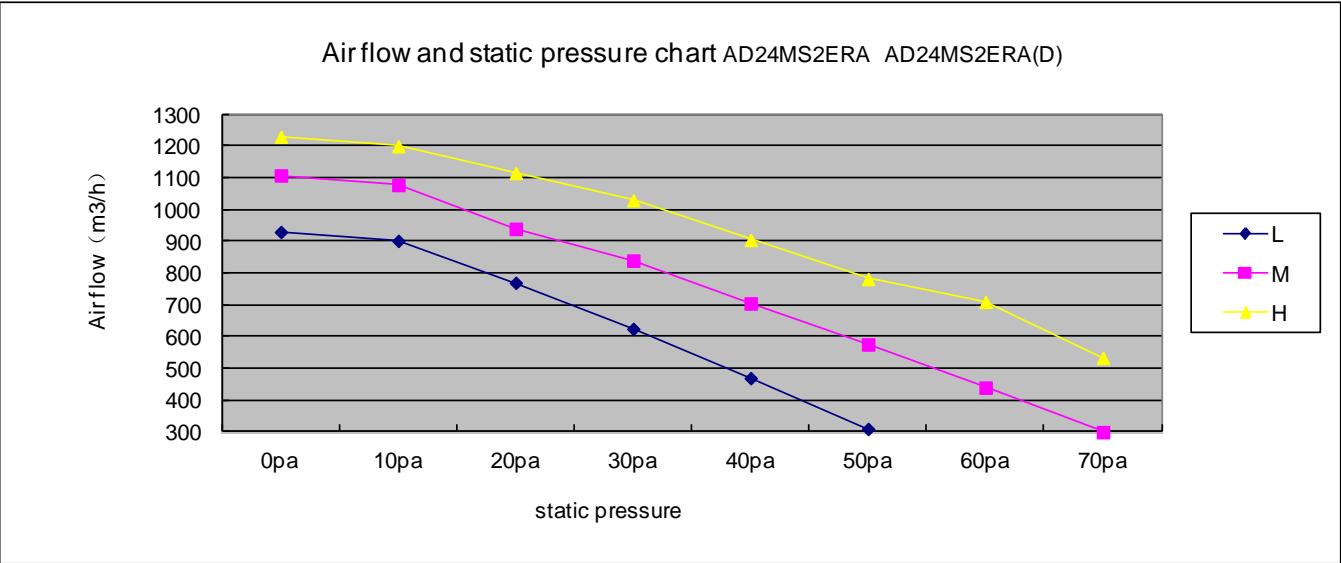
AD18SS1ERA(N)(P)



AD24SS1ERA(N)(P)

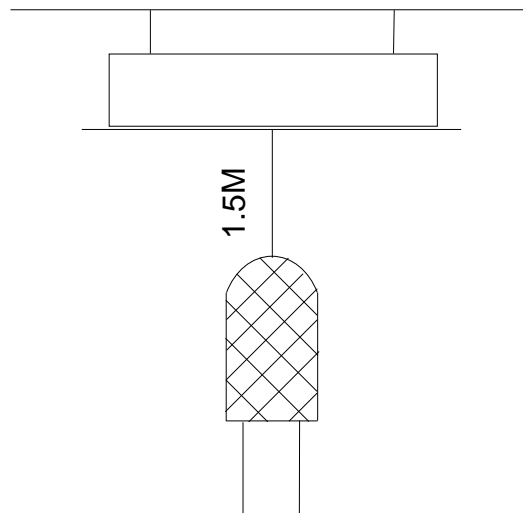






7. Sound Pressure Level

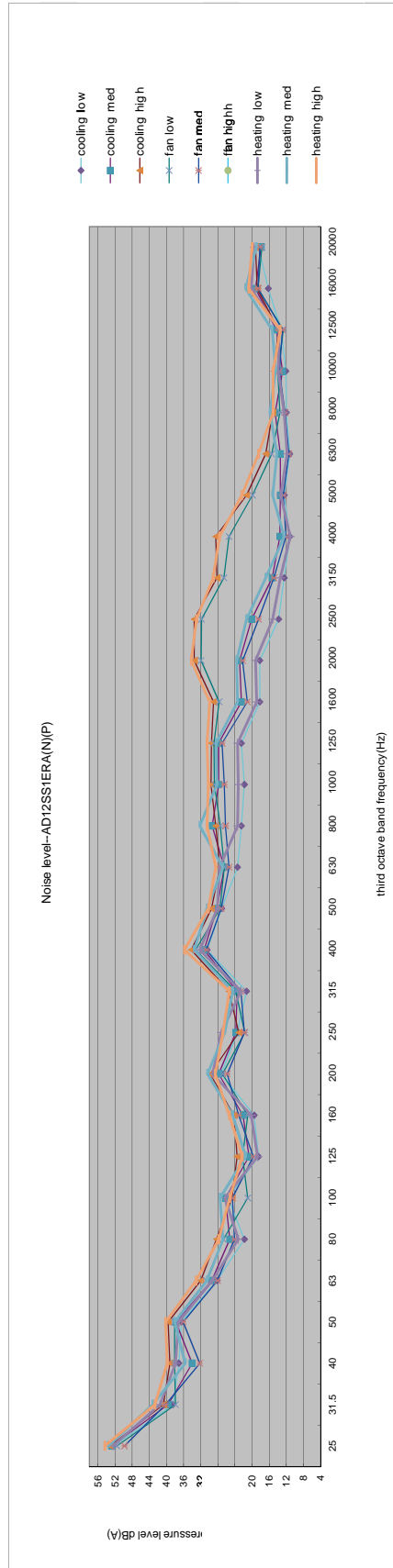
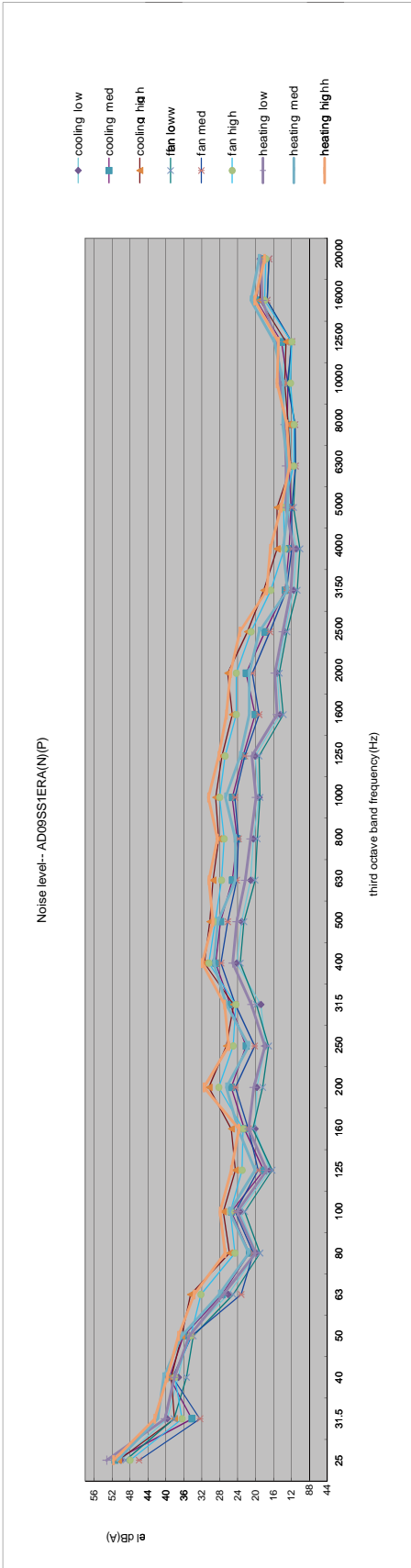
(1) Testing illustrate:

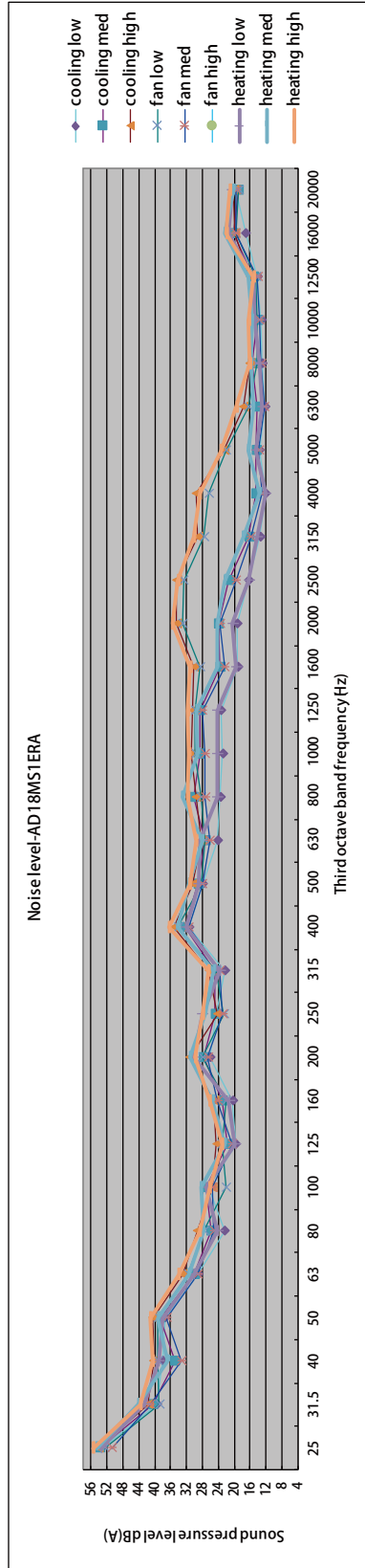
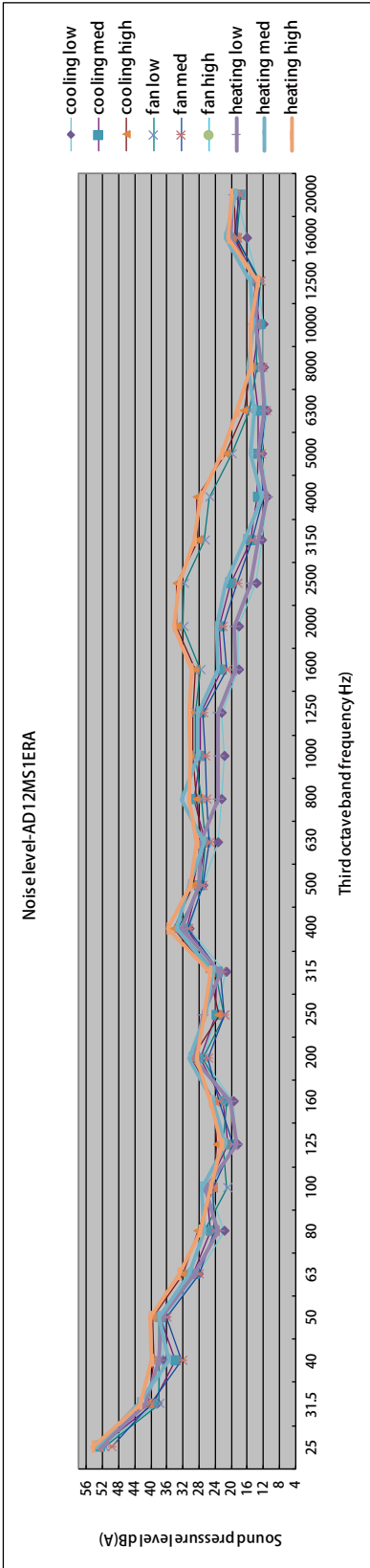


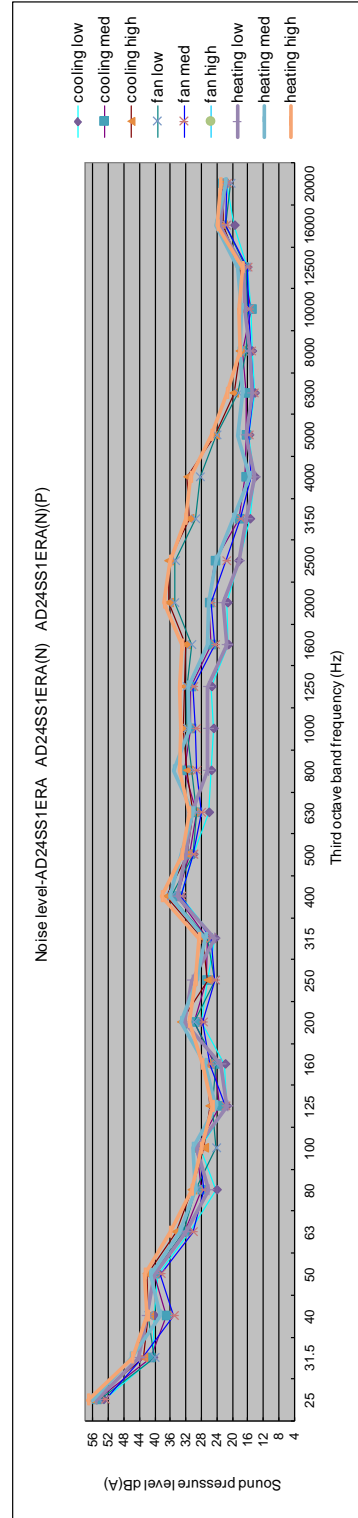
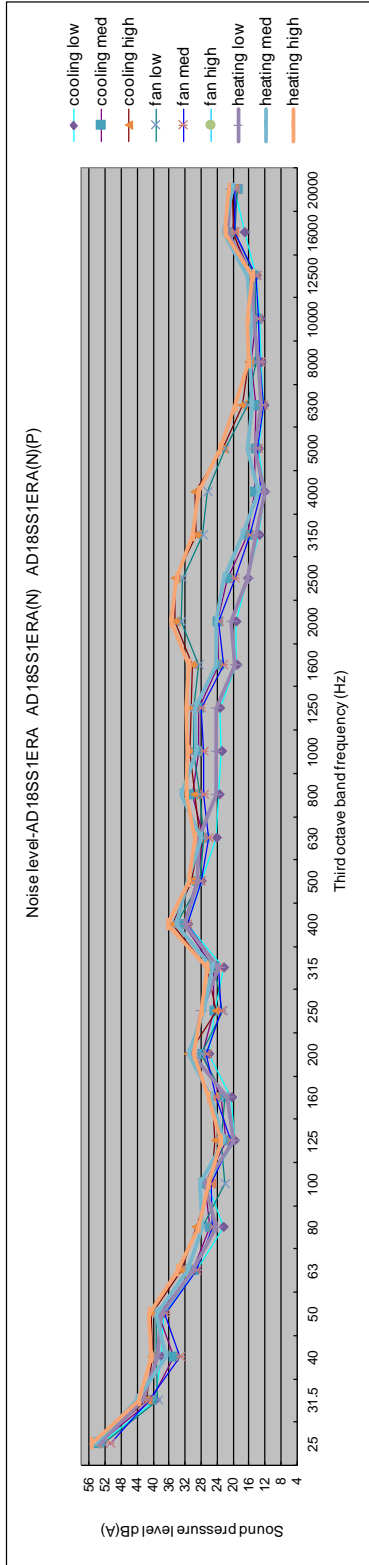
(2) Testing condition:

- a: Unit running in the normal condition
- b: Test in the semi-anechoic chamber
- c: Noise level varies from the actual factors such as room structure, etc.

(3) Octave band level:







8. Installation

For AD09~24LS1ERA AD09~24SS1ERA AD09~24SS1ERA(N) AD09~24SS1ERA(N)(P)

Safety Precautions

The machine is adaptive in following situation

1. Applicable ambient temperature range:

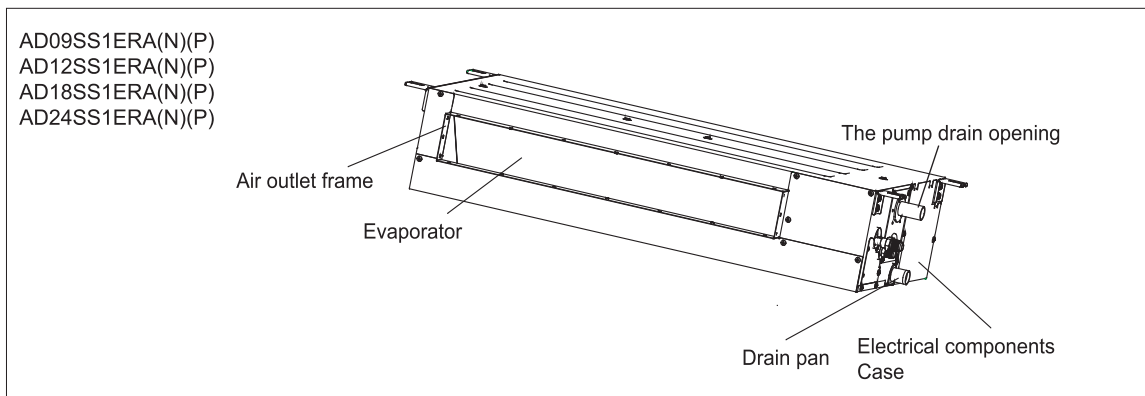
Cooling	Indoor temperature	max.	DB/WB	32/23°C
		min.	DB/WB	18/14°C
Heating	Outdoor temperature	max.	DB/WB	46/24°C
		min.	DB/WB	-10°C
Heating	Indoor temperature	max.	DB/WB	27°C
		min.	DB/WB	15°C
Heating	Outdoor temperature	max.	DB/WB	24/18°C
		min.	DB/WB	-15°C

- If the supply cord is damaged, it must be replaced by the manufacturer or its service agent or a similar qualified person.
- If the fuse on PC board is broken please change it with the type of T 3.15A /250VAC.
- The wiring method should be in line with the local wiring standard.
- The breaker of the air conditioner should be all-pole switch, and the distance between its two contacts should be no less than 3mm. Such means for disconnection must be incorporation in the fixed wiring.
- The installation height of the indoor unit is recommended from 2.5m to 2.7m.
- The distance between its two terminal blocks of indoor unit and outdoor unit should not be over 5m. If exceeded, the diameter of the wire should be enlarged according to the local wiring standard.
- The waste battery shall be disposed properly.
- For AD**SS1ERA(N)(P), we can get the 4 different ESP through adjust the indoor unit PCB SW1-4 and SW1-5, please refer below:

SW01								Static pressure
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	
--	--	--	0	0	--	--	--	0Pa
--	--	--	0	1	--	--	--	10Pa
--	--	--	1	0	--	--	--	20Pa
--	--	--	1	1	--	--	--	30Pa

Attention: cut off the power supply to adjust the SW1-4, and SW1-5, or else the operation is invalid.

Parts and Functions

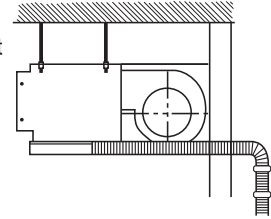


Installation Procedure

Indoor Unit

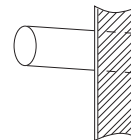
Selecting the mounting position to install the indoor units

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



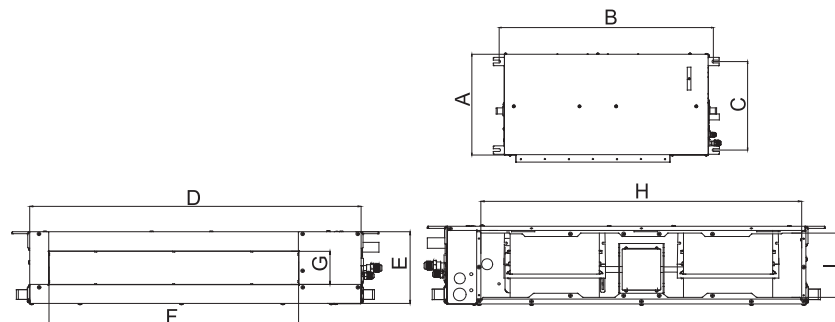
After selecting the unit installation location, proceed the following steps:

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



Installation dimension

AD09SS1ERA(N)(P)
AD12SS1ERA(N)(P)
AD18SS1ERA(N)(P)
AD24SS1ERA(N)(P)



Indoor unit dimensions(unit:mm)

Unit model	A	B	C	D	E	F	G	H	I
AD09SS1ERA(N)(P) AD12SS1ERA(N)(P)	420	892	370	850	185	640	90	760	152
AD18SS1ERA(N)(P) AD24SS1ERA(N)(P)	420	1212	370	1170	185	960	90	1080	152

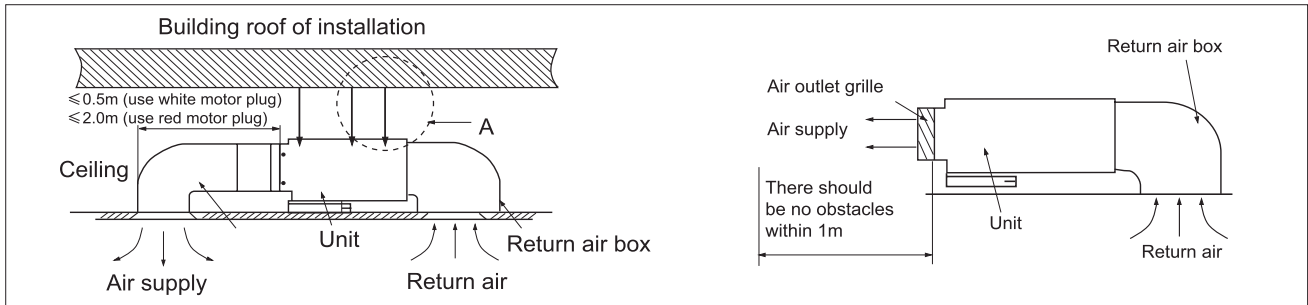
Installation Procedure

Air Duct

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

Installation Procedure

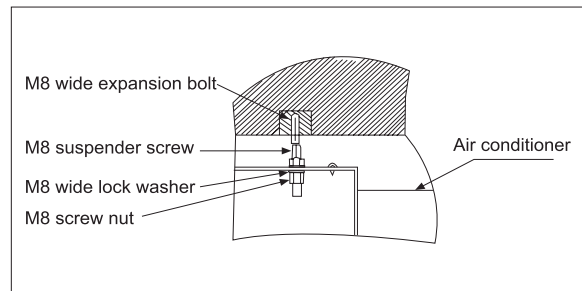
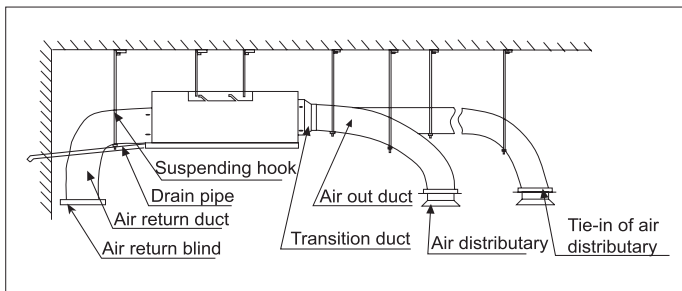
Air Duct



Note:

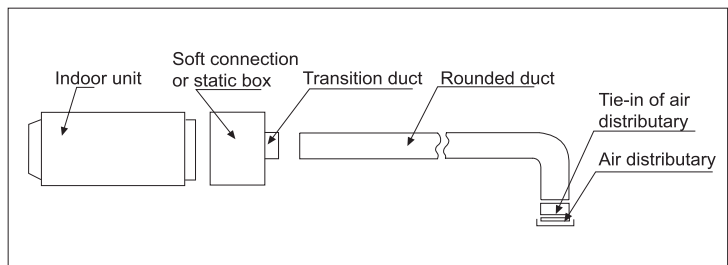
- When connecting the short ducts, use the low static terminals, which color is white. The distance L from the air outlet of the duct to the air outlet of the air conditioner shall be no more than 0.5 m.
- When connecting the long ducts, use the middle static terminals, which color is red. The distance L from the air outlet of the duct to the air outlet of the air conditioner shall be no more than 2.0 m.

The sketch map of long duct



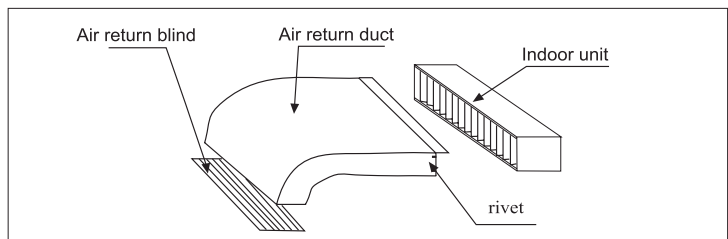
1. Installation of air sending duct

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



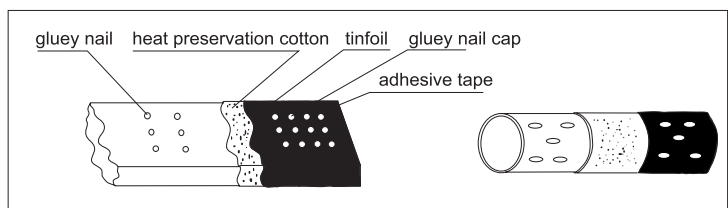
2. Installation of air return duct

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



3. Thermal insulation of duct

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



Installation Procedure

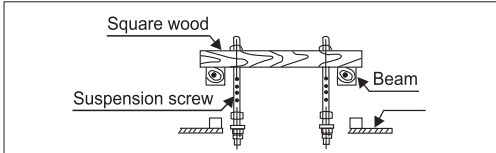
Air Duct

Installing the suspension screw

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

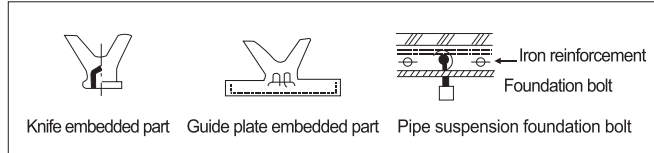
Wooden structure

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



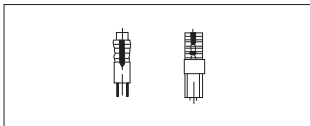
New concrete slab

To set with embedded parts, foundation bolts etc.



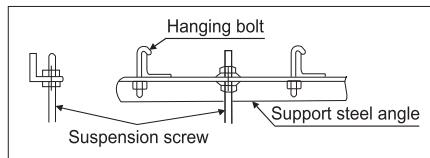
Original concrete slab

Use hole hinge, hole plunger or hole bolt.



Steel reinforcement structure

Use steel angle or new support steel angle directly.



Hanging of the indoor unit

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

Installation Procedure

Refrigerant Pipe

⚠ CAUTION

- In installation, if there is refrigerant gas leakage, please take ventilation measures immediately. The refrigerant gas will generate poisonous gas upon contacting fire.
- After installation, please verify that there is no refrigerant leakage. The leaked refrigerant gas will produce poisonous gas when meeting fire source such as heater and furnace etc.

Pipe material

Phosphorus deoxidized copper seamless pipe (TP2M) for air conditioner.

Pipe size (unit :mm)

Model	Gas side	Liquid side
AD09SS1ERA(N)(P) AD12SS1ERA(N)(P)	Ø9.52	Ø6.35
AD18SS1ERA(N)(P)	Ø12.7	Ø6.35
AD24SS1ERA(N)(P)	Ø15.88	Ø9.52

Allowable pipe length and drop

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

Supplementary refrigerant

The refrigerant supplementation shall be as specified in the installation instructions attached with the outdoor unit. The adding procedure shall be aided with a measuring meter for a specified amount of supplemented refrigerant.

Note:

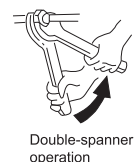
Overfilling or underfilling of refrigerant will cause compressor fault. The amount of the added refrigerant shall be as specified in the instructions.

Connection of refrigerant pipe

Conduct flared connection work to connect all refrigerant pipes.

- The connection of indoor unit pipes must use double spanners.
- The installing torque shall be as given in the following table.
- Wall thickness of connection pipe \geq 0.8mm

Connecting pipe O.D.(mm)	Installing torque (N-m)
Ø 6.35	11.8 (1.2kgf-m)
Ø 9.52	24.5 (2.5 kgf-m)
Ø 12.7	49.0 (5.0 kgf-m)
Ø 15.88	78.4 (8.0 kgf-m)



Installation Procedure

Refrigerant Pipe

Open all valves

Open all the valves on the outdoor unit.

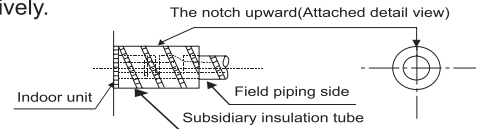
Gas leakage detection

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

Insulation treatment

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

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



Installation Procedure

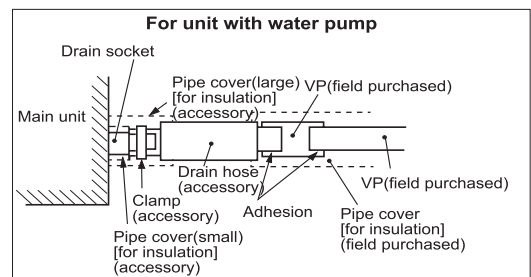
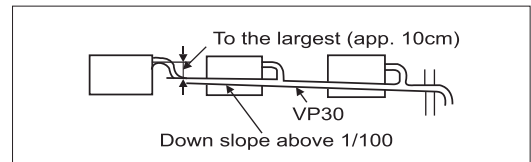
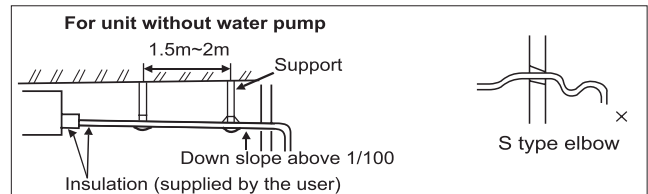
Drain Pipe

⚠ CAUTION

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

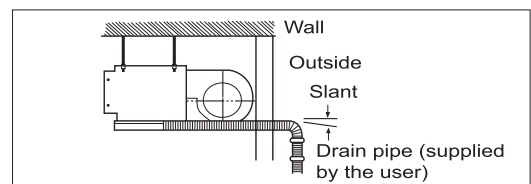
Requirements

- The indoor drain pipe shall be thermal insulated.
- The connection part between the drain pipe and the indoor unit shall be insulated so as to prevent dew generation.
- The drain pipe shall be slant downwards (greater than 1/100). The middle part shall not be of S type elbow, otherwise abnormal sound will be produced.
- The horizontal length of the drain pipe shall be less than 20 m. In case of long pipe, supports shall be provided every 1.5 – 2m to prevent wavy form.
- Central piping shall be laid out according to the right figure.
- Take care not to apply external force onto the drain pipe connection part.
- For unit with water pump drain pipe use hard PVC general purpose pipe VP which can be purchased locally. When connecting, insert a PVC pipe end securely into the drain socket before tightening securely using the attached drain hose and clamp. Adhesive must not be used for connection of the drain socket and drain hose (accessory).



Pipe and insulation material

Pipe	Rigid PVC pipe VP20 mm (internal diameter)
Insulation	Foamed PE with thickness above 7 mm



Installation Procedure

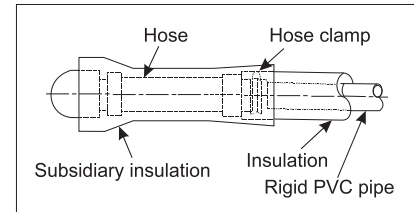
Electrical wiring

Hose

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

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

- Directly stretch the hose to install without making any deformation.
- The soft end of the hose must be fastened with a hose clamp.
- Please apply the hose on horizontal part Insulation treatment.
- Wrap the hose and its clamp up to the indoor unit without any clearance with insulating material, as shown in the figure.



Drain confirmation

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

WARNING

DANGER OF BODILY INJURY OR DEATH

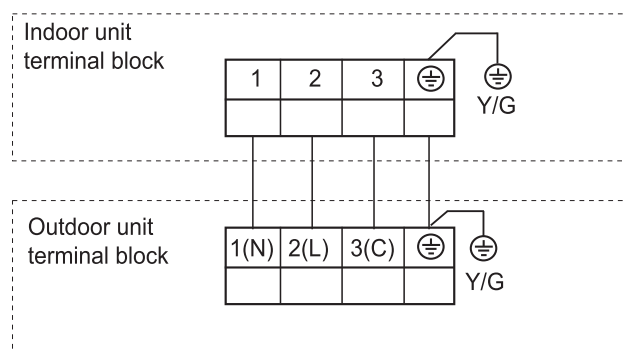
TURN OFF ELECTRIC POWER AT CIRCUIT BREAKER OR POWER SOURCE BEFORE MAKING ANY ELECTRIC CONNECTIONS. GROUND CONNECTIONS MUST BE COMPLETED BEFORE MAKING LINE VOLTAGE CONNECTIONS.

Precautions for Electrical wiring

- Electrical wiring work should be conducted only by authorized personnel.
- Do not connect more than three wires to the terminal block. Always use round type crimped terminal lugs with insulated grip on the ends of the wires.
- Use copper conductor only.

Wiring connection

Make wiring to supply power to the outdoor unit, so that the power for the indoor unit is supplied by terminals.



AD12MS1ERA AD18MS1ERA AD24MS2ERA

Safety Precautions

The machine is adaptive in following situation

1. Applicable ambient temperature range:

Cooling	Indoor temperature	max. DB/WB min. DB/WB	32/23°C 18/14°C
	Outdoor temperature	max. DB/WB min. DB/WB	46/26°C -10°C
Heating	Indoor temperature	max. DB/WB min. DB/WB	27°C 15°C
	Outdoor temperature	max. DB/WB min. DB/WB	24/18°C -15°C

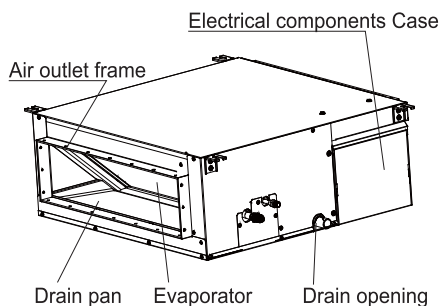
- If the supply cord is damaged, it must be replaced by the manufacturer or its service agent or a similar qualified person.
- If the fuse on the indoor PC board is broken please change it with the type of T 6.3A /250VAC(For series 24,28,36,48).
- The wiring method should be in line with the local wiring standard.
- The power cable should be:
2.5mm² (For series 12,18,24);
The connecting cable should be:
1.3mm² (For series 12,18,24)
- The power cable and connect cable should be locally supplied.
- The breaker of the air conditioner should be all-pole switch, and the distance between its two contacts should be no less than 3mm.
- The indoor unit installation height is at least 2.5m.
- A leakage breaker must be installed.
- For AD12MS1ERA,AD18MS1ERA,AD24MS2ERA we can get the 4 different ESP through adjust the indoor unit PCB SW1-4 and SW1-5, please refer below:

SW1								Static pressure
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	
-	-	-	OFF	OFF	-	-	-	10 Pa
-	-	-	OFF	ON	-	-	-	30 Pa
-	-	-	ON	OFF	-	-	-	50 Pa
-	-	-	ON	ON	-	-	-	70 Pa

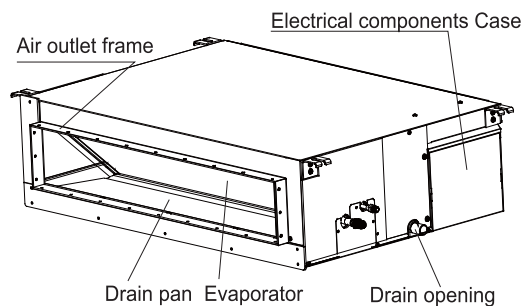
Attention: cut off the power supply to adjust the SW1-4, and SW1-5, or else the operation is invalid.

Parts and Functions

AD12MS1ERA



AD18MS1ERA AD24MS2ERA



Installation Procedure

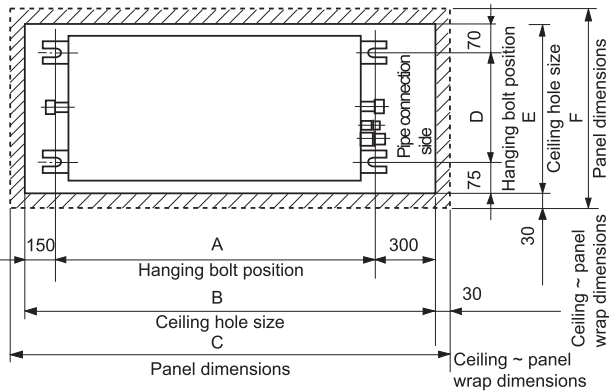
Indoor Unit

1. Preparation for suspending the unit

a. Size of hole at ceiling and position of hanging bolts

<Combination with silent panel>

AD12MS1ERA AD18MS1ERA AD24MS2ERA



Model	Dimensions	A(mm)	B(mm)	C(mm)	D(mm)	E(mm)	F(mm)
AD12MS1ERA		705	1155	1215	595	740	800
AD18MS1ERA AD24MS2ERA		983	1433	1493	595	740	800

b. Hanger bolts installation

Use care of the piping direction when the unit is installed.

2. Installation of indoor unit

Fix the indoor unit to the hanger bolts.

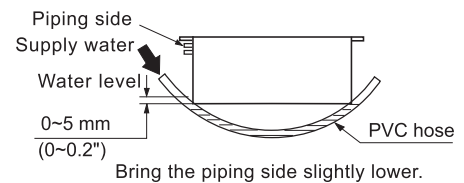
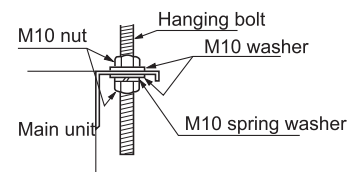
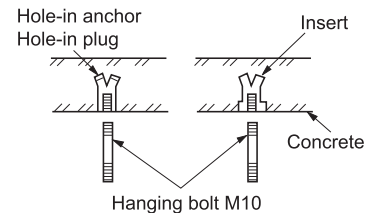
If required, it is possible to suspend the unit to the beam, etc. Directly by use of the bolts without using the hanger bolts.

Note

When the dimensions of main unit and ceiling holes does not match, it can be adjusted with the slot holes of hanging bracket.

Adjusting to the levelness

- Adjust the out-of levelness using a level or by the following method. Make adjustment so that the relation between the lower surface of the unit proper and water level in the hose becomes as given below.
- Unless the adjustment to the levelness is made properly, malfunctioning or failure of the float switch may occur.



Tap selection on blower unit

(When the high performance filter is used.)

Taps of blower unit are set at the standard selection at the shipping from factory. Where the static pressure is raised by employing such option as the high performance filter, etc., change the connection of connectors provided at the flank of control box as shown below.

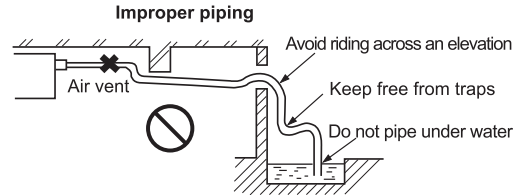
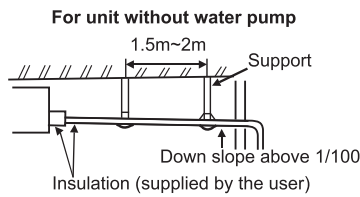
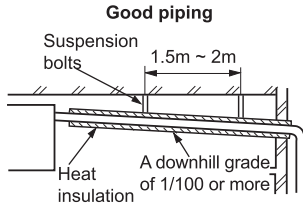
Standard tap (at shipping)				High speed tap			
Control box side	White	Connector	White	Motor side	White	Red	Black
	Blue		Blue		White		
	Yellow		Yellow		Blue		
	Red		Red		Red		

Installation Procedure

Drain Pipe

Drain Piping

(a) Drain piping should always be in a downhill grade (1/50~1/100) and avoid riding across an elevation or making traps.

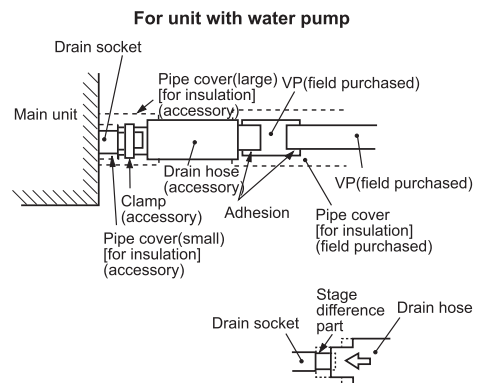


Unit model	The size of drain opening
AD12MS1ERA AD18MS1ERA AD24MS2ERA	∅ 21mm

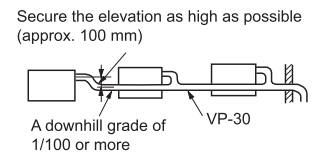
(b) When connecting the drain pipe to unit, pay sufficient attention not to apply excess force to the piping on the unit side. Also, fix the piping at a point as close as possible to the unit.

(c) For unit without water pump, please refer to the diagram and select drain pipe size according to drain opening inner diameter size. The drain pipe shall be slant downwards (greater than 1/100). The horizontal length of the drain pipe shall be less than 20 m. In case of long pipe, supports shall be provided every 1.5~2m to prevent wavy form. Central piping shall be laid out according to the right figure. Take care not to apply external force onto the drain pipe connection part.

(d) For unit with water pump drain pipe use hard PVC general purpose pipe VP which can be purchased locally. When connecting, insert a PVC pipe end securely into the drain socket before tightening securely using the attached drain hose and clamp. Adhesive must not be used for connection of the drain socket and drain hose (accessory).

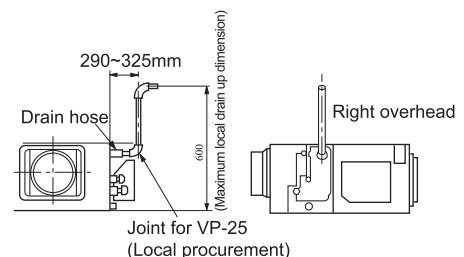


(e) When constructing drain piping for several units, position the common pipe about 100 mm below the drain outlet of each unit as shown in the sketch. Use VP-30(11/4") or thicker pipe for this purpose.



(f) The hard PVC pipe put indoor side should be heat insulated. Do not ever provide an air vent.

(g) The height of the drain head can be elevated up to a point 500 mm above the ceiling, and when an obstacle exists in the ceiling space, elevate the piping to avoid the obstacle using an elbow or corresponding gadget. When doing this, if the stretch for the needed height is higher than 500 mm, the back-flow quantity of drain at the event of interruption of the operation gets too much and it may cause overflow at the drain pan. Therefore, make the height of the drain pipe within the distance given in the sketch below.



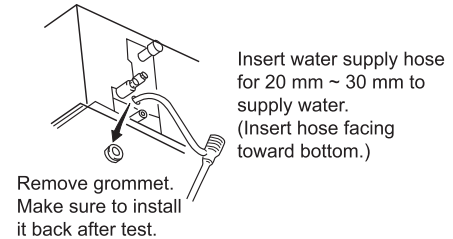
(h) Avoid positioning the drain piping outlet at a place where generation of odor may occur. Do not lead the drain piping direct into a sewer from where sulfur gas may generate.

Installation Procedure

Drain Pipe

Drainage Test

- (1) Conduct a drainage test after completion of the electrical work.
- (2) During the trial, make sure that drain flows properly through the piping and that no water leaks from connections.
- (3) In case of a new building, conduct the test before it is furnished with the ceiling.
- (4) Be sure to conduct this test even when the unit is installed in the heating season.

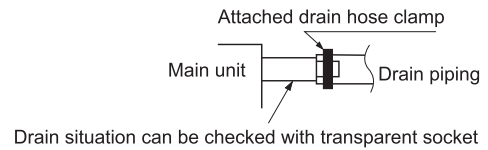


Insert water supply hose for 20 mm ~ 30 mm to supply water. (Insert hose facing toward bottom.)

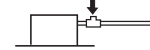
Procedures

- (a) Supply about 1000 cc of water to the unit through the air outlet using a feed water pump.
- (b) Check the drain while cooling operation.

Before the electrical work has not been completed, connect a convex joint in the drain pipe connection to provide a water inlet. Then, check if water leaks from the piping system and that drain flows through the drain pipe normally.



Pour water into a convex joint.



Installation Procedure

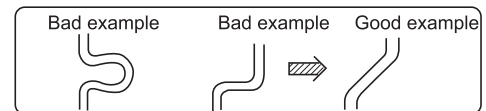
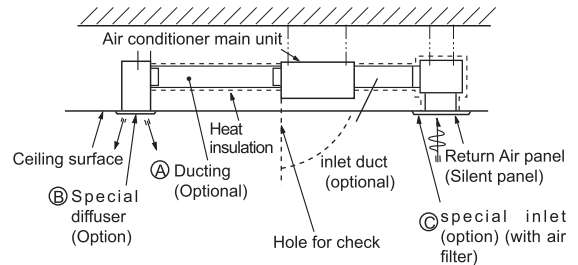
Air Duct

Installation work for air outlet ducts

Calculate the draft and external static pressure and select the length, shape and blowout.

(A) Ducting

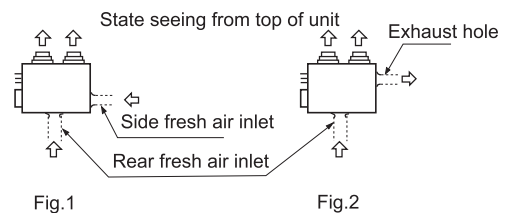
- 2-spot, 3-spot and 4-spot with ϕ 200 type duct are the standard specifications.
- Limit the difference in length between spots at less than 2:1.
- Reduce the length of duct as much as possible.
- Reduce the number of bends as much as possible. (Corner R should be as larger as possible.)
- Use a band, etc. to connect the main unit and the blowout duct flange.
- Conduct the duct installation work before finishing the ceiling.



Connection of suction, exhaust ducts

a. Fresh air inlet

- Inlet can be selected from the side or rear faces depending on the working conditions.
- Use the rear fresh air inlet when the simultaneous intake and exhaust is conducted. (Side inlet cannot be used.)



b. Exhaust (Make sure to use also the suction.)

Use the side exhaust port.

Installation Procedure

Electrical wiring

⚠ WARNING

DANGER OF BODILY INJURY OR DEATH

- TURN OFF ELECTRIC POWER AT CIRCUIT BREAKER OR POWER SOURCE BEFORE MAKING ANY ELECTRIC CONNECTIONS.
- GROUND CONNECTIONS MUST BE COMPLETED BEFORE MAKING LINE VOLTAGE CONNECTIONS.

Precautions for electrical wiring

- Electrical wiring work should be conducted only by authorized personnel.
- Do not connect more than three wires to the terminal block. Always use round type crimped terminal lugs with insulated grip on the ends of the wires.
- Use copper conductor only.

Selection of size of power supply and interconnecting wires

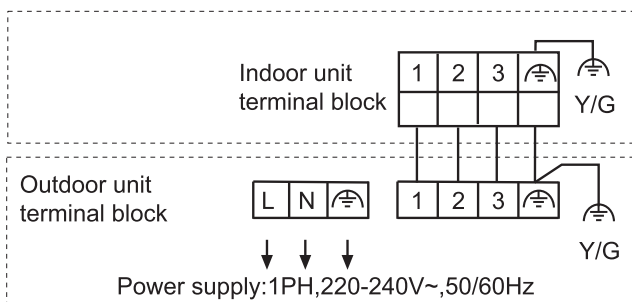
Select wire sizes and circuit protection from table below. (This table shows 20 m length wires with less than 2% voltage drop.)

Model \ Item	Phase	Circuit breaker		Power source wire size (minimum) (mm ²)	Earth leakage breaker	
		Switch breaker (A)	Overcurrent protector rated capacity (A)		Switch breaker(A)	Leak current(mA)
AD12MS1ERA AD18MS1ERA AD24MS2ERA	1	40	26	4.0	40	30

Wiring connection

Make wiring to supply power to the outdoor unit, so that the power for the indoor unit is supplied by terminals.

- AD12MS1ERA
- AD18MS1ERA
- AD24MS2ERA



Part 3 Outdoor unit

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1.Specification

Item		Model	3U19FS2ERA			
Function		—	Cooling	Heating		
Rating capacity		W	5400	6200		
Heating pdesign(-10℃)		W	4500			
Rated power input (indoor + outdoor)		W	1460	1650		
Rated current input (indoor + outdoor)		A	6.3	7.2		
EER / COP		W/W	3.7	3.75		
SEER / SCOP		W/W	3.57	3.62		
Minimum capacity		W	1500	1800		
Minimum power input		W	500	500		
Maximum capacity		W	7000	8100		
Maximum power input (indoor + outdoor)		W	2600	2600		
Power source		—	1PH, 220-230V~, 50/60Hz			
Max. running current (indoor + outdoor)		A / A	11.3	11.3		
Power facor(under rating power input)		—	99%	99%		
Fuse size (recommended size)		A	16			
Outdoor unit	Compressor	Model / Manufacture	—	SNB130FGYMC-L1 / MELCOM		
		Oil charge and type	—	500CC, FV 50S		
		Type	—	Twin Rotary (DC inverter)		
		Number	—	1		
	Fan	Type × Number	—	Axial × 1		
		Speed	r/min	High 860		
		Motor output/input power	W	55/69		
		Air-flows (H/M/L)	m ³ /h	about 2000		
	Heat exchanger	Type / Diameter	mm	TP2M / 7.94		
		row	—	2		
		Face area	m ²	about 0.52		
	Dimension (WxDxH)	External	mm	886/288/688		
		Package	mm	992/408/760		
	Refrigerant control method		—	PMVs		
	Defrosting method		—	Automatic by reversible cycle		
	Crankcase heater power		W	none		
Noise level	Sound power level	dB(A)	63			
	Sound pressure level	dB(A)	52			
Weight	Net / Shipping	kg / kg	51/53			
Piping	Refrigerant	Type / Charge	kg	R410A/ 2.0		
		No need to recharge	m	30		
		Recharge	g/m	20		
	Pipe	Liquid	mm	3" Φ6.35		
		Gas	mm	3" Φ9.52		
	Connecting method		—	Flared		
	Between I.D & O.D	Drop between IU & OU		m	≤7.5	
		Piping length between IU & OU		m	≤10	
		Total liquid piping length		m	≤30	
		Drop between indoor units		m	≤1	
		Max. drop between IU &OU		m	15(indoor unit lower than outdoor unit)	
		Max. drop between IU &OU		m	15 (indoor unit higher than outdoor unit)	
		Max. drop between indoor units		m	5	
Max. piping length between IU & OU		m	25			
Max. total length		m	50			

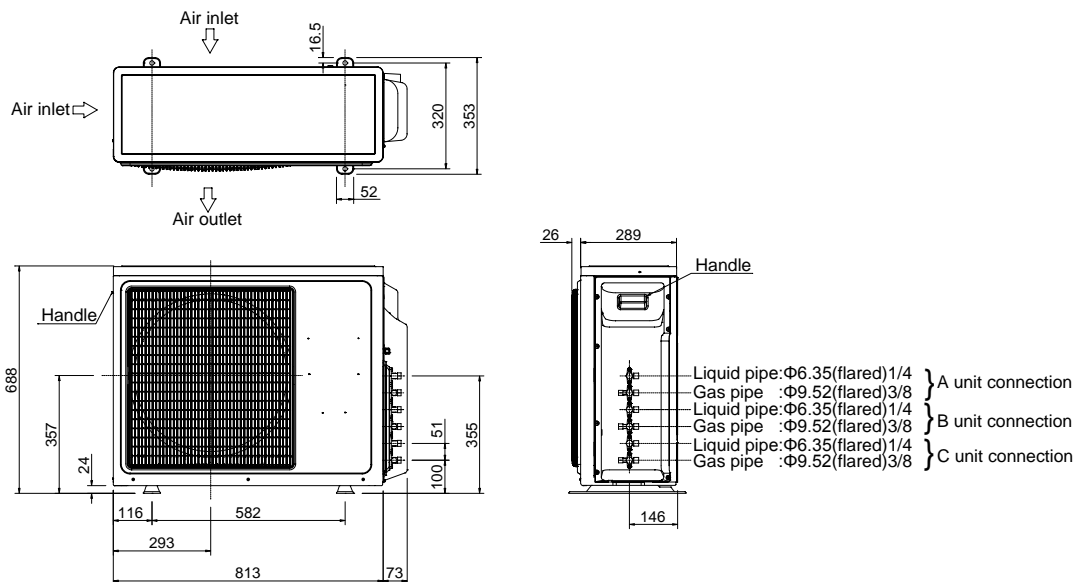
Item		Model	3U24GS2ERA			
Function		—	Cooling	Heating		
Rating capacity		W	6900	7000		
Heating pdesign(-10℃)		W	5300			
Rated power input (indoor + outdoor)		W	1920	1870		
Rated current input (indoor + outdoor)		A	8.35	7.9		
EER / COP		W/W	3.6	3.74		
SEER / SCOP		W/W	3.47	3.61		
Minimum capacity		W	1500	1800		
Minimum power input		W	550	550		
Maximum capacity		W	8200	9000		
Maximum power input (indoor + outdoor)		W	3100	3100		
Power source		—	1PH, 220-230V~, 50/60Hz			
Max. running current (indoor + outdoor)		A / A	13.5	13.5		
Power facor(under rating power input)		—	99%	99%		
Fuse size (recommended size)		A	25			
Outdoor unit	Compressor	Model / Manufacture	SNB172FJGMC/ MELCOM			
		Oil charge and type	600CC, FV 50S			
		Type	Twin Rotary (DC inverter)			
		Number	1			
	Fan	Type × Number	Axial × 1			
		Speed	r/min	High 860		
		Motor output/input power	W	80/100		
		Air-flows (H/M/L)	m ³ /h	about 2500		
	Heat exchanger	Type / Diameter	mm	TP2M / 7.94		
		row	—	2		
		Face area	m ²	about 0.52		
	Dimension (WxDxH)	External	mm	940/345/730		
		Package	mm	1005/423/815		
	Refrigerant control method		—	PMVs		
	Defrosting method		—	Automatic by reversible cycle		
	Crankcase heater power		W	none		
Noise level	Sound power level	dB(A)	65			
	Sound pressure level	dB(A)	54			
Weight	Net / Shipping	kg / kg	53/56			
	Refrigerant		Type / Charge	kg	R410A / 2.1	
Pipe	No need to recharge	m	30			
	Recharge	g/m	20			
Piping	Connecting method	Liquid	mm	3* Φ6.35		
		Gas	mm	3* Φ9.52		
	Drop between IU & OU		m	≤7.5		
	Piping length between IU & OU		m	≤10		
	Total liquid piping length		m	≤30		
	Drop between indoor units		m	≤1		
	Between I.D & O.D	Max. drop between IU &OU		m	15(indoor unit lower than outdoor unit)	
		Max. drop between IU &OU		m	15 (indoor unit higher than outdoor unit)	
		Max. drop between indoor units		m	5	
		Max. piping length between IU & OU		m	25	
Max. total length		m	60			

Item		Model	4U30HS2ERA		
Function		—	Cooling	Heating	
Rating capacity		W	8200	9600	
Heating pdesign(-10℃)		W	7100		
Rated power input (indoor + outdoor)		W	2250	2550	
Rated current input (indoor + outdoor)		A	9.8	11.1	
EER / COP		W/W	3.65	3.76	
SEER / SCOP		W/W	3.57	4.0	
Minimum capacity		W	1500	1800	
Minimum power input		W	550	550	
Maximum capacity		W	9800	10500	
Maximum power input (indoor + outdoor)		W	3800	3800	
Power source		—	1PH, 220-230V~, 50/60Hz		
Max. running current (indoor + outdoor)		A / A	16.5	16.5	
Power factor(under rating power input)		—	99%	99%	
Fuse size (recommended size)		A	25		
Outdoor unit	Compressor	Model / Manufacture	—	TNB220FLHMC-L / MELCOM	
		Oil charge and type	—	870CC/ FV50S	
		Type	—	Twin Rotary (DC inverter)	
		Number	—	1	
	Fan	Type × Number	—	Axial × 1	
		Speed	r/min	High 860	
		Motor output/input power	W	100/125	
		Air-flows (H/M/L)	m³/h	about 3500	
	Heat exchanger	Type / Diameter	mm	TP2M / 7.0	
		row	—	2	
		Face area	m²	about 0.75	
	Dimension (WxDxH)	External	mm	948/340/840	
		Package	mm	1040/430/1000	
	Refrigerant control method		—	PMVs	
	Defrosting method		—	Automatic by reversible cycle	
Crankcase heater power		W	none		
Noise level	Sound power level	dB(A)	66		
	Sound pressure level	dB(A)	56		
Weight	Net / Shipping	kg / kg	76/87		
Piping	Refrigerant	Type / Charge	kg	R410A / 3.2	
		No need to recharge	m	40	
		Recharge	g/m	20	
	Pipe	Liquid	mm	4* Φ6.35	
		Gas	mm	3* Φ9.52+1*Φ12.7	
	Connecting method		—	Flared	
	Between I.D & O.D	Drop between IU & OU		m	≤7.5
		Piping length between IU & OU		m	≤10
		Total liquid piping length		m	≤40
		Drop between indoor units		m	≤1
		Max. drop between IU &OU		m	15(indoor unit lower than outdoor unit)
Max. drop between IU &OU		m	15 (indoor unit higher than outdoor unit)		
Max. drop between indoor units		m	5		
Max. piping length between IU & OU		m	25		
Max. total length		m	70		

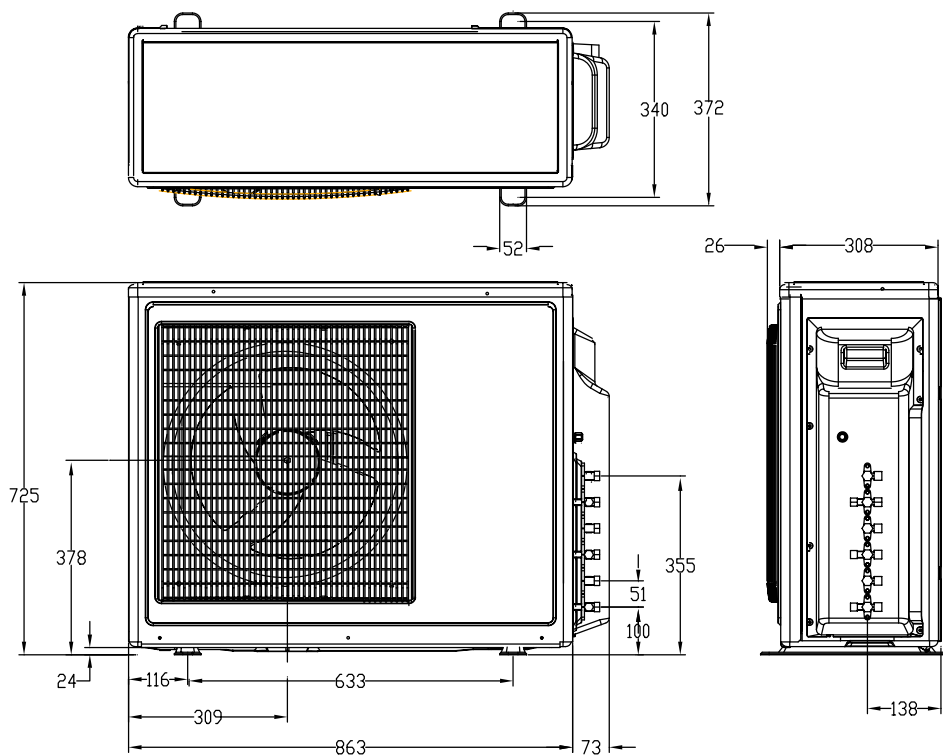
Item		Model	5U34HS2ERA		
Function		—	Cooling	Heating	
Rating capacity		W	9100	10200	
Heating pdesign(-10℃)		W	8100		
Rated power input (indoor + outdoor)		W	2600	2830	
Rated current input (indoor + outdoor)		A	11.3	12.3	
EER / COP		W/W	3.5	3.6	
SEER / SCOP		W/W	3.4	3.5	
Minimum capacity		W	1500	1800	
Minimum power input		W	550	550	
Maximum capacity		W	11000	11500	
Maximum power input (indoor + outdoor)		W	4000	4000	
Power source		—	1PH, 220-230V~, 50/60Hz		
Max. running current (indoor + outdoor)		A / A	17.4	17.4	
Power factor(under rating power input)		—	99%	99%	
Fuse size (recommended size)		A	25		
Outdoor unit	Compressor	Model / Manufacture	—	TNB220FLHMC-L / MELCOM	
		Oil charge and type	—	870CC/ FV50S	
		Type	—	Twin Rotary (DC inverter)	
		Number	—	1	
	Fan	Type × Number	—	Axial × 1	
		Speed	r/min	High 900	
		Motor output/input power	W	100/125	
		Air-flows (H/M/L)	m³/h	about 4000	
	Heat exchanger	Type / Diameter	mm	TP2M / 7.0	
		row	—	2	
		Face area	m²	about 0.75	
	Dimension (WxDxH)	External	mm	948/340/840	
		Package	mm	1040/430/1000	
	Refrigerant control method		—	PMVs	
	Defrosting method		—	Automatic by reversible cycle	
	Crankcase heater power		W	none	
Noise level	Sound power level	dB(A)	67		
	Sound pressure level	dB(A)	58		
Weight	Net / Shipping	kg / kg	77/88		
Piping	Refrigerant	Type / Charge	kg	R410A / 3.4	
		No need to recharge	m	40	
		Recharge	g/m	20	
	Pipe	Liquid	mm	5* Φ6.35	
		Gas	mm	4* Φ9.52+1*Φ12.7	
	Connecting method		—	Flared	
	Between I.D & O.D	Drop between IU & OU	m	≤7.5	
		Piping length between IU & OU	m	≤10	
		Total liquid piping length	m	≤40	
		Drop between indoor units	m	≤1	
		Max. drop between IU & OU	m	15(indoor unit lower than outdoor unit)	
Max. drop between IU & OU		m	15 (indoor unit higher than outdoor unit)		
Max. drop between indoor units		m	5		
Max. piping length between IU & OU		m	25		
Max. total length		m	80		

2. Dimension

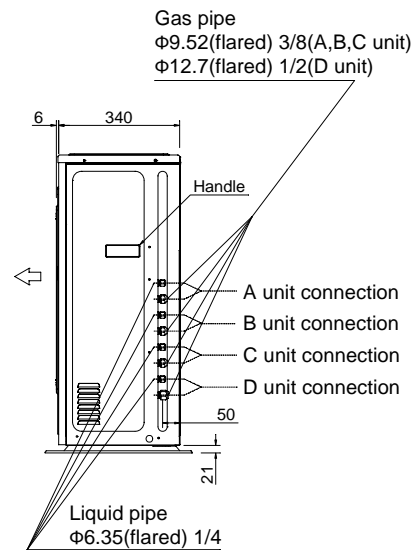
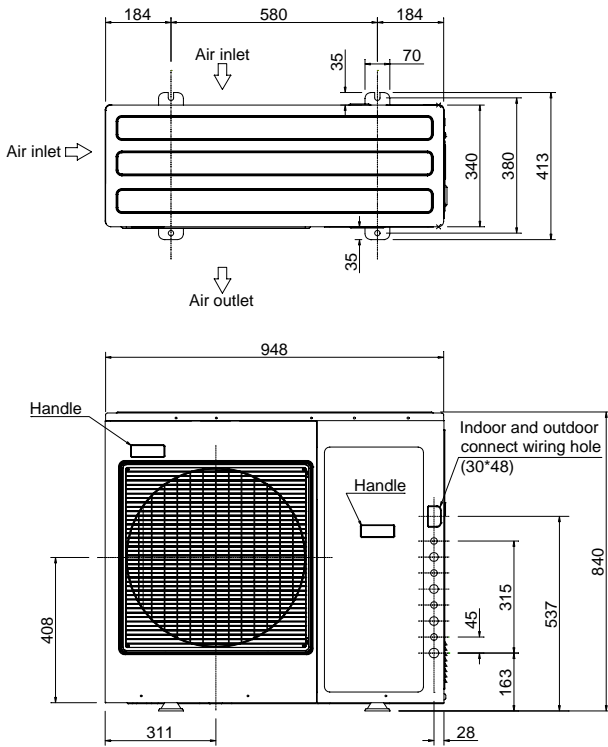
3U19FS2ERA



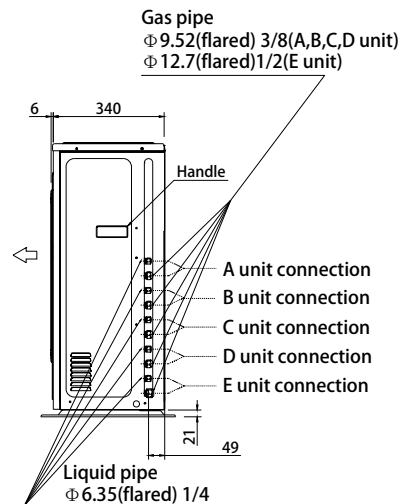
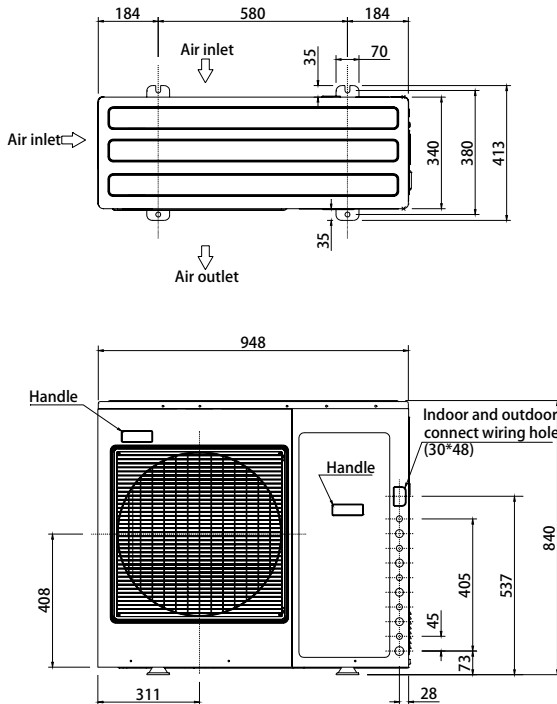
3U24GS2ERA



4U30HS2ERA:

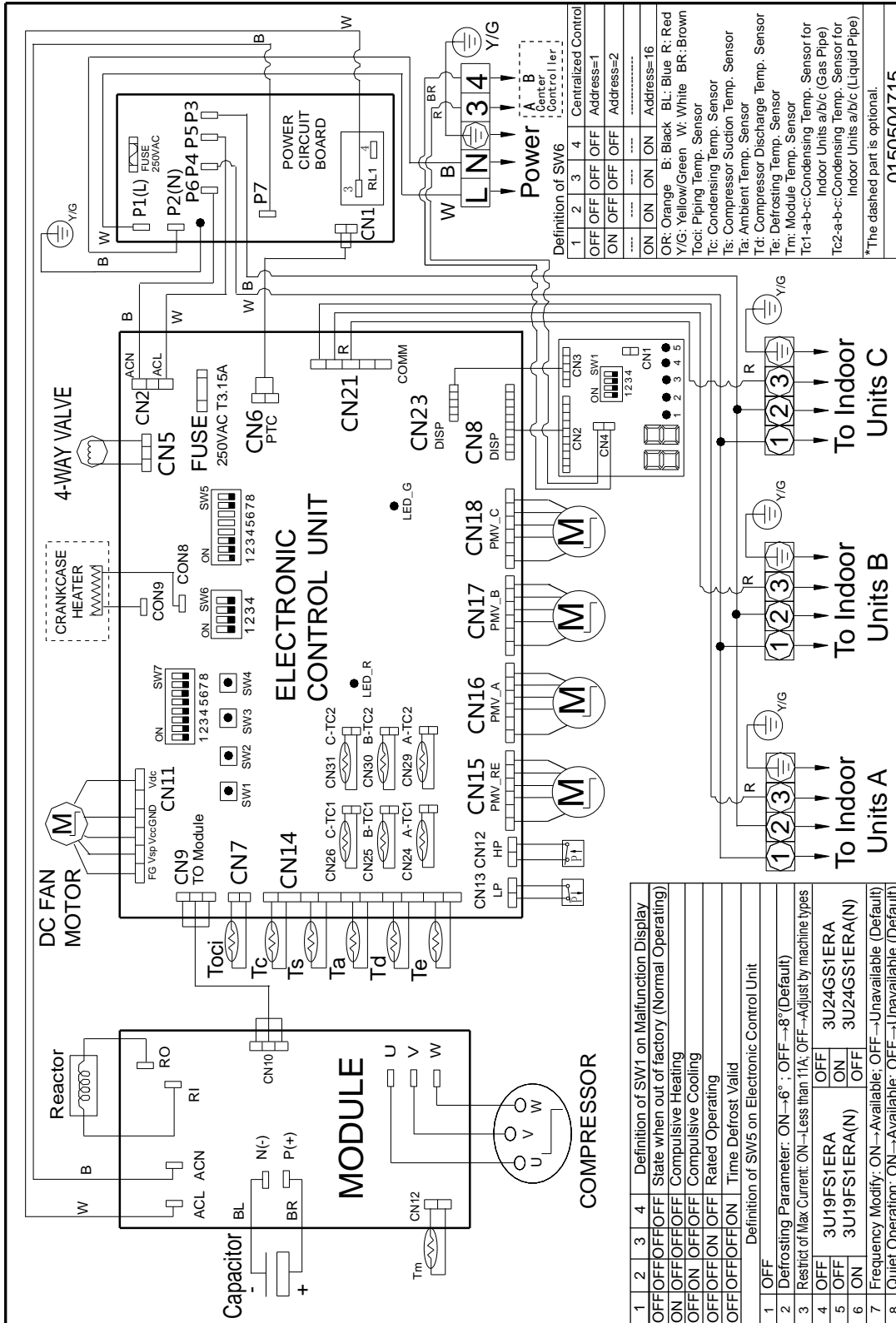


5U34HS2ERA:

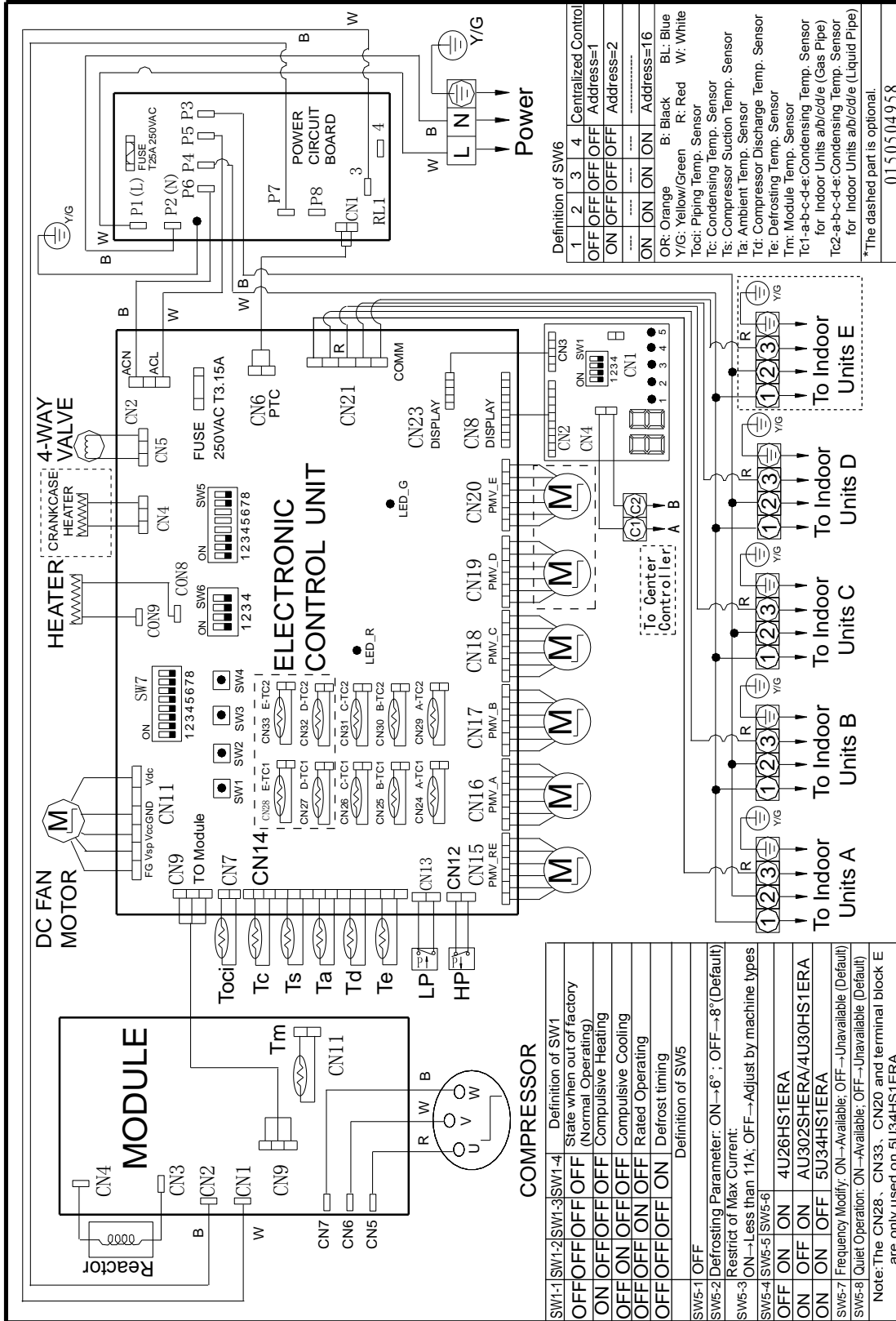


3. Wiring diagram

3U19FS2ERA 3U24GS2ERA

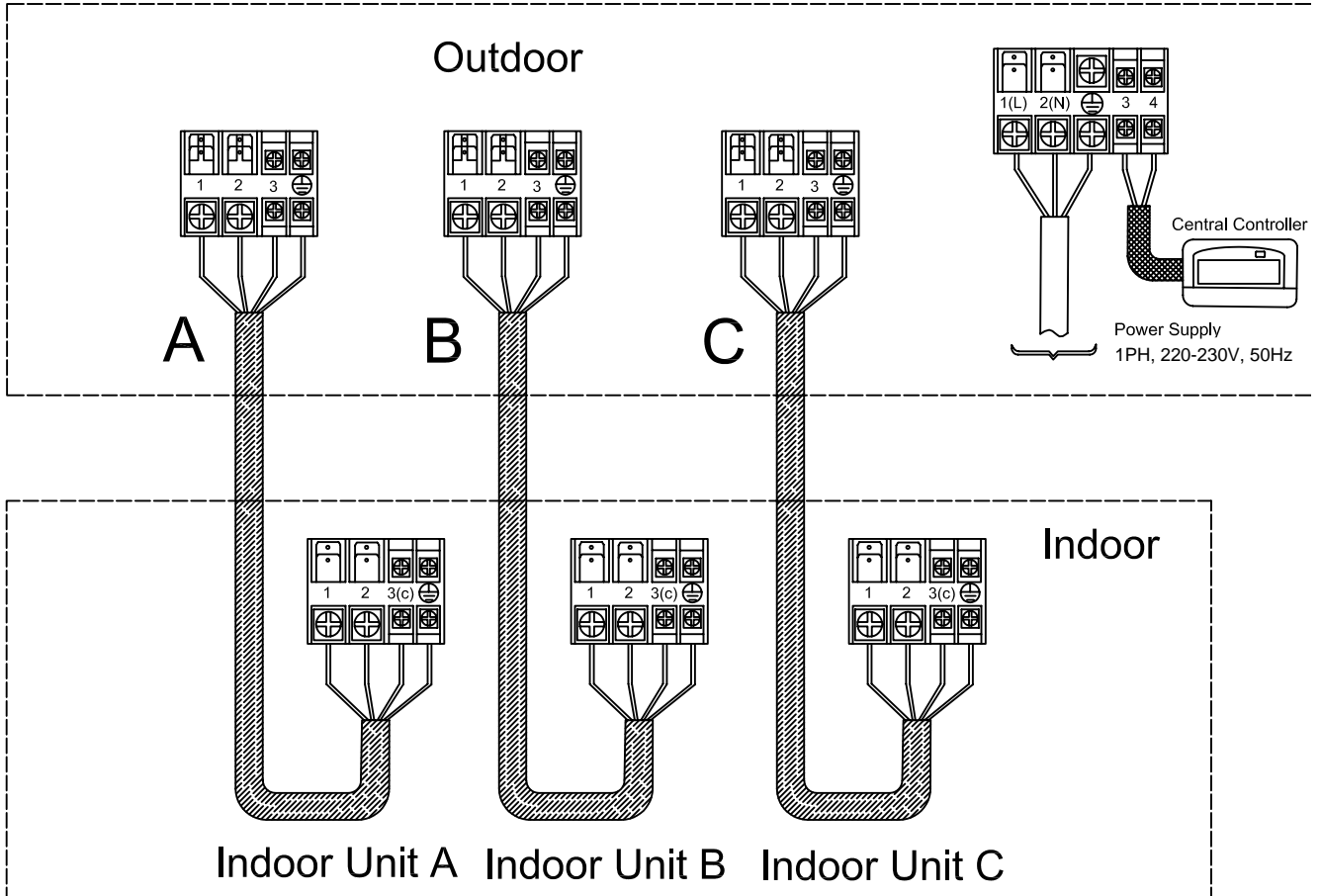


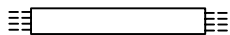


4U30HS2ERA 5U34HS2ERA



4. Wiring connection

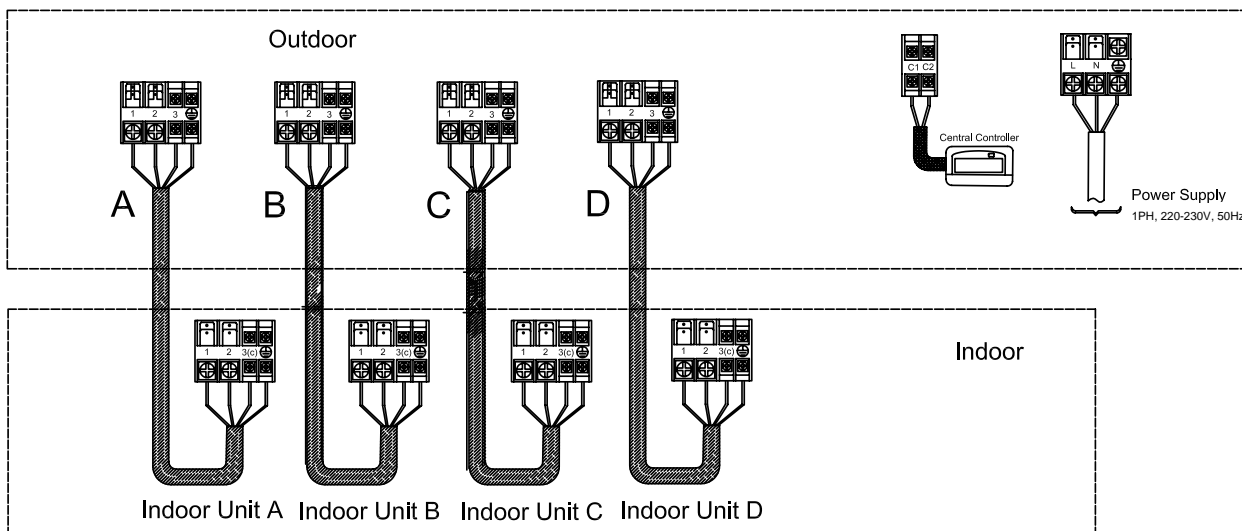
3U19FS2ERA 3U24GS2ERA






-  Power Supply Cable:
H05RN-F3G 4.0mm²
-  Connecting Cable:
H05RN-F4G 2.5mm²
-  Connecting Cable:
H05RN-F2G 2.5mm²

Connect the connecting wires between indoor and outdoor units and ensure the sequence numbers of terminals match with each other.

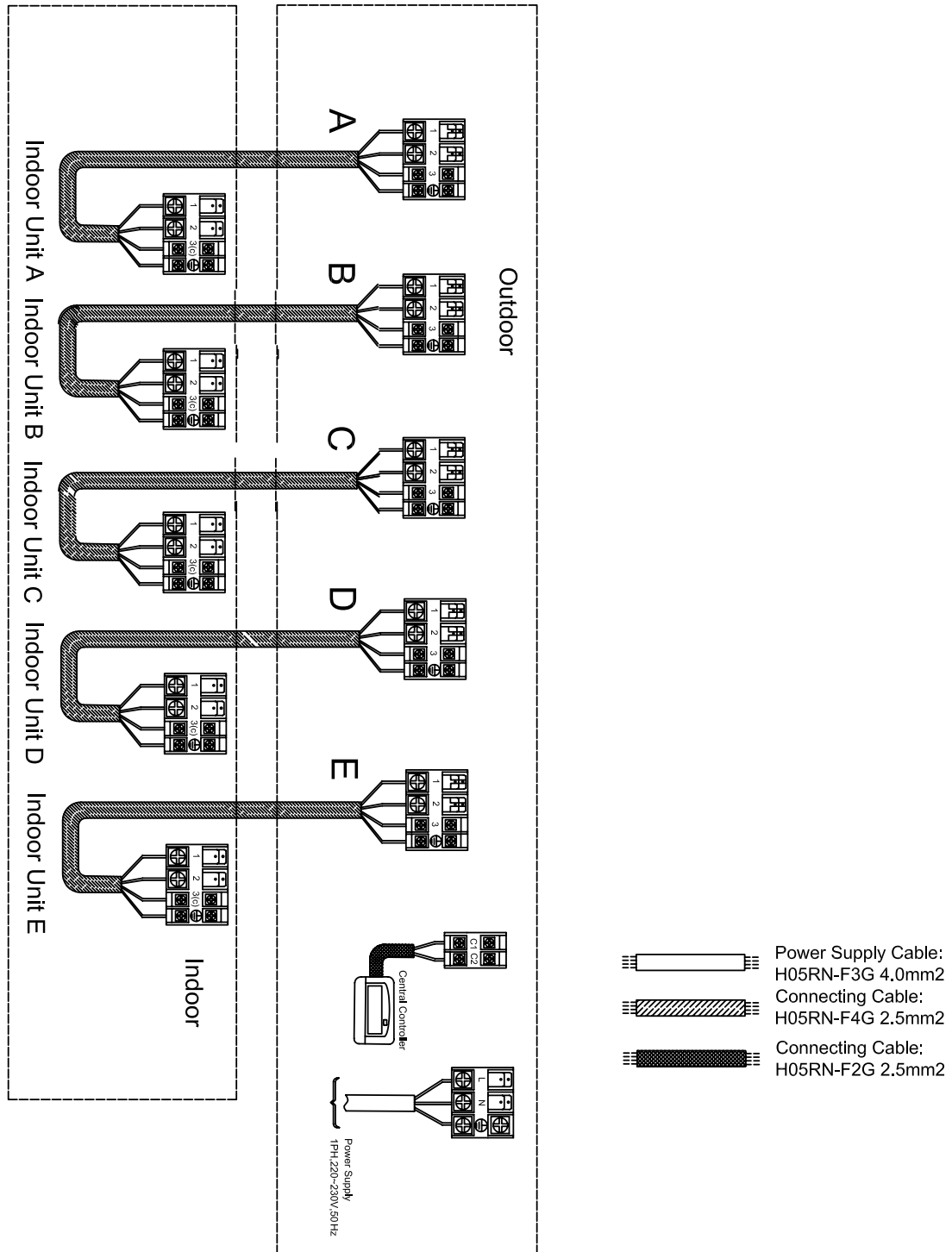
4U30HS2ERA



-  Power Supply Cable:
H05RN-F3G 4.0mm²
-  Connecting Cable:
H05RN-F4G 2.5mm²
-  Connecting Cable:
H05RN-F2G 2.5mm²

Connect the connecting wires between indoor and outdoor units and ensure the sequence numbers on terminals match with each other.

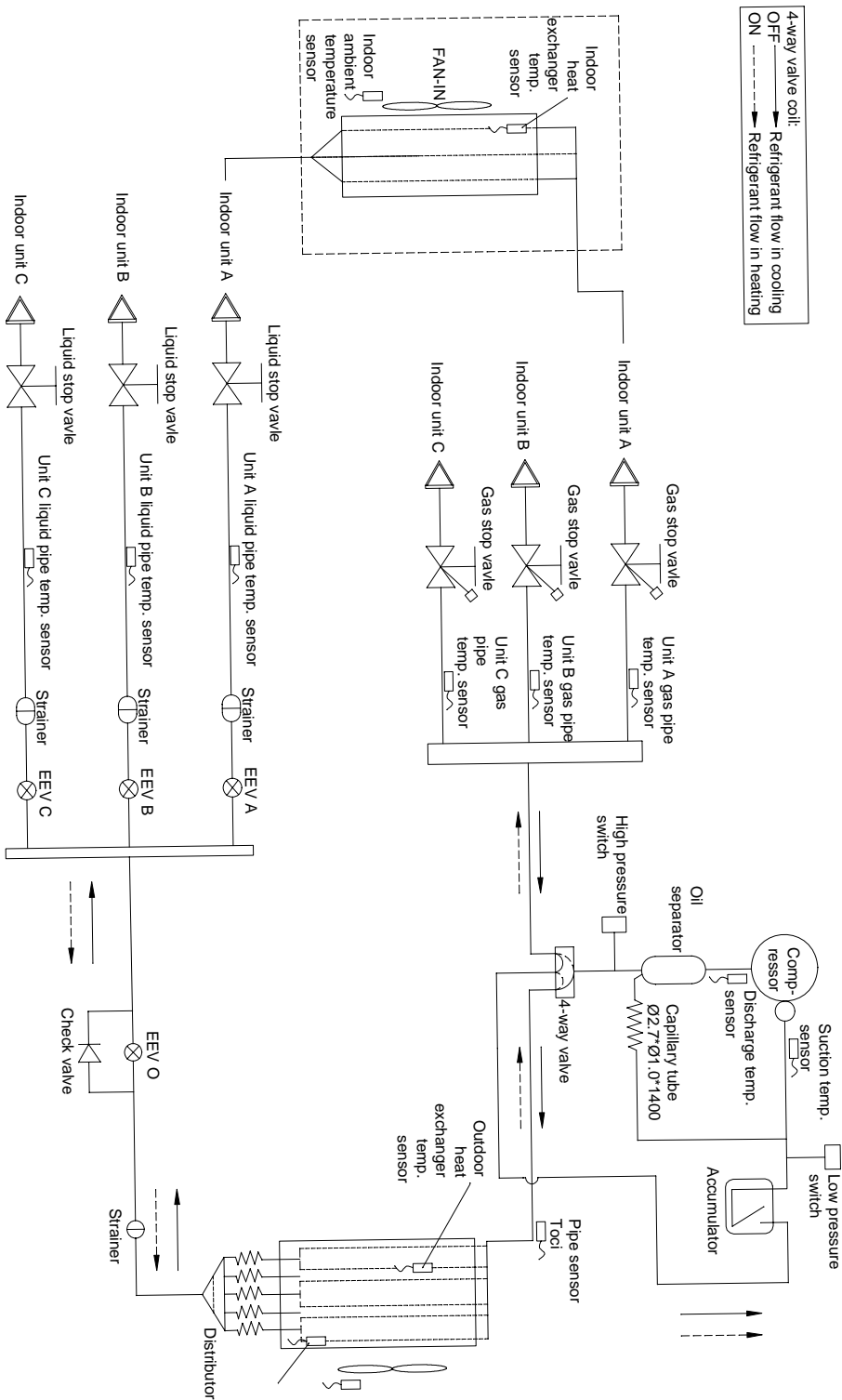
5U34HS2ERA



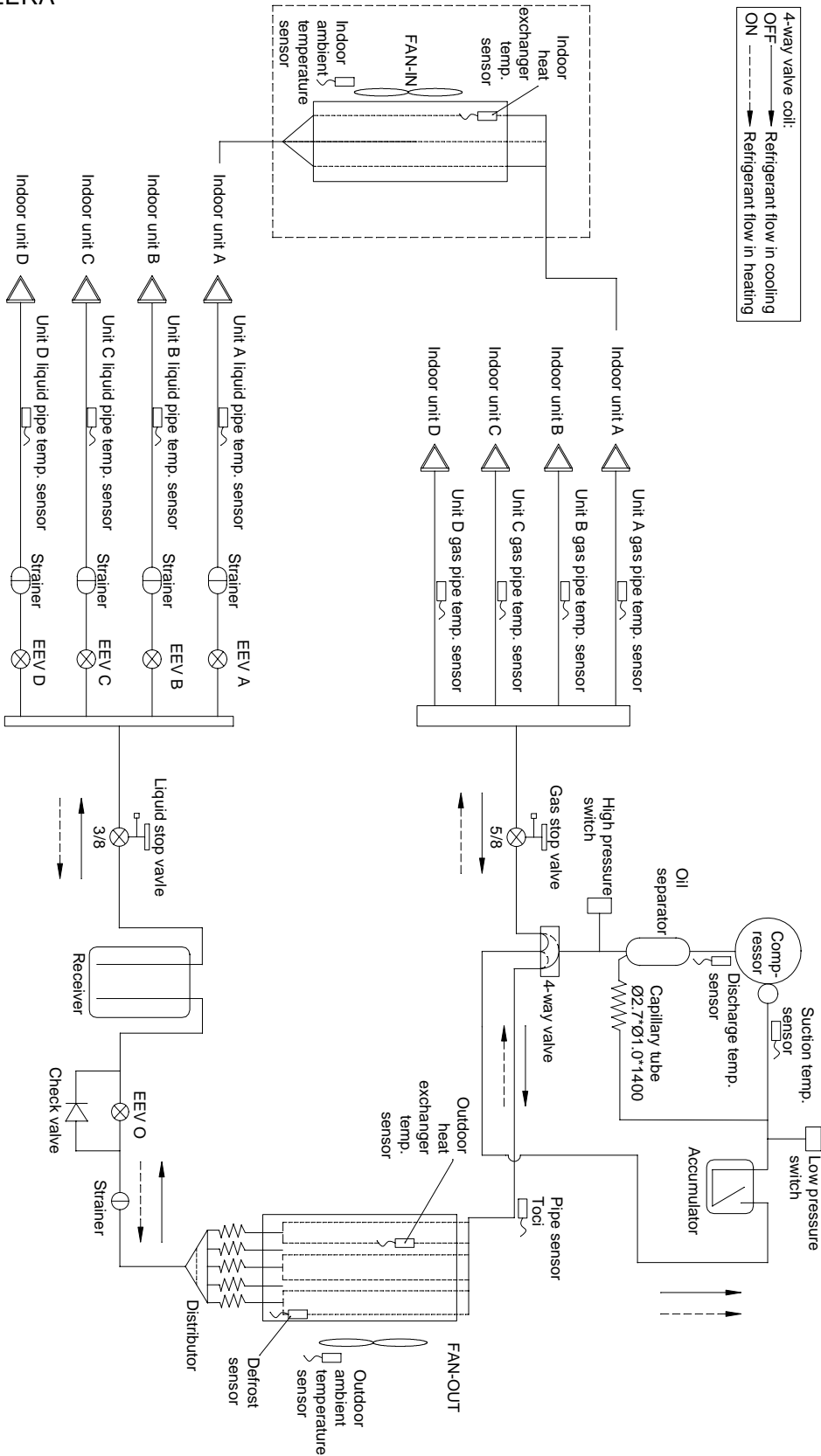
Connect the connecting wires between indoor and outdoor units and ensure the sequence numbers on terminals match with each other.

5. Piping diagram

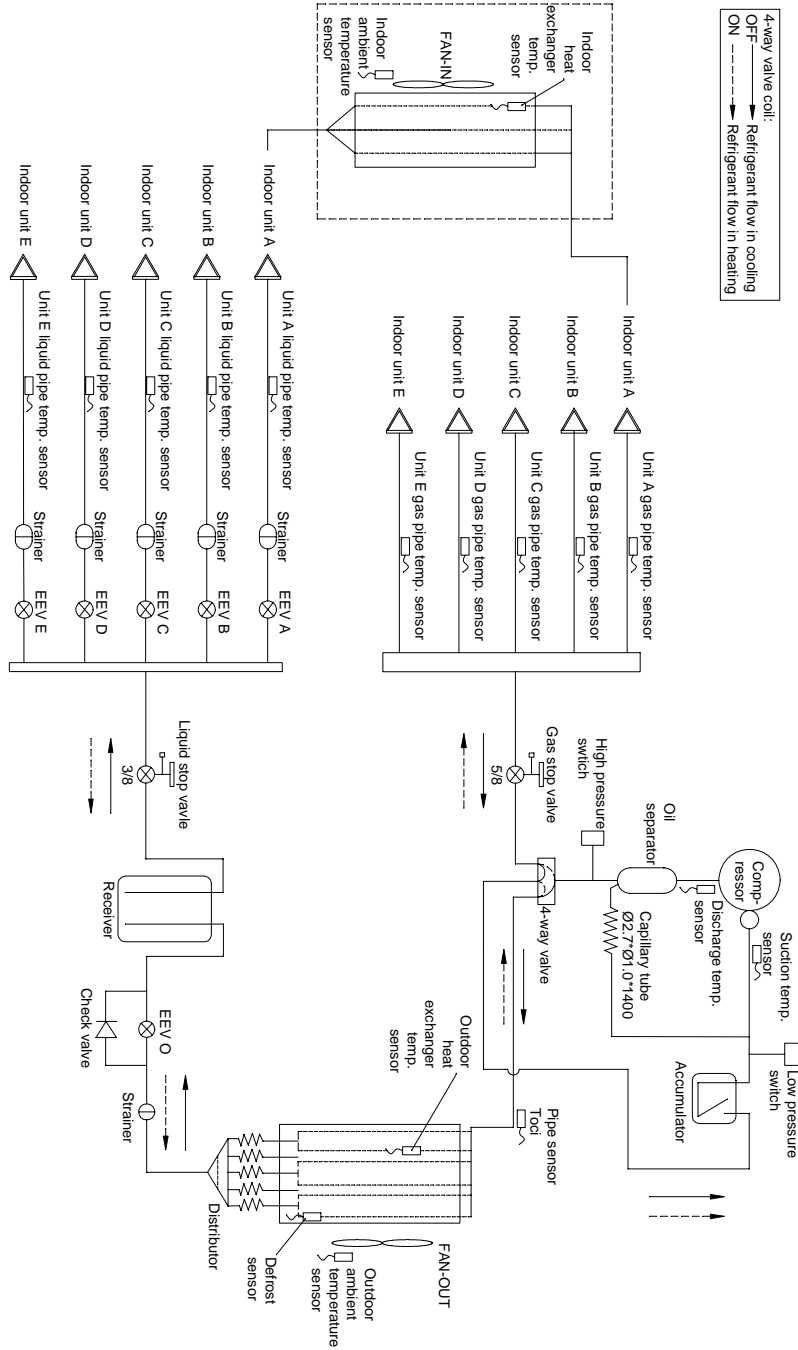
3U19FS2ERA 3U24GS2ERA



4U30HS2ERA

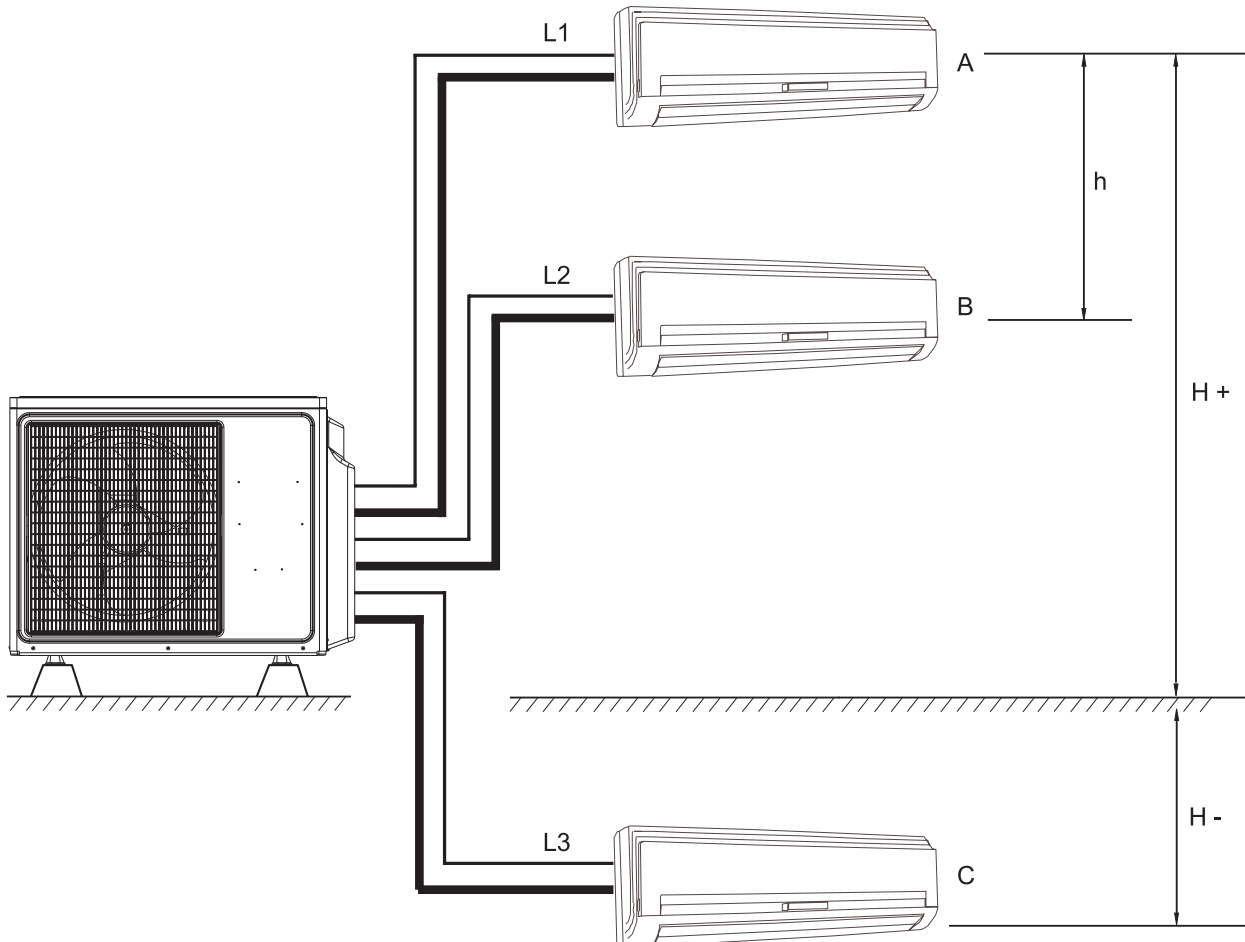


5U34HS2ERA



6. Limitation values on pipe installation

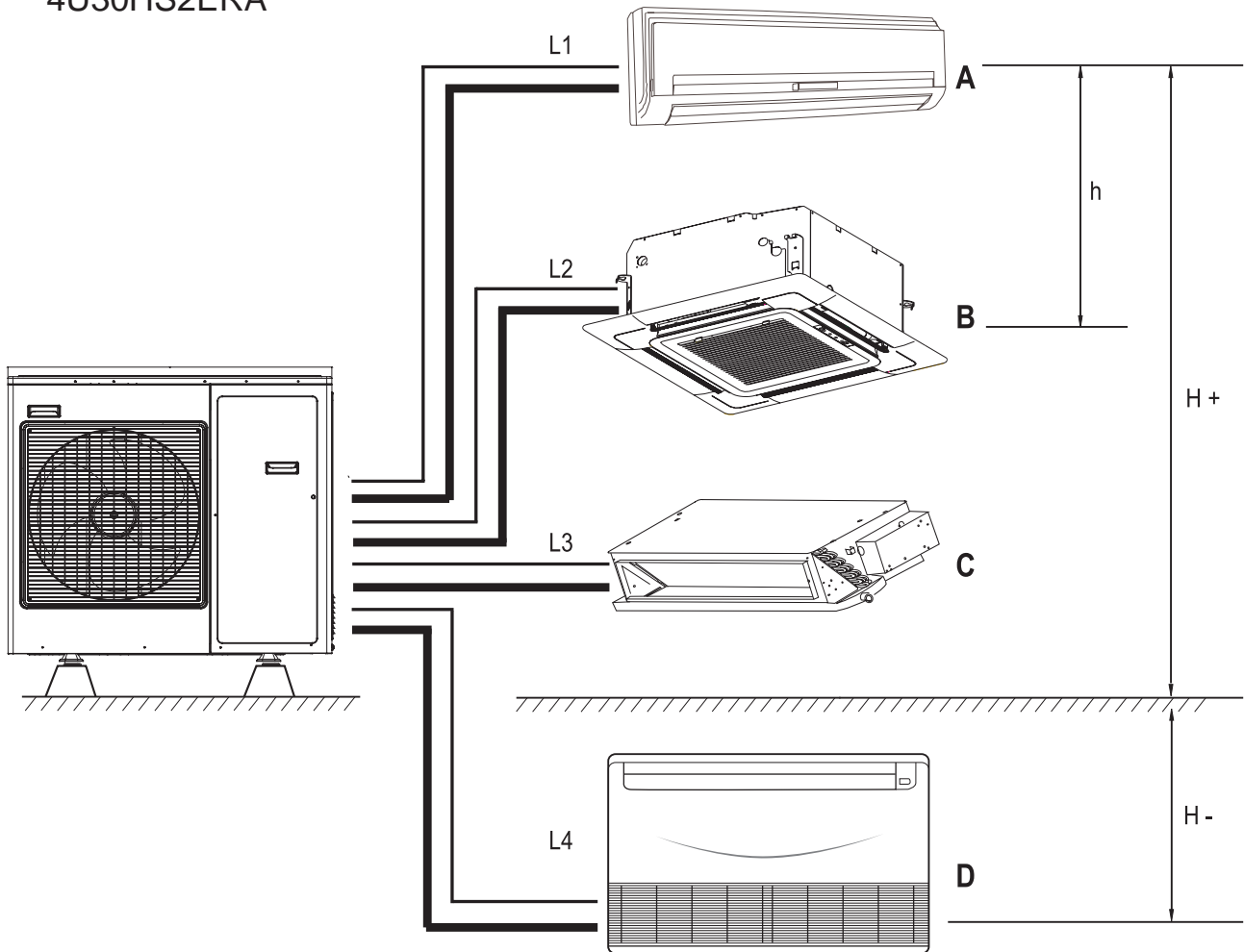
3U19FS2ERA 3U24GS2ERA



The piping length information, please refer the following table.

Item	Unit	Description	Standard	Maximum
A,B,C liquid pipe	mm	Size of the liquid side connection pipe	φ6.35	/
A,B,C Gas pipe	mm	Size of the gas side connection pipe	φ9.52	/
L1 (one way)	m	Max.piping length between IU and OU of the way	≤ 10	≤ 25
L2 (one way)	m	Max.piping length between IU and OU of the way	≤ 10	≤ 25
L3 (one way)	m	Max.piping length between IU and OU of the way	≤ 10	≤ 25
L1+L2+L3	m	Total liquid piping length	≤ 30	3U19:≤ 50 3U24:≤ 60
h	m	Drop between every two indoor units when the location of the outdoor unit is among indoor units	≤ 1	≤ 15
	m	Drop between every two indoor units when the location of the outdoor unit is at one side of indoor units	≤ 1	≤ 7.5
H+	m	Drop between the outdoor unit and the indoor unit	≤ 5	≤ 15
H-	m	Drop between the outdoor unit and the indoor unit when the location of outdoor unit is among the indoor units	≤ 5	≤ 7.5
	m	Drop between the outdoor unit and the indoor unit when the location of outdoor unit is at one side of indoor units	≤ 5	≤ 15

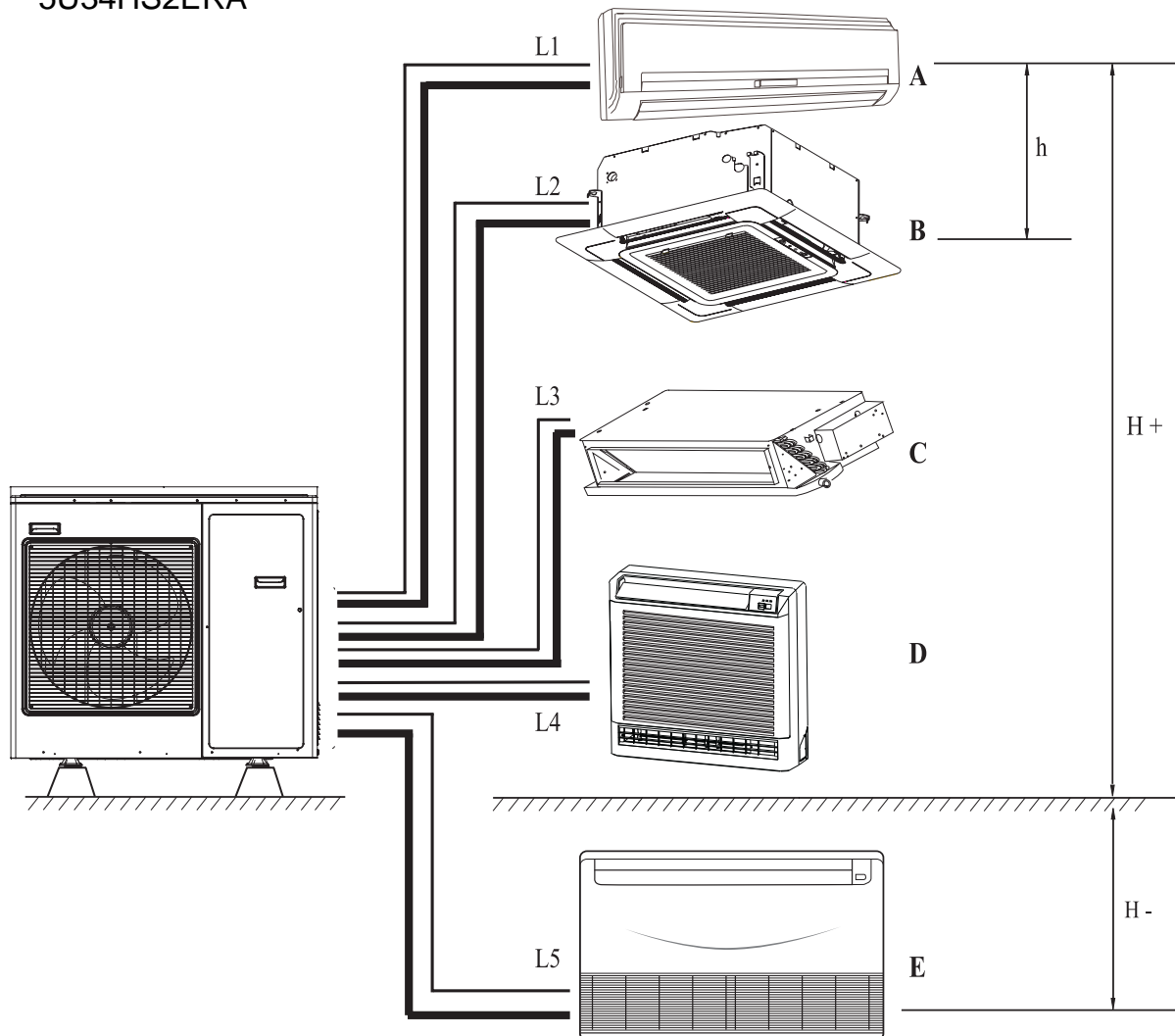
4U30HS2ERA



The piping length information, please refer the following table.

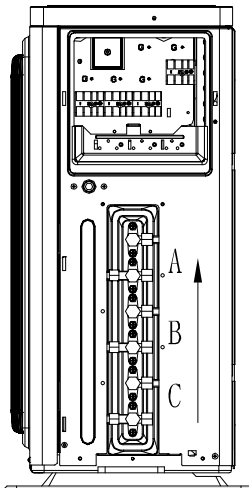
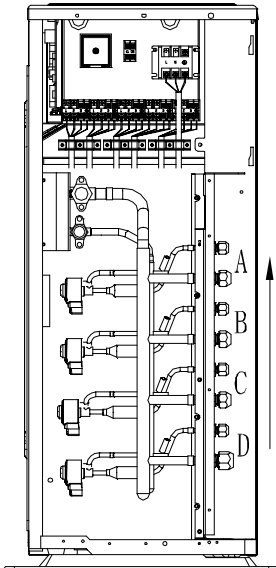
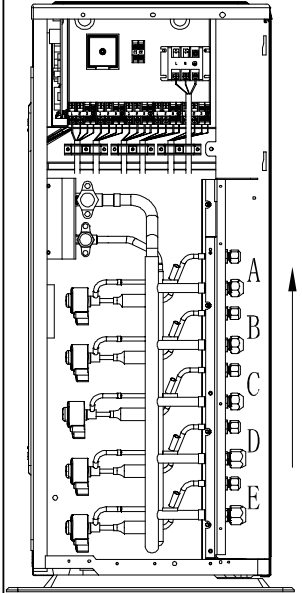
Item	Unit	Description	Standard	Maximum
A,B,C, Dliquid pipe	mm	Size of the liquid side connection pipe	φ6.35	/
A,B,C Gas pipe	mm	Size of the gas side connection pipe	φ9.52	/
D Gas pipe	mm	Size of the gas side connection pipe	φ12.7	/
L1 (one way)	m	Max.piping length between IU and OU of the way	≤ 10	≤ 25
L2 (one way)	m	Max.piping length between IU and OU of the way	≤ 10	≤ 25
L3 (one way)	m	Max.piping length between IU and OU of the way	≤ 10	≤ 25
L4 (one way)	m	Max.piping length between IU and OU of the way	≤ 10	≤ 25
L1+L2+L3+L4	m	Total liquid piping length	≤40	≤70
h	m	Drop between every two indoor units when the location of the outdoor unit is among indoor units	≤ 1	≤ 15
	m	Drop between every two indoor units when the location of the outdoor unit is at one side of indoor units	≤ 1	≤ 7.5
H+	m	Drop between the outdoor unit and the indoor unit	≤ 5	≤ 15
H-	m	Drop between the outdoor unit and the indoor unit when the location of outdoor unit is among the indoor units	≤ 5	≤ 7.5
	m	Drop between the outdoor unit and the indoor unit when the location of outdoor unit is at one side of indoor units	≤ 5	≤ 15

5U34HS2ERA



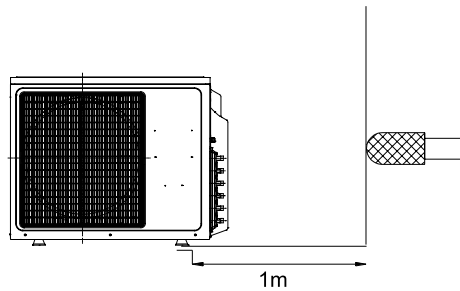
The piping length information, please refer the following table.

Item	Unit	Description	Standard	Maximum
A,B,C,D,E liquid pipe	mm	Size of the liquid side connection pipe	φ6.35	/
A,B,C,D Gas pipe	mm	Size of the gas side connection pipe	φ9.52	/
E Gas pipe	mm	Size of the gas side connection pipe	φ12.7	/
L1 (one way)	m	Max.piping length between IU and OU of the way	≤ 10	≤ 25
L2 (one way)	m	Max.piping length between IU and OU of the way	≤ 10	≤ 25
L3 (one way)	m	Max.piping length between IU and OU of the way	≤ 10	≤ 25
L4 (one way)	m	Max.piping length between IU and OU of the way	≤ 10	≤ 25
L5 (one way)	m	Max.piping length between IU and OU of the way	≤ 10	≤ 25
L1+L2+L3+L4+L5	m	Total liquid piping length	≤40	≤80
h	m	Drop between every two indoor units when the location of the outdoor unit is among indoor units	≤ 1	≤ 15
	m	Drop between every two indoor units when the location of the outdoor unit is at one side of indoor units	≤ 1	≤ 7.5
H+	m	Drop between the outdoor unit and the indoor unit	≤ 5	≤ 15
H-	m	Drop between the outdoor unit and the indoor unit when the location of outdoor unit is among the indoor units	≤ 5	≤ 7.5
	m	Drop between the outdoor unit and the indoor unit when the location of outdoor unit is at one side of indoor units	≤ 5	≤ 15

Connection cautions				
model	3U19FS2ERA 3U24GS2ERA	4U30HS2ERA	5U34HS2ERA	
<p>connection priority between indoor and stop valve higher from down to up</p>				
	when there is 1 indoor, the prior stop valve is	C	D	E
	when there are 2 indoors, the prior stop valves are	C、B	D、C	E、D
	when there are 3 indoors, the prior stop valves are	C、B、A	D、C、B	E、D、C
	when there are 4 indoors, the prior stop valves are		D、C、B、A	E、D、C、B
	when there are 5 indoors, the prior stop valves are			E、D、C、B、A
<p>Note: For better oil return and more reliable system, please execute as the above when connecting indoor unit.</p>				

7. Sound level

(1) Testing illustration:

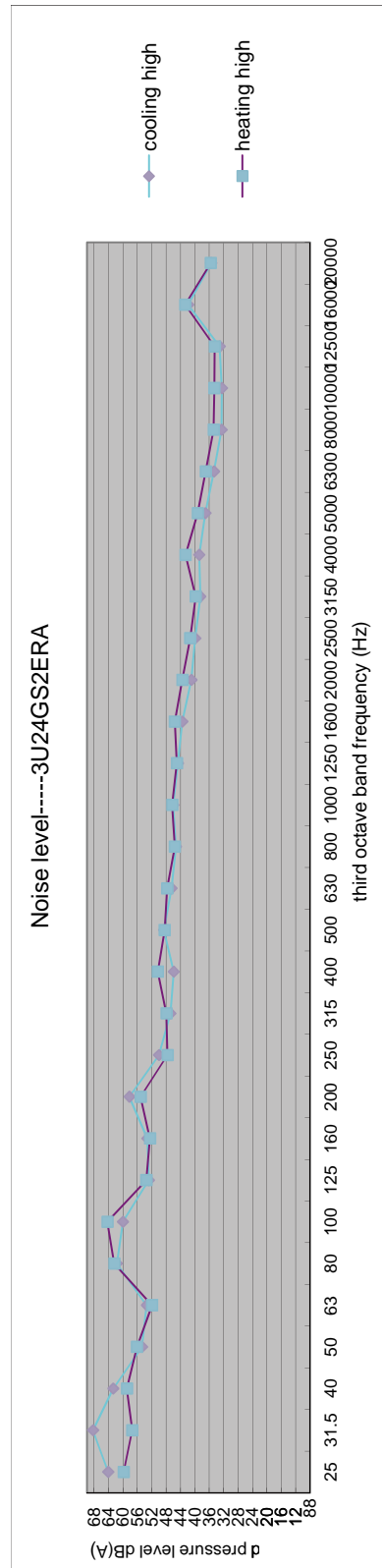
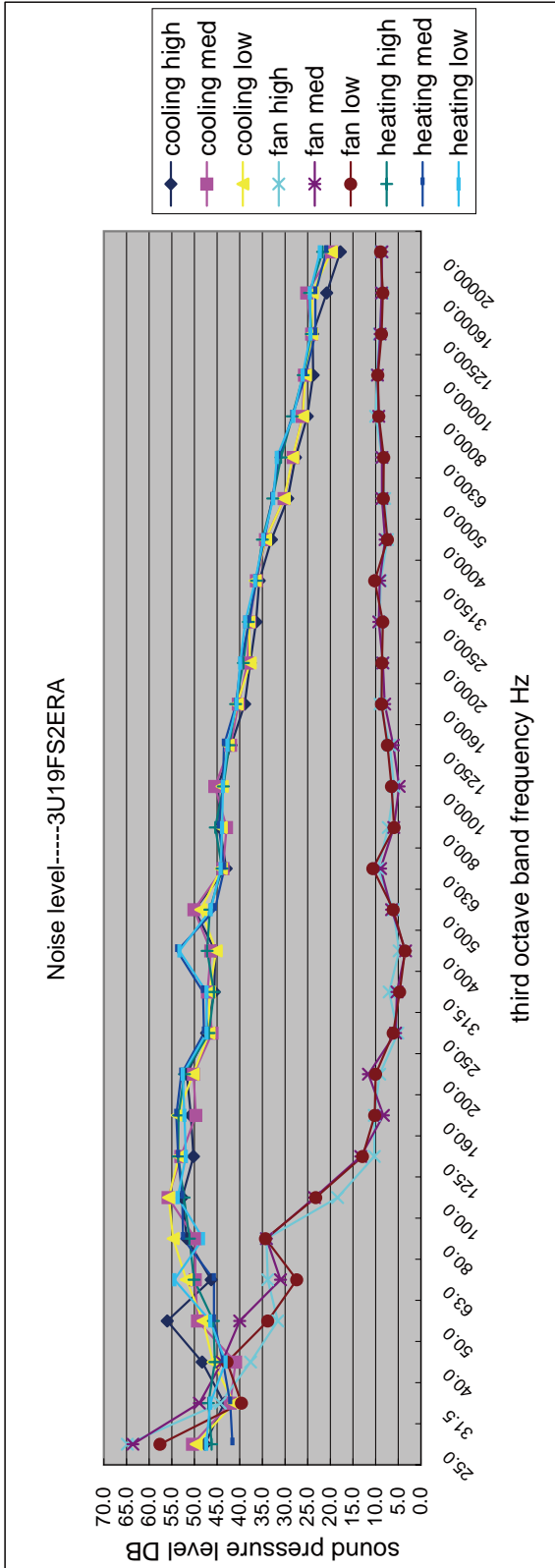


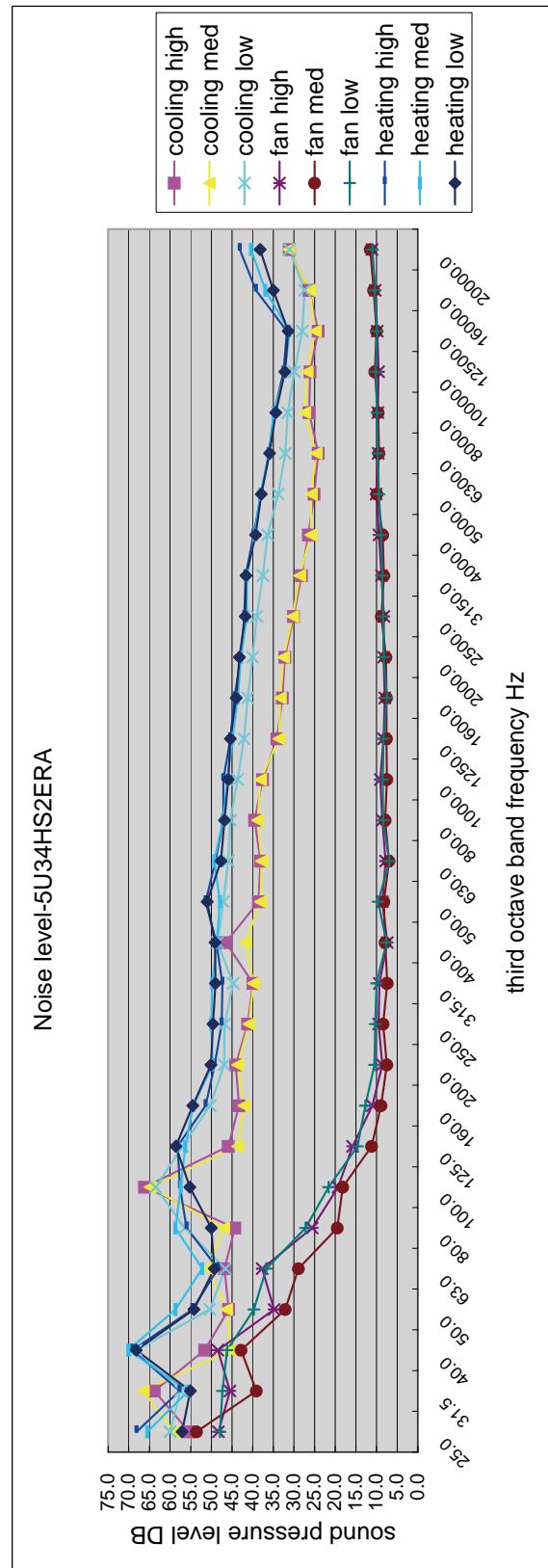
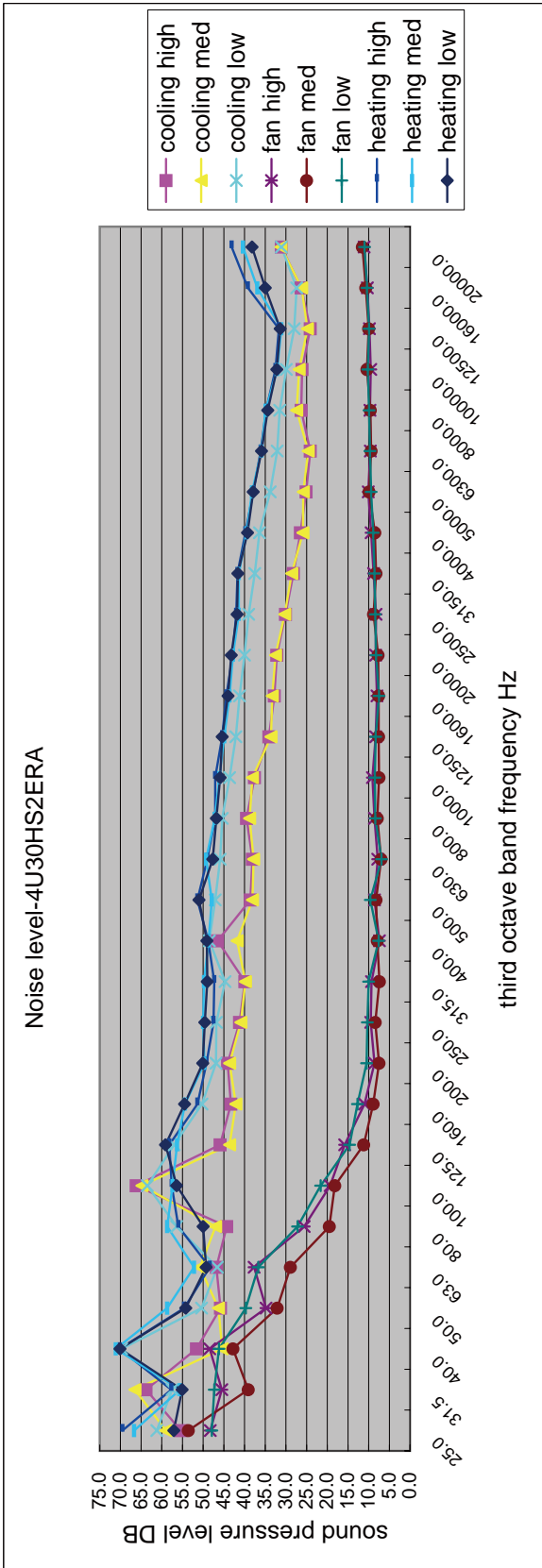
(2) Testing condition:

- a. Unit running in the nominal condition
- b. Test in the semi-anechoic chamber
- c. Noise level varies from the actual factors such as room structure, etc.

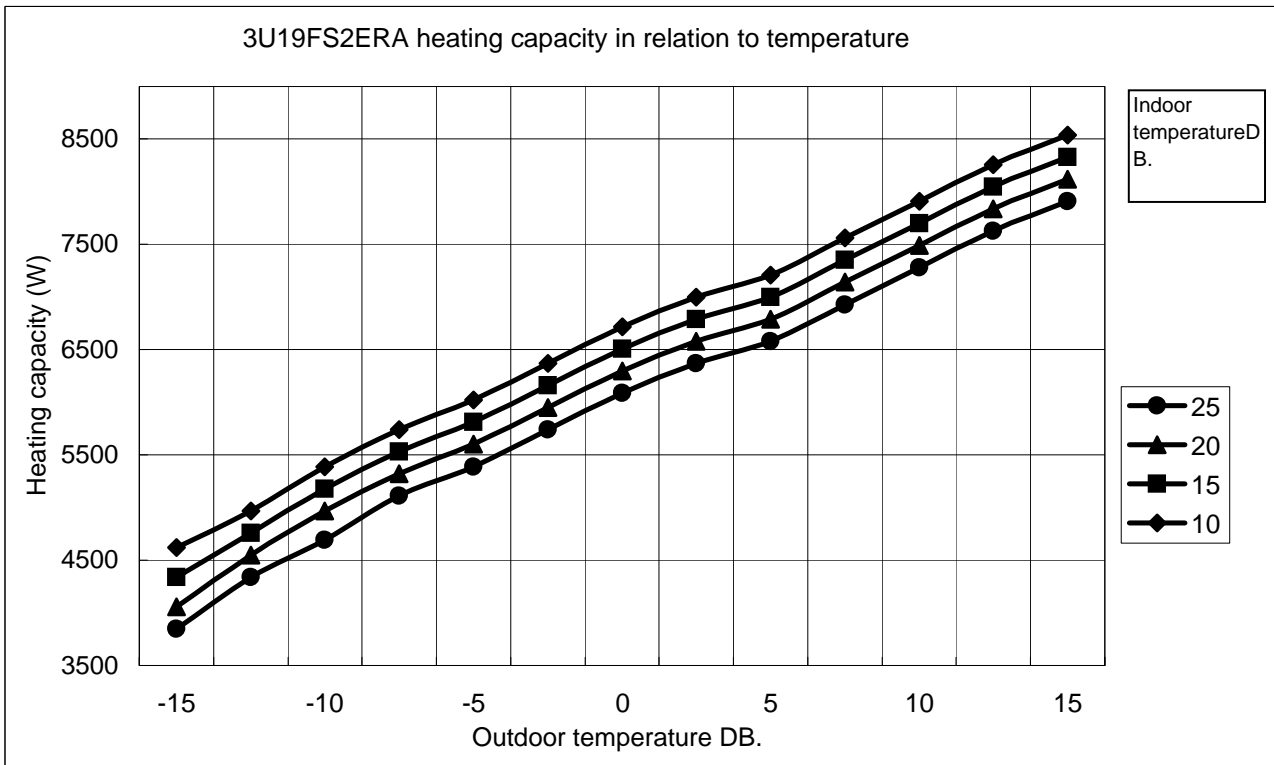
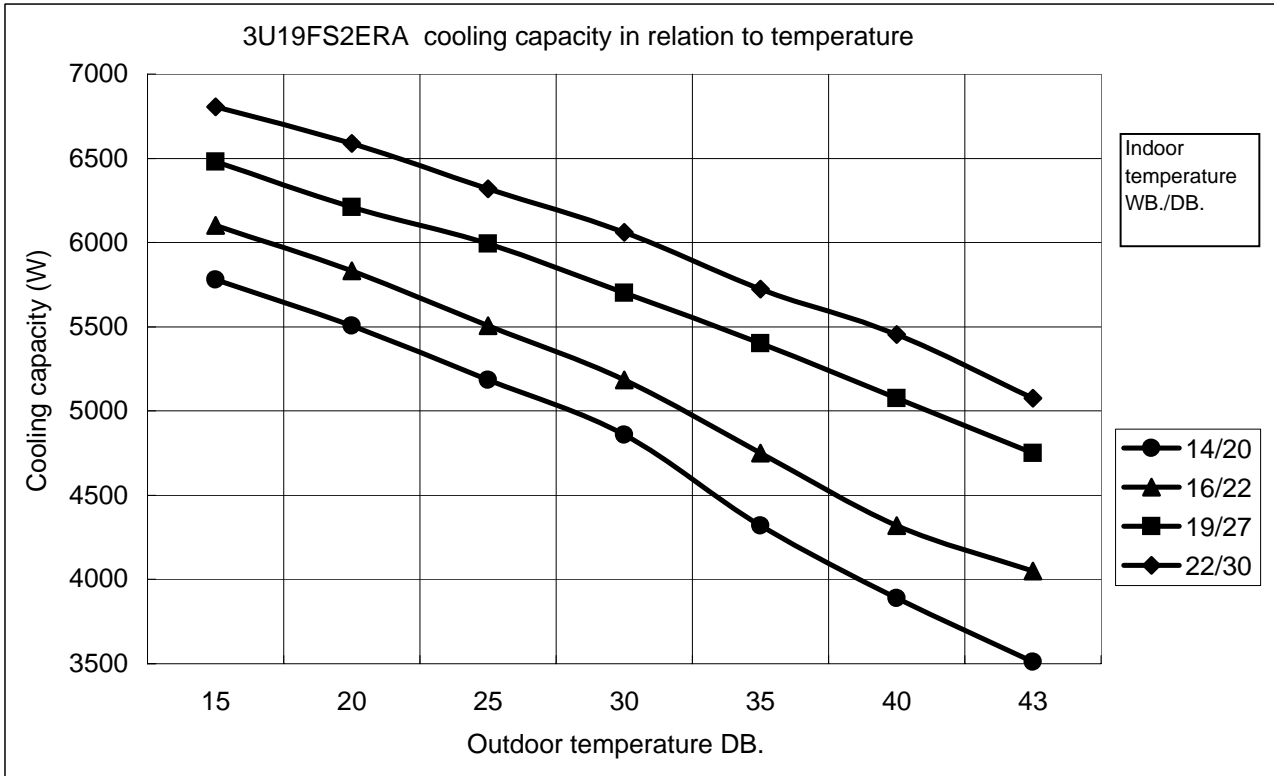
(3) Test method

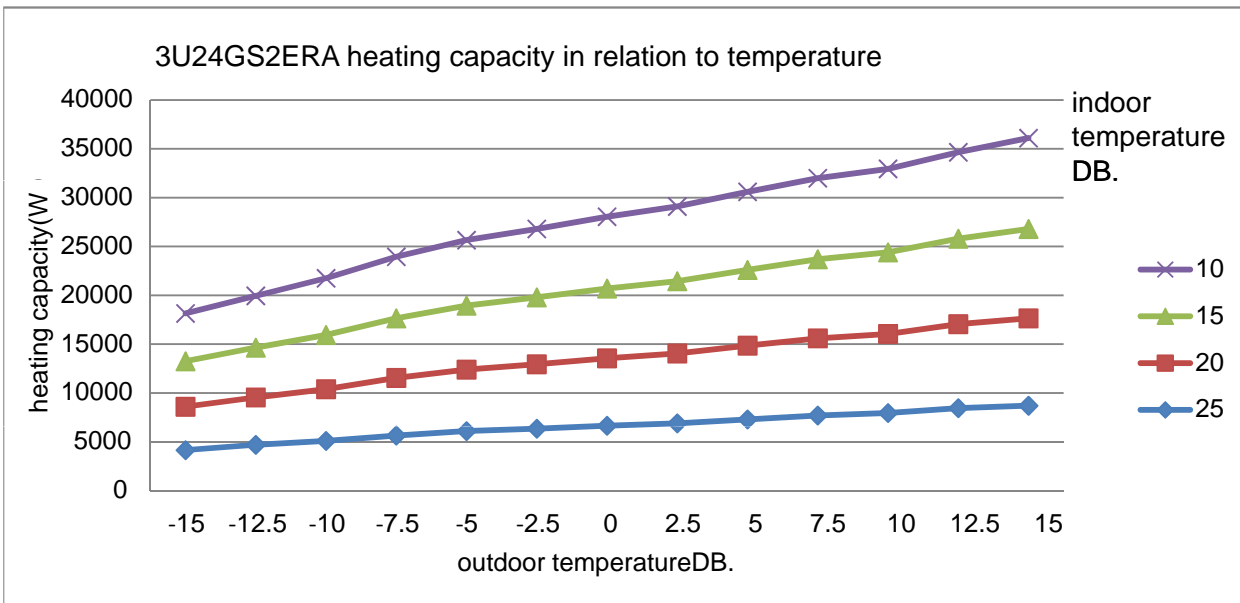
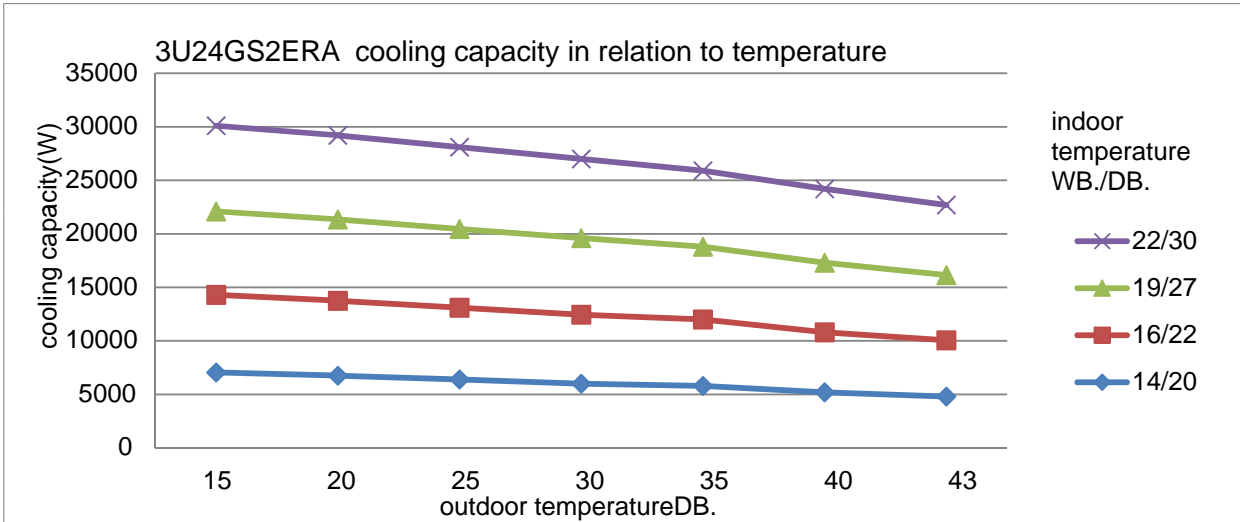
1. Set the unit: 1) the unit is placed on the rubber whose thickness is 5mm; 2) if the height between the air outlet and ground is less than 1m, block the unit up to 1m far from ground
2. Test position: After setting the unit, the test position for the noise is 1m far from the front panel

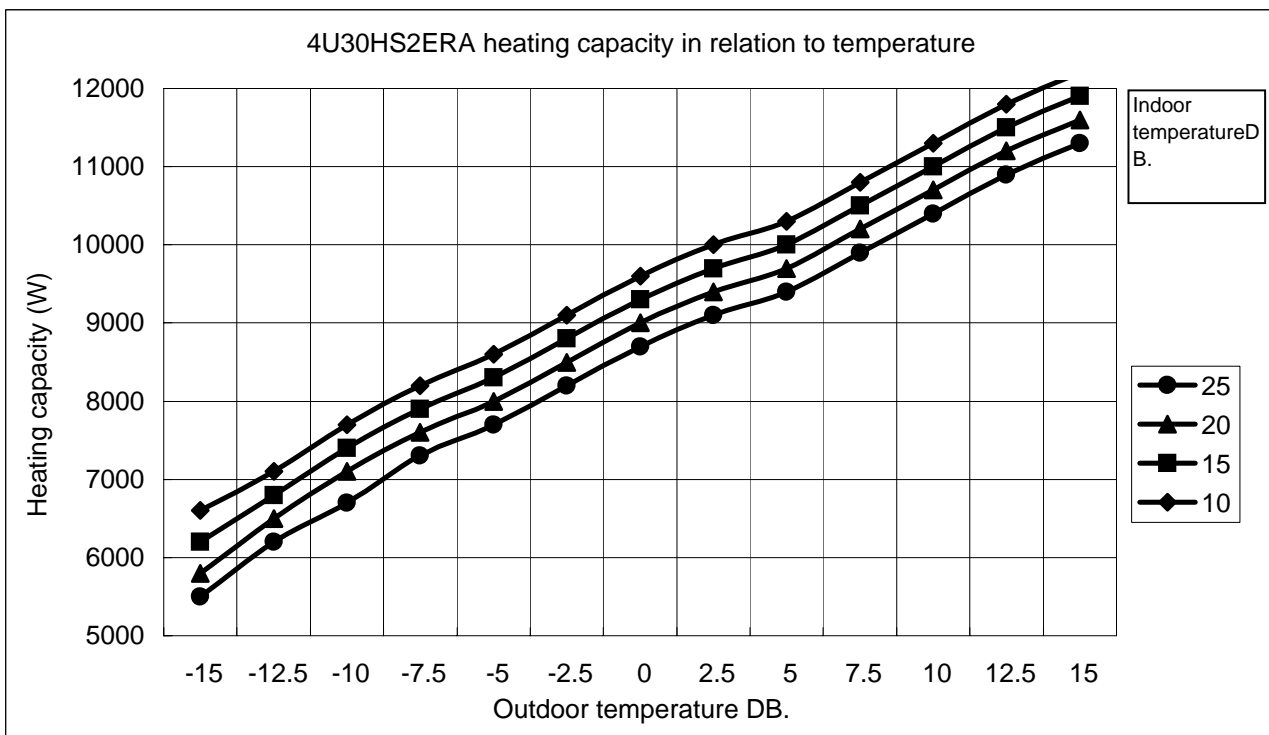
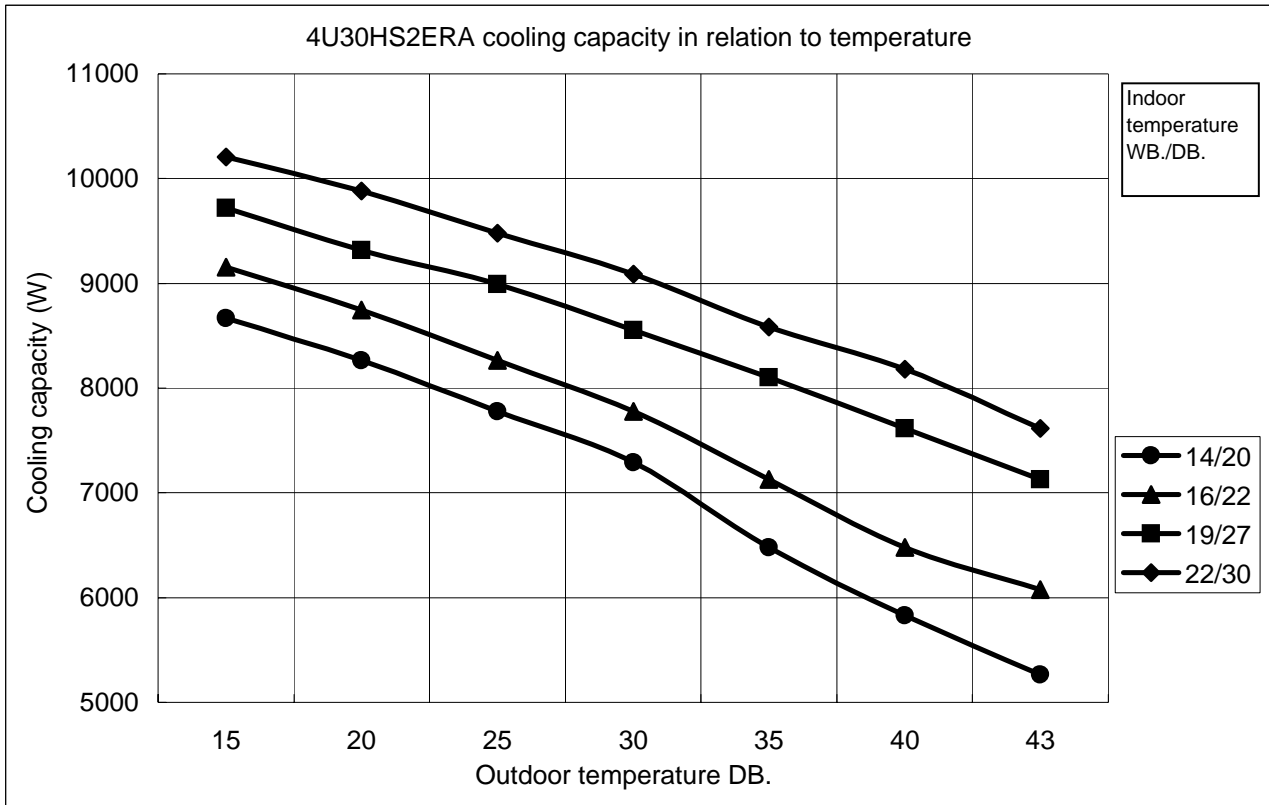


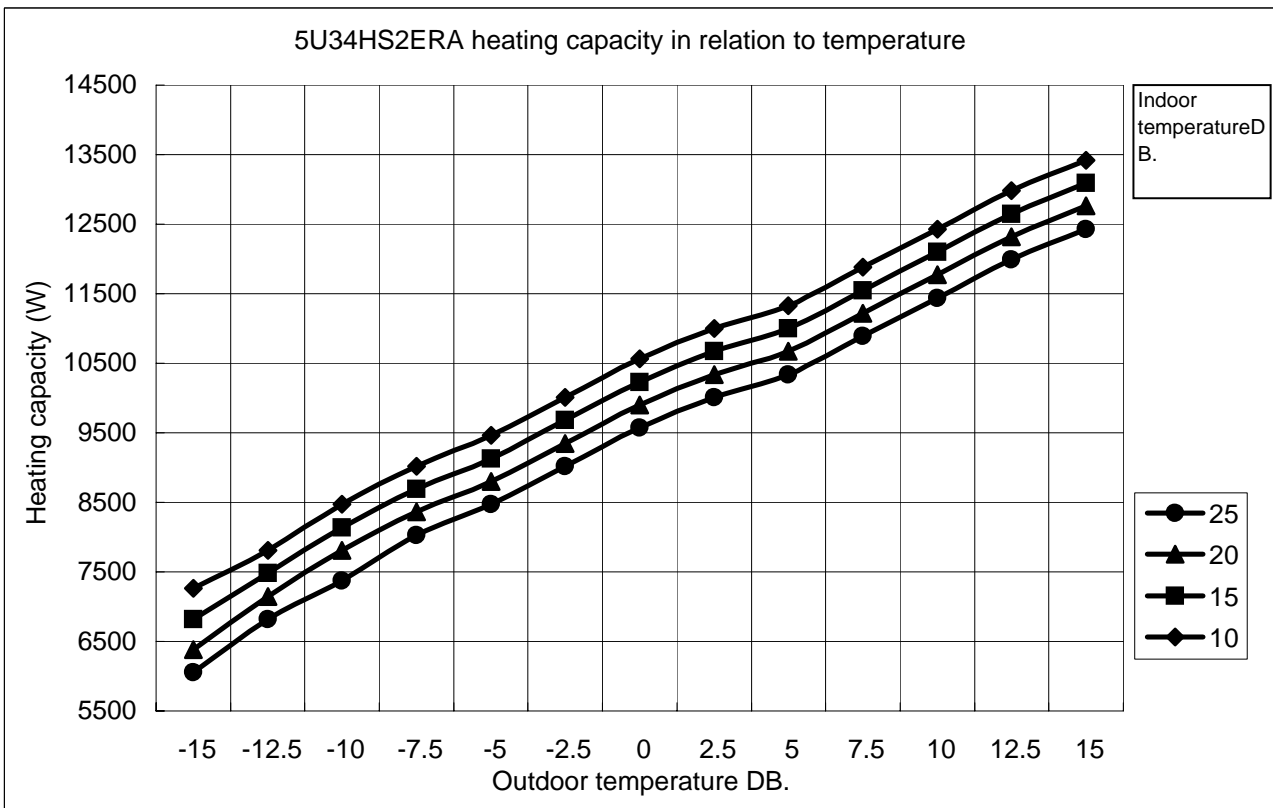
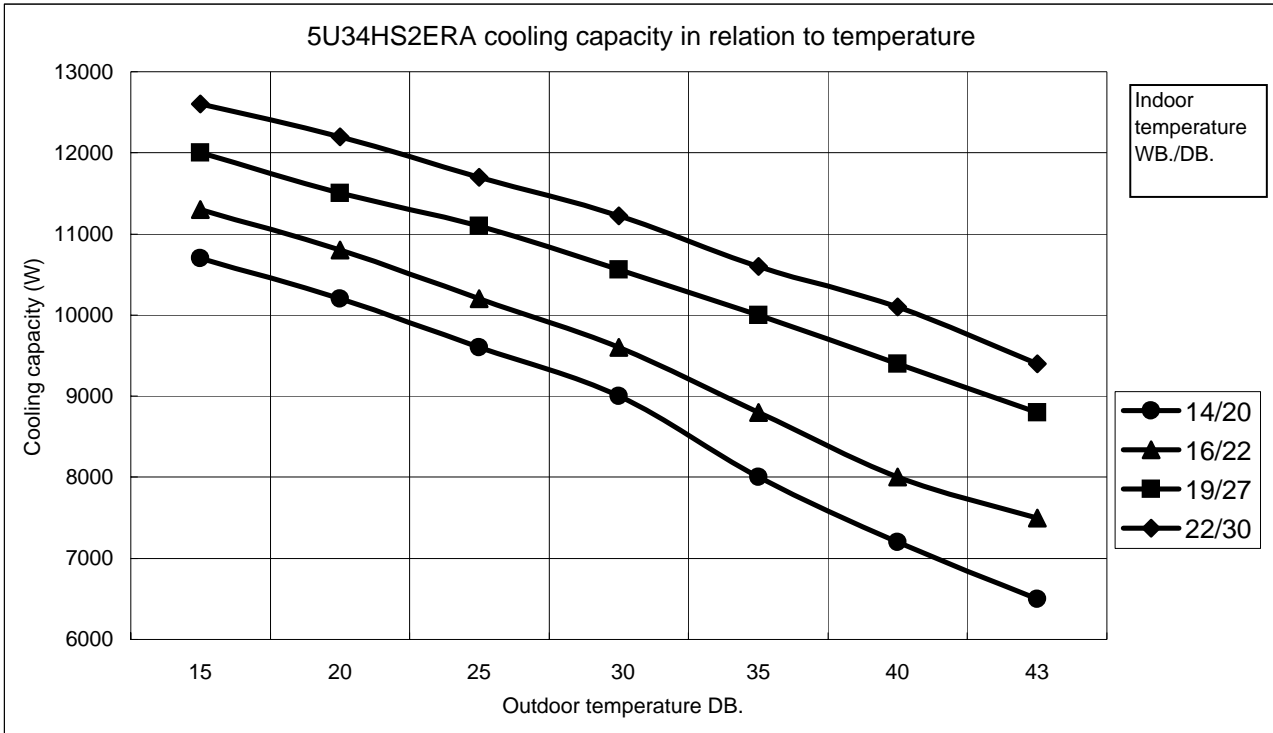


8. Outdoor performance curves









9. Maintenance

Carefully read the following information in order to operate the air conditioner correctly.

Below are listed three kinds of Safety Precautions 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.

Symbols used in the illustrations

⊘: Indicates an action that must be avoided.

ⓘ: Indicates that important instructions must be followed.

⚡: Indicates a part which must be grounded.


⚡: Beware of electric shock (This symbol is displayed on the main unit label.)

After reading this handbook, hand it over to those who will be using the unit.

The user of the unit should keep this manual at hand and make it available to those who will be performing repairs or relocating the unit. Also, make it available to the new user when the user changes hands.

Be sure to conform with the following important Safety Precautions.

⚠ WARNING	
<ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • Don't dismantle the outlet of the outdoor unit. The exposure of fan is very dangerous which may harm human beings.
<ul style="list-style-type: none"> • After a long time use of air-conditioner the base should be checked for any damages. If the damaged base is not repaired, the unit may fall down and cause accidents. 	<ul style="list-style-type: none"> • When need maintenance and repairment, call dealer to handle it. Incorrect maintenance and repairment may cause water leak, electrical shock and fire hazard.

⚠ WARNING	
<ul style="list-style-type: none"> • No goods or nobody is permitted to placed on or stand on outdoor unit. The falling of goods and people may cause accidents. 	<ul style="list-style-type: none"> • Air-conditioner can't be installed in the environment with inflammable gases because the inflammable gases near 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.
<ul style="list-style-type: none"> • Don't operate the air-conditioner with damp hands. Otherwise it will be shocked. 	<ul style="list-style-type: none"> • 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.
<ul style="list-style-type: none"> • Only use correctly-typed fuse. May not use wire or any other materials replacing fuse, otherwise it may cause faults or fire accidents. 	<ul style="list-style-type: none"> • When conditioner is installed or reinstalled, the dealer should be responsible for them. Incorrect installation may cause water leaking, electrical shock and fire hazard.
<ul style="list-style-type: none"> • Use discharge pipe correctly to ensure efficient discharge. Incorrect pipe use may cause water leaking. 	<ul style="list-style-type: none"> • Connect earthing wire. Earthing wire should not be connected to the gas pipe, water pipe, lightning rod or phone line, incorrect earthing may cause shock.
<ul style="list-style-type: none"> • Installed electrical-leaking circuit breaker. It easily cause electrical shock without circuit breaker. 	<div style="text-align: right;">  Earthing </div>

⚠ WARNING	
<p>Have the unit professionally installed. Improper installation by an unqualified person may result in water leak, electric shock, or fire.</p> <p>Place the unit on a stable, level surface that withstands the weight of the unit to prevent the unit from tipping over or falling causing injury as a result.</p> <p>Only use specified cables for wiring. Securely connect each cable, and make sure that the cables are not straining the terminals. Cables not connected securely and properly may generate heat and cause fire.</p> <p>Take necessary safety measures against typhoons and earthquakes to prevent the unit from falling over.</p> <p>Do not make any changes or modifications to the unit. In case of problems, consult the dealer. If repairs are not made properly, the unit may leak water and present a risk of electric shock, or it may produce smoke or cause fire.</p>	<ul style="list-style-type: none"> • Be sure to carefully follow each step in this handbook when installing the unit. Improper installation may result in water leak, electric shock, smoke or fire. • Have all electrical work performed by a licensed electrician according to the local regulations and the instructions given in this manual. Secure a circuit designated exclusively to the unit. Improper installation or a lack of circuit capacity may cause the unit to malfunction or present a risk of electric shock, smoke, and fire. • Securely attach the terminal cover(panel) on the unit. If installed improperly, dust and/or water may enter the unit and present a risk of electric shock, smoke or fire. • Only use refrigerant R410A as indicated on the unit when installing or relocating the unit. The use of any other refrigerant or an introduction of air into the unit circuit may cause the unit to run an abnormal cycle and abnormal cycle and cause the unit to burst.

⚠ WARNING	
<p>Do not touch the fins on the heat exchanger with bare hands, for they are sharp and dangerous.</p> <p>In the event of a refrigerant gas leak, provide adequate ventilation to the room. If leaked refrigerant gas is exposed to a heat source, noxious gases may form.</p> <p>With All-Fresh type air conditioners, outdoor air may be directly blown into the room upon thermo off. Take this into consideration when installing the unit. Direct exposure to outdoor air may present a health hazard, and it may also cause food items to deteriorate.</p> <p>Do not try to defeat the safety features of the devices, and do not change the settings. Defeating the safety features on the unit such as the pressure switch and temperature switch or using parts other than the dealer or specialist may result in fire or explosion.</p>	<ul style="list-style-type: none"> • When installing the unit in a small room, safeguard against hypoxia that results from leaked refrigerant reaching the threshold level. Consult the dealer for necessary measures to take. • When relocating the air conditioner, consult the dealer or a specialist. Improper installation may result in water leak, electric shock, or fire. • After completing the service work, check for a refrigerant gas leak. If leaked gas refrigerant is exposed to a heat source such as fan heater, stove, and electric grill, noxious gases may form. • Only use specified parts. Have the unit professionally installed. Improper installation may cause water leak, electric shock, smoke, or fire.

Precautions for Handling Units for Use with R410A

⚠ Caution	
<p>Do not use the existing refrigerant piping</p> <ul style="list-style-type: none"> • The old refrigerant and refrigerator oil in the existing piping contain a large amount of chlorine, which will cause the refrigerator oil in the new unit to deteriorate. • R410A is a high-pressure refrigerant, and the use of the existing piping may result in bursting. <p>Keep the inner and outer surfaces of the pipes clean and free of contaminants such as sulfur, oxides, dust/dirt shaving particles, oils, and moisture.</p> <ul style="list-style-type: none"> • Contaminants inside the refrigerant piping will cause the refrigerant oil to deteriorate. 	<p>Use a vacuum pump with a reverse-flow check valve.</p> <ul style="list-style-type: none"> • If other types of valves are used, the vacuum pump oil will flow back into the refrigerant cycle and cause the refrigerator oil to deteriorate. <p>Do not use the following tools that have been used with the conventional refrigerants. Prepare tools that are for exclusive use with R410A. (Gauge manifold, charging hose, gas leak detector, reverse-flow check valve, refrigerant charge base, vacuum gauge, and refrigerant recovery equipment.)</p> <ul style="list-style-type: none"> • If refrigerant and/or refrigerant oil left on these tools are mixed in with R410, or if water is mixed with R410A, it will cause the refrigerant to deteriorate. • Since R410A does not contain chlorine, gas-leak detectors for conventional refrigerators will not work.

⚠ Caution	
<p>Store the piping to be used during installation indoors, and keep both ends of the piping sealed until immediately before brazing. (keep elbows and other joints wrapped in plastic.)</p> <ul style="list-style-type: none"> • If dust, dirt, or water enters the refrigerant cycle, it may cause the oil in the unit to deteriorate or may cause the compressor to malfunction. <p>Use a small amount of ester oil, ether oil, or alkylbenzene to coat flares and flange connections.</p> <ul style="list-style-type: none"> • A large amount of mineral oil will cause the refrigerating machine oil to deteriorate. <p>Use liquid refrigerant to charge the system.</p> <ul style="list-style-type: none"> • Charge the unit with gas refrigerant will cause the refrigerant in the cylinder to change its composition and will lead to a drop in performance 	<p>Do not use a charging cylinder.</p> <ul style="list-style-type: none"> • The use of charging cylinder will change the composition of the refrigerant and lead to power loss. <p>Exercise special care when handling the tools.</p> <ul style="list-style-type: none"> • An introduction of foreign objects such as dust, dirt or water into the refrigerant cycle will cause the refrigerating machine oil to deteriorate. <p>Only use R410A refrigerant.</p> <ul style="list-style-type: none"> • The use of refrigerants containing chlorine (i.e. R22) will cause the refrigerant to deteriorate.

Before Installing the Unit

⚠ Caution	
<p>Do not install the unit in a place where there is a possibility of flammable gas leak.</p> <ul style="list-style-type: none"> • Leaked gas accumulated around the unit may start a fire. <p>Do not use the unit to preserve food, animals, plants, artifacts, or for other special purposes.</p> <ul style="list-style-type: none"> • The unit is not designed to provide adequate conditions to preserve the quality of these items. <p>Do not use the unit in an unusual environment</p> <ul style="list-style-type: none"> • The use of the unit in the presence of a large amount of oil, steam, acid, alkaline solvents or special types of sprays may lead to a remarkable drop in performance and/or malfunction and presents a risk of electric shock, smoke, or fire. • The presence of organic solvents, corroded gas (such as ammonia, sulfur compounds, and acid may cause gas or water leak.) 	<p>When installing the unit in a hospital, take necessary measures against noise.</p> <ul style="list-style-type: none"> • High-frequency medical equipment may interfere with the normal operation of the air conditioning unit or the air conditioning unit may interfere with the normal operation of the medical equipment <p>Do not place the unit on or over things that may not get wet.</p> <ul style="list-style-type: none"> • When humidity level exceeds 80% or when the drainage system is clogged, indoor units may drip water. • Installation of a centralized drainage system for the outdoor unit may also need to be considered to prevent water drips from the outdoor units.

Before Installing (Relocating) the Unit or Performing Electric Work

⚠ Caution	
<p>Ground the unit.</p> <ul style="list-style-type: none"> Do not connect the grounding on the unit to gas pipes, water pipes, lightning rods, or the grounding terminals of telephones. Improper grounding presents a risk of electric shock, smoke, fire, or the noise caused by improper grounding may cause the unit to malfunction. <p>Make sure the wires are not subject to tension.</p> <ul style="list-style-type: none"> If the wires are too taut, they may break or generate heat and/or smoke and cause fire. <p>Install a breaker for current leakage at the power source to avoid the risk of electric shock.</p> <ul style="list-style-type: none"> Without a breaker for current leakage, there is a risk of electric shock, smoke or fire. <p>Use breakers and fuses (electrical current breaker, remote switch<switch+Type-B fuse>, molded case circuit breaker) with a proper current capacity.</p> <ul style="list-style-type: none"> The use of large-capacity fuses, steel wire, or copper wire may damage the unit or cause smoke or fire. 	<p>Do not spray water on the air conditioners or immerse the air conditioners in water.</p> <ul style="list-style-type: none"> Water on the unit presents a risk of electric shock. <p>Periodically check the platform on which is placed for damage to prevent the unit from falling.</p> <ul style="list-style-type: none"> If the unit is left on a damaged platform, it may topple over, causing injury. <p>When installing draining pipes, follow the instructions in the manual, and make sure that they properly drain water so as to avoid dew condensation.</p> <ul style="list-style-type: none"> If not installed properly, they may cause water leaks and damage the furnishings. <p>Properly dispose of the packing materials.</p> <ul style="list-style-type: none"> Things such as nails may be included in the package. Dispose of them properly to prevent injury. Plastic bags present a choking hazard to children. Tear up the plastic bags before disposing of them to prevent accidents.

Before the Test Run

⚠ Caution	
<p>Do not operate switches with wet hands to avoid electric.</p> <p>Do not touch the refrigerant pipes with bare hands during and immediately after operation.</p> <ul style="list-style-type: none"> Depending on the state of the refrigerant in the system, certain parts of the unit such as the pipes and compressor may become very cold or hot and may subject the person to frost bites or burning. <p>Do not operated the unit without panels and safety guards in their proper places.</p> <ul style="list-style-type: none"> They are there to keep the users from injury from accidentally touching rotating, high-temperature or high-voltage parts. 	<p>Do not turn off the power immediately after stopping the unit.</p> <ul style="list-style-type: none"> Allow for at least five minutes before turning off the unit, otherwise the unit may leak water or experience other problems. <p>Do not operate the unit without air filters.</p> <ul style="list-style-type: none"> Dust particles in the air may clog the system and cause malfunction.

Items to Be Checked

- (1). Verify the type of refrigerant used by the unit to be serviced. Refrigerant Type: R410A
- (2). Check the symptom exhibited by the unit to be serviced. Look in this **service** handbook for symptoms relating to the refrigerant cycle.
- (3). Be sure to carefully read the safety precautions at the beginning of this document.
- (4). If there is a gas leak or if the remaining refrigerant is exposed to an open flame, a noxious gas hydrofluoric acid may form. Keep workplace well ventilated.

CAUTION

- Install new pipes immediately after removing old ones to keep moisture out of the refrigerant circuit.
- Chloride in some types of refrigerants such as R22 will cause the refrigerating machine oil to deteriorate.

Necessary Tools and Materials

Prepare the following tools and materials necessary for installing and servicing the unit.

Necessary tools for use with R410A(Adaptability of tools that are for use with R22 and R407C).

1. To be used exclusively with R410A (Not to be used if used with R22 or R407C)

Tools/Materials	Use	Notes
Gauge Manifold	Evacuating,refrigerant charging	5.09MPa on the High-pressure side.
Charging Hose	Evacuating, refrigerant charging	Hose diameter larger than the conctional ones.
Refrigerant Recovery Equipment	Refrigerant recovery	
Refrigerant Cylinder	Refrigerant charging	Write down the refrigerant type. Pink in color at the top of the cylinder.
Refrigerant Cylinder Charging Port	Refrigerant charging	Hose diameter larger than the conventional ones.
Flare Nut	Connecting the unit to piping	Use Type-2 Flare nuts.

2. Tools and materials that may be used with R410 with some restrictions

Tools/Materials	Use	Notes
Gas leak detector	Detection of gas leaks	The ones for HFC type refrigerant may be used.
Vacuum Pump	Vacuum drying	May be used if a reverse flow check adaptor is attached.
Flare Tool	Flare machining of piping	Chages have been made in the flare machining dimension.Refer to the next page.
Refrigerant Recovery Equipment	Recovery of refrigerant	May be used if designed for use with R410A.

3. Tools and materials that are used with R22 or R407C that can also be used with R410A

Tools/Materials	Use	Notes
Vacuum Pump with a Check Valve	Vacuum drying	
Bender	Bending pipes	
Torque Wrench	Tightening flare nuts	Only $\phi 12.70$ (1/2") and $\phi 15.88$ (5/8") have a larger flare machining dimension.
Pipe Cutter	Cutting pipes	
Welder and Nitrogen Cylinder	Welding pipes	
Refrigerant Charging Meter	Refrigerant charging	
Vacuum Gauze	Checking vacuum degree	

4. Tool and materials that must not used with R410A

Tools/Materials	Use	Notes
Charging Cylinder	Refrigerant Charging	Must not be used with R410-type units.

Tools for R410A must be handled with special care, and keep moisture and dust from entering the cycle.

Piping Materials

Types of Copper Pipes (Reference)

Maximum Operation Pressure	Applicable Refrigerants
3.4MPa	R22, R407C
4.15MPa	R410A

- Use pipes that meet the local standards.

Piping Materials/Radial Thickness

Use pipes made of phosphorus deoxidized copper.

Since the operation pressure of the units that use R410A is higher than that of the units for use with R22, use pipes with at least the radial thickness specified in the chart below. (Pipes with a radial thickness of 0.7mm or less may not be used.)

Size(mm)	Size(inch)	Radial Thickness(mm)	Type
Φ 6.35	1/4"	0.8t	Type-O pipes
Φ 9.52	3/8"	0.8t	
Φ 12.7	1/2"	0.8t	
Φ 15.88	5/8"	1.0t	
Φ 19.05	3/4"	1.0t	Type-1/2H or Hpipes

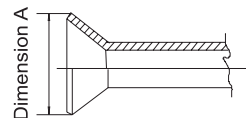
- Although it was possible to use type-O for pipes with a size of up to Φ 19.05(3/4") with conventional refrigerants, use type-1/2H pipes for units that use R410A.(Type-O pipes may be used if the pipe size is Φ19.05 and the radial thickness is 1.2t.)
- The table shows the standards in Japan. Using this table as a reference, choose pipes that meet the local standards.

Flare Machining (type-O and OL only)

The flare machining dimensions for units that use R410A is larger than those for units that use R22 in order to increase air tightness.

Flare Machining Dimension(mm)

External dimension of pipes	Size	Dimension A	
		R410A	R22
Φ6.35	1/4"	9.1	9.0
Φ9.52	3/8"	13.2	13.0
Φ12.7	1/2"	16.6	16.2
Φ15.88	5/8"	19.7	19.4
Φ19.05	3/4"	24.0	23.3



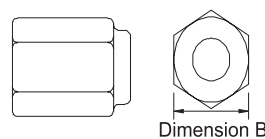
If a clutch type flare tool is used to machine flares on units that use R410A, make the protruding part of the pipe between 1.0 and 1.5mm. Copper pipe gauge for adjusting the length of pipe protrusion is useful.

Flare Nut

Type-2 flare nuts instead of type-1 nuts are used to increase the strength. The size of some of the flare nuts have also been changed.

Flare nut dimension(mm)

External dimension of pipes	Size	Dimension B	
		R410A(Type2)	R22(Type1)
Φ6.35	1/4"	17.0	17.0
Φ9.52	3/8"	22.0	22.0
Φ12.7	1/2"	26.0	24.0
Φ15.88	5/8"	29.0	27.0
Φ19.05	3/4"	36.0	36.0



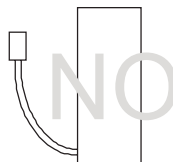
- The table shows the standards in Japan. Using this table as a reference, choose pipes that meet the local standards.

Air Tightness Test

No changes from the conventional method. Note that a refrigerant leakage detector for R22 or R407C cannot detect R410A leakage.



Halide torch



R22 or R407C leakage detector

Items to be strictly observed :

1. Pressurize the equipment with nitrogen up to the design pressure and then judge the equipment's air tightness, taking temperature variations into account.
2. When investigating leakage locations using a refrigerant, be sure to use R410A.
3. Ensure that R410A is in a liquid state when charging.

Reasons:

Use of oxygen as the pressurized gas may cause an explosion.

Charging with R410A gas will lead the composition of the remaining refrigerant in the cylinder to change and then this refrigerant can not be used.

Vacuumping

1. Vacuum pump with check valve

A vacuum pump with a check valve is required to prevent the vacuum pump oil from flowing back into the refrigerant circuit when the vacuum pump power is turned off (power failure). It is also possible to attach a check valve to the actual vacuum pump afterwards.

2. Standard degree of vacuum for the vacuum pump

Use a pump which reaches 65Pa or below after 5 minutes of operation.

In addition, be sure to use a vacuum pump that has been properly maintained and oiled using the specified oil. If the vacuum pump is not properly maintained, the degree of vacuum may be too low.

3. Required accuracy of the vacuum gauge

Use a vacuum gauge that can measure up to 650Pa. Do not use a general gauge manifold since it cannot measure a vacuum of 650Pa.

4. Evacuating time

Evacuate the equipment for 1 hour after 650Pa has been reached.

After envacuating, leave the equipment for 1 hour and make sure the that vacuum is not lost.

5. Operating procedure when the vacuum pump is stopped

In order to prevent a backflow of the vacuum pump oil, open the relief valve on the vacuum pump side or loosen the charge hose to drawn in air before stopping operation. The same operating procedure should be used when using a vacuum pump with a check valve.

Charging Refrigerant

R410A must be in a liquid state when charging.

Reasons:

R410A is a pseudo-azeotropic refrigerant (boiling point R32= -52°C, R125= -49°C) and can roughly be handled in the same way as R22; however, be sure to fill the refrigerant from the liquid side, for doing so from the gas side will somewhat change the composition of the refrigerant in the cylinder.

Note

- In the case of a cylinder with a syphon, liquid R410A is charged without turning the cylinder up side down. Check the type of cylinder before charging.

Remedies to be taken in case of a refrigerant leak

When refrigerant leaks, additional refrigerant may be charged. (Add the refrigerant from the liquid side)






Characteristics of the Conventional and the New Refrigerants

- Because R410A is a simulated azeotropic refrigerant, it can be handled in almost the same mammer as a single refrigerant such as R22. However, if the refrigerant is removed in the vapor phase, the composition of the refrigerant in the cylinder will somewhat change.
- Remove the refrigerant in the liquid phase. Additional refrigerant may be added in case of a refrigerant leak.

For 3U19FS1ERA 3U19FS1ERA(N) 3U24GS1ERA 3U24GS1ERA(N) 4U26HS1ERA 4U30HS1ERA 5U34HS1ERA

Accessories

Accessories supplied with the outdoor unit:

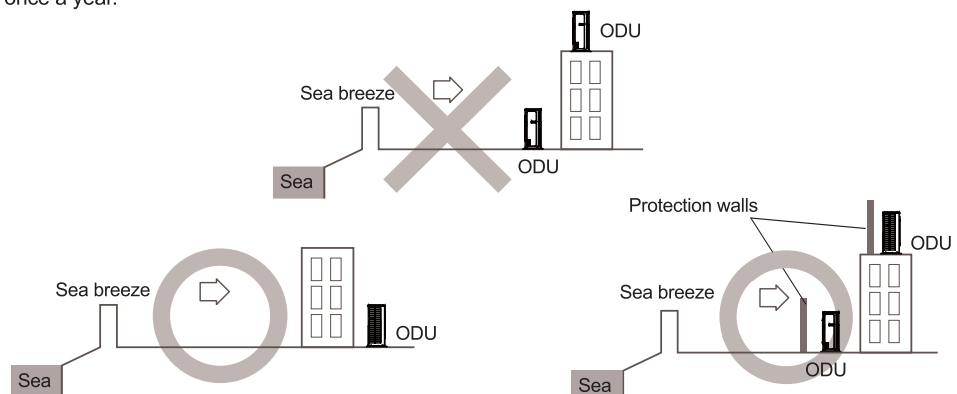
No.	Drawing	Name of parts	Quantity	Note
1		Drainage elbow	1	3U19FS2ERA 3U24GS2ERA
			3	4U30HS2ERA 5U34HS2ERA
2		Rubber cushion	4	3U19FS2ERA 4U30HS2ERA 3U24GS2ERA 5U34HS2ERA
3		Clamp	1	3U19FS2ERA 3U24GS2ERA
			3	4U30HS2ERA 5U34HS2ERA
4		Adaptor(3/8→1/2)	1	3U19FS2ERA 4U30HS2ERA 3U24GS2ERA 5U34HS2ERA
5		Adaptor(1/2→3/8)	1	4U30HS2ERA 5U34HS2ERA

Procedure for Selecting the Location

- 1) Choose a place solid enough to bear the weight and vibration of the unit, where the operation noise will not be amplified.
- 2) Choose a location where the hot air discharged from the unit or the operation noise, will not cause a nuisance to the neighbors of the user.
- 3) Avoid places near a bedroom and the like, so that the operation noise will cause no trouble.
- 4) There must be sufficient space for carrying the unit into and out of the site.
- 5) There must be sufficient space for air passage and no obstructions around the air inlet and the air outlet.
- 6) The site must be free from the possibility of flammable gas leakage in a nearby place.
Locate the unit so that the noise and the discharged hot air will not annoy the neighbors.
- 7) Install units, power cords and inter-unit cables at least 10ft away from television and radio sets. This is to prevent interference to images and sounds. (Noises may be heard even if they are more than 10ft away depending on radio wave conditions.)
- 8) In coastal areas or other places with salty atmosphere of sulfate gas, corrosion may shorten the life of the air conditioner.
- 9) Since drain flows out of the outdoor unit, do not place under the unit anything which must be kept away from moisture.
- 10) On a flat surface that does not collect rain water.
- 11) Away from strong wind.
- 12) Away from direct exposure to rain or snow.
- 13) Away from sea breeze.
- 14) Away from inflammable materials.

NOTE:

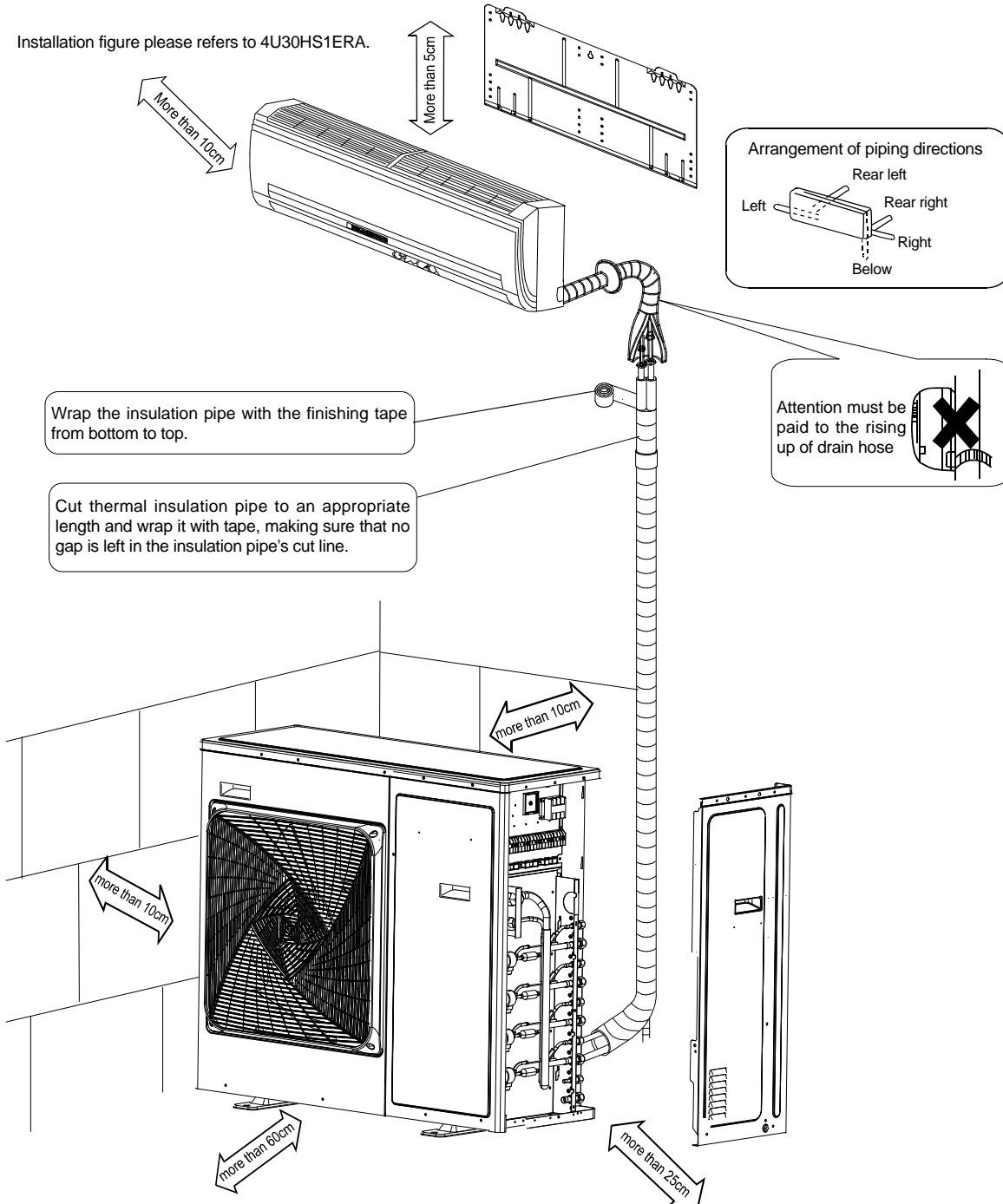
- 1) Cannot be installed hanging from ceiling or stacked.
 - 2) If installing on a high place such as a roof, with a fence or guard rail around it.
 - 3) If there is a potential for accumulated snow to block the air inlet or heat exchanger, install the unit on a higher base.
 - 4) R-410A refrigerant is a safe, nontoxic and nonflammable refrigerant. However, if there is a concern about a dangerous level of refrigerant concentration in the case of refrigerant leakage, add extra ventilation.
 - 5) Avoid installing the outdoor unit where corrosive gases, such as sulfur oxides, ammonia, and sulfurous gas, are produced. If unavoidable, consult with an installation specialist about using a corrosion-proof or anti-rust additive to protect the unit coils.
 - 6) For seacoast applications, block the unit from direct exposure to sea breeze by installing the unit behind a structure (such as a building) or a protective wall that is 1.5 times higher than the unit, leaving 28 in. (700 mm) of space between the wall and unit for air circulation.
- Consult an installation expert about taking anti-corrosion measures, such as removing salinity on the heat exchanger and applying a rust inhibitor more frequently than once a year.



Installation drawings of indoor and outdoor units

1. Do not connected the embedded branch piping and the outdoor unit when only carrying out piping work without connecting the indoor unit in order to add another indoor unit later. Make sure no dirt or moisture gets into either side of the embedded branch piping.
2. It is impossible to connect the indoor unit for one room only.

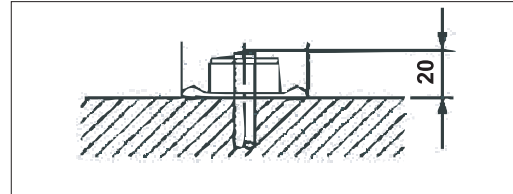
Installation figure please refers to 4U30HS1ERA.



If there is the danger of the unit falling or overturning, fix the unit with foundation bolts, or with wire or other means.
 If the location does not have good drainage, place the unit on a level mounting base (or a plastic pedestal).
 Install the outdoor unit in a level position. Failure to do so may result in water leakage or accumulation.

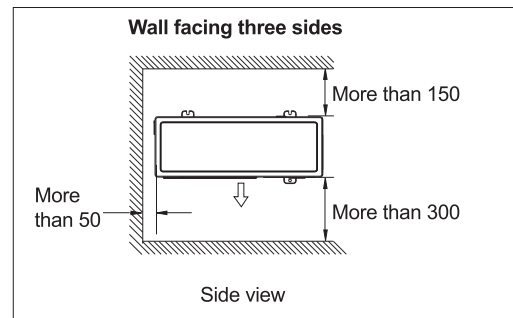
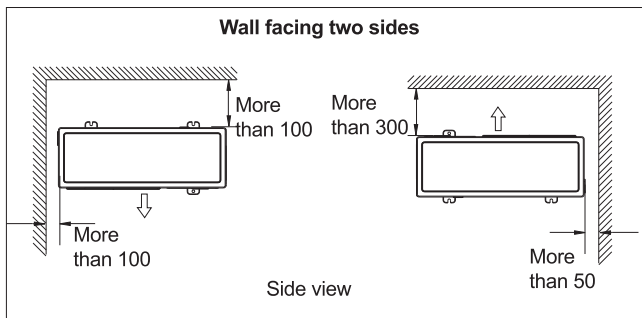
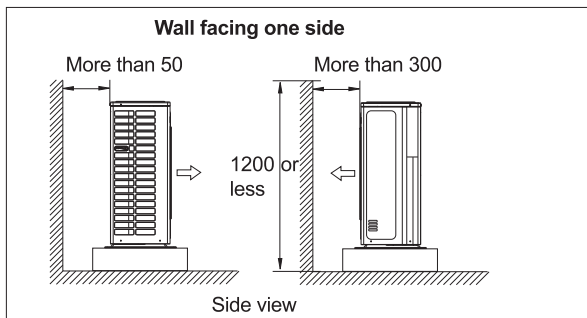
Precautions on Installation

- Check the strength and level of the installation ground so that the unit will not cause any operating vibration or noise after installed.
- In accordance with the foundation drawing in fix the unit securely by means of the foundation bolts. (Prepare four sets of M8 or M10 foundation bolts, nuts and washers each which are available on the market.)
- It is best to screw in the foundation bolts until their length are 20mm from the foundation surface.



Outdoor Unit Installation Guideline

- Where a wall or other obstacle is in the path of outdoor unit's intake or exhaust airflow, follow the installation guidelines below.
- For any of the below installation patterns, the wall height on the exhaust side should be 1200mm or less.



Limitations on the installation

1. Precautions on installation

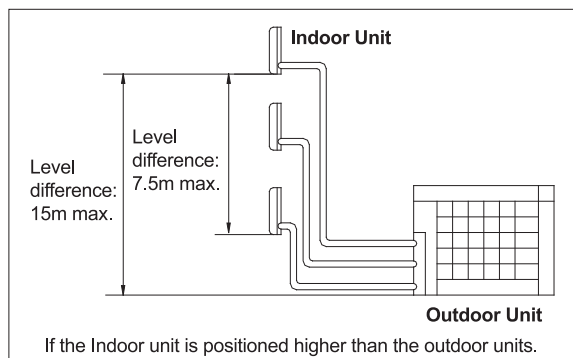
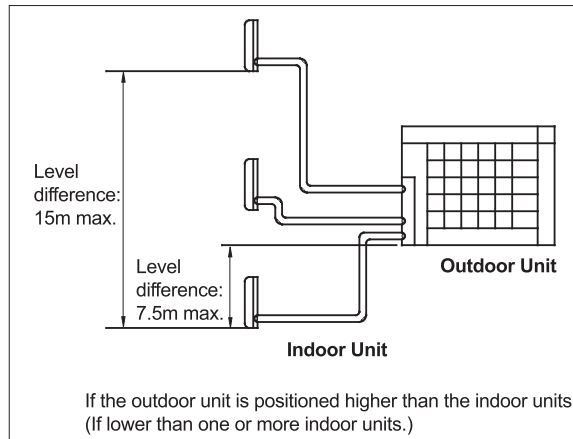
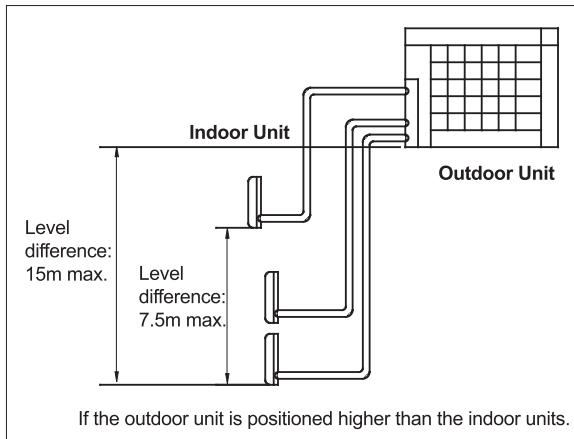
- Check the strength and level of the installation ground so that unit will not cause any operating vibration or noise after installation.
- In accordance with the foundation drawing in fix the unit securely by means of the foundation bolts.
- It is best to screw in the foundation bolts until their length are 20 mm from the foundation surface.

2. Selecting a location for installation of the indoor units

- The maximum allowable length of refrigerant piping, and the maximum allowable height difference between the outdoor and indoor units, are listed below. (The shorter the refrigerant piping, the better the performance. Connect so that the piping is as short as possible. Shortest allowable length per room is 3m)

Outdoor unit capacity class	3U19FS2ERA	3U24GS2ERA	4U30HS2ERA	5U34HS2ERA
Piping to each indoor unit	25m max.	25m max.	25m max.	25m max.
Total length of piping between all units	50m max.	60m max.	70m max.	80m max.

Limitations on the installation



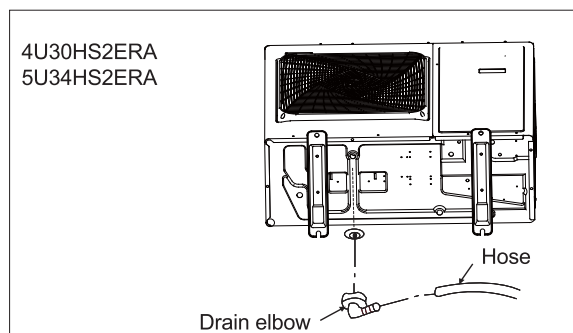
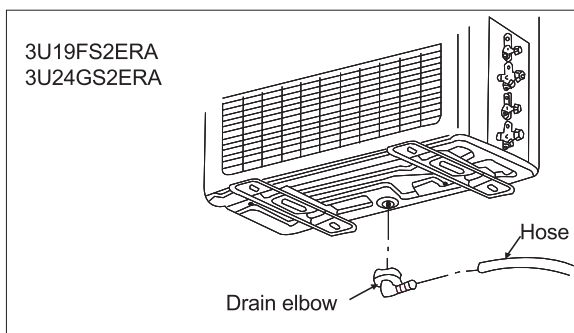
Refrigerant piping work

1. Installing outdoor unit

- 1) When installing the outdoor unit, refer to "Precautions for Selecting the Location" and the "Indoor/Outdoor Unit Installation Drawings".
- 2) If drain work is necessary, follow the procedures below.

2. Drain work

- 1) Use drain plug for drainage.
- 2) If the drain port is covered by a mounting base or floor surface, place additional foot bases of at least 30mm in height under the outdoor unit's feet.
- 3) In cold areas, do not use a drain hose with the outdoor unit. (Otherwise, drain water may freeze, impairing heating performance.)

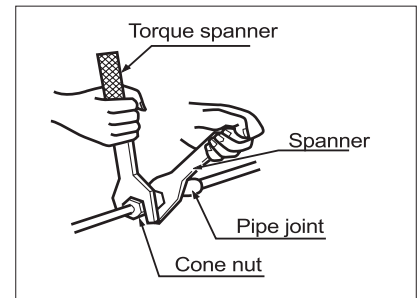
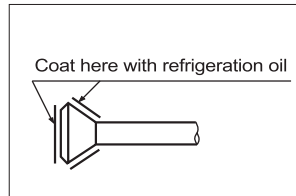


Refrigerant piping work

3. Refrigerant piping work

1F. Align the centres of both flares and tighten the flare nuts 3 or 4 turns by hand. Then tighten them fully with the tor wrenches. Use torque wrenches when tightening the flare nuts to prevent damage to the flare nuts and escaping gas.

Flare nut tightening torque	
Flare nut for \varnothing 6.35	14.2-17.2N.m(144-175kgf.cm)
Flare nut for \varnothing 9.52	32.7-39.9N.m(333-407kgf.cm)
Flare nut for \varnothing 12.7	49.5-60.3N.m(505-615kgf.cm)
Flare nut for \varnothing 15.88	61.8-75.4N.m(630-769kgf.cm)



Valve cap tightening torque	
Liquid pipe	26.5-32.3N.m(270-330kgf.cm)
Gas pipe	48.1-59.7N.m(490-610kgf.cm)

Service port cap tightening torque	
10.8-14.7N.m(110-150kgf.cm)	

2) To prevent gas leakage, apply refrigeration oil on both inner and outer surfaces of the flare. (Use refrigeration oil for R410A)

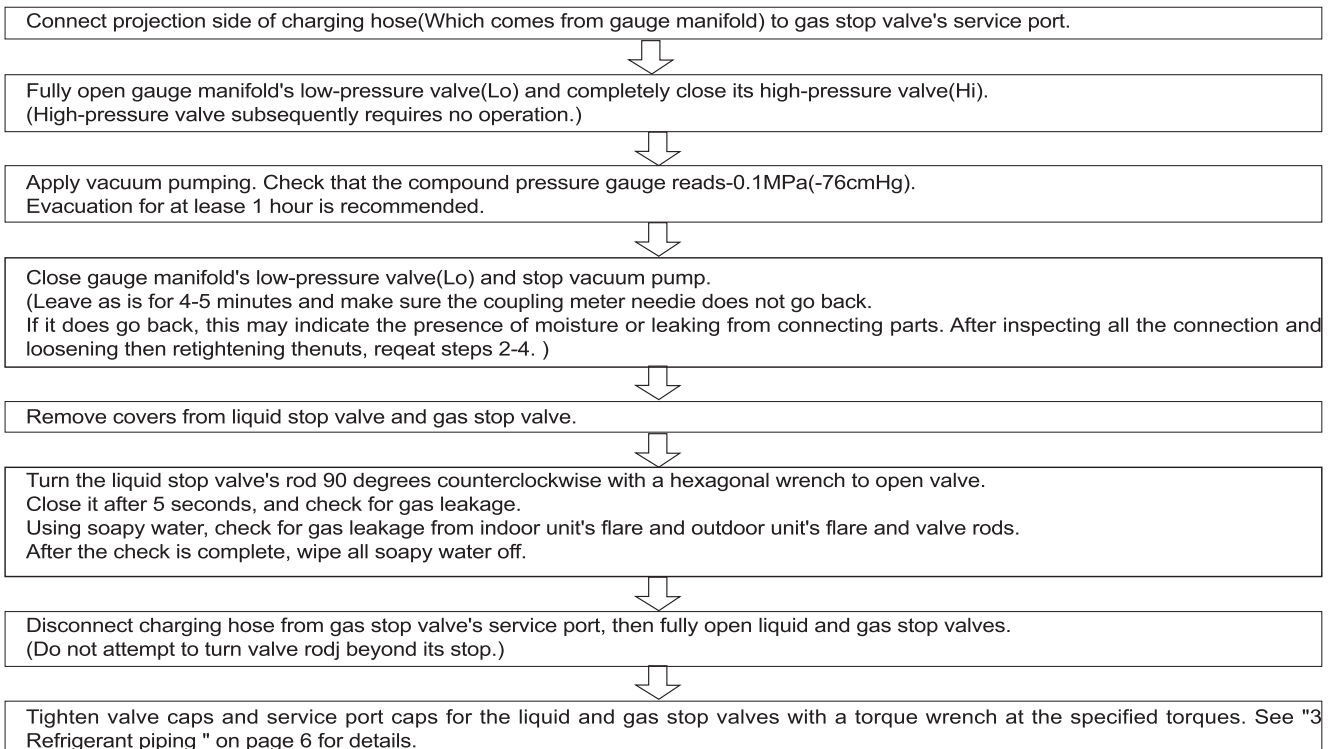
4. Purging air and checking gas leakage

When piping work is completed, it is necessary to purge the air and check for gas leakage.

WARNING

- 1) Do not mix any substance other than the specified refrigerant (R410A) into the refrigeration cycle.
- 2) When refrigerant gas leaks occur, ventilate the room as soon and as much as possible.
- 3) R410A, as well as other refrigerants, should always be recovered and never be released directly into the environment.
- 4) Use a vacuum pump for R410A exclusively. Using the same vacuum pump for different refrigerants may damage the vacuum pump or the unit.

- If using additional refrigerant, perform air purging from the refrigerant pipes and indoor unit using a vacuum pump, then charge additional refrigerant.
- Use a hexagonal wrench (4mm) to operate the stop valve rod.
- All refrigerant pipe joints should be tightened with a torque wrench at the specified tightening torque.



Refrigerant piping work

5. Refilling the refrigerant

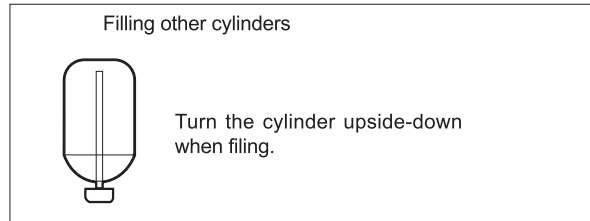
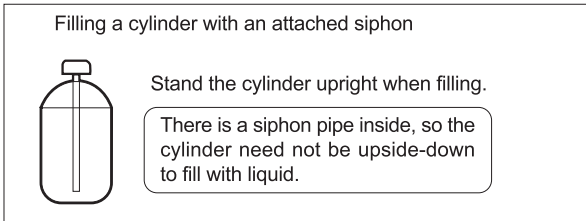
Check the type of refrigerant to be used on the machine nameplate.

Precautions when adding R410A

Fill from the liquid pipe in liquid form.

It is a mixed refrigerant, so adding it in gas form may cause the refrigerant composition to change, preventing normal operation.

1) Before filling, check whether the cylinder has a siphon attached or not. (It should have something like "liquid filling siphon attached" displayed on it.)



2) Be sure to use the R410A tools to ensure pressure and to prevent foreign objects entering.

6. Charging with refrigerant

- 1) This system must use refrigerants R410A.
- 2) Add refrigerant 20g per meter when the total piping length exceeds the standard value, but make sure that the total liquid piping length should be less than the max. value. 5U45LS1ERA charge 28g/m refrigerant for extra pipe length

Outdoor Unit	Standard total liquid piping length	Max. total liquid piping length
3U19FS2ERA	30m	50m
3U24GS2ERA	30m	60m
4U30HS2ERA	40m	70m
5U34HS2ERA	40m	80m

Notes:

- 1) When using this product, you need not to set the address. But the L/N wires between indoor & outdoor units must be corresponded, or there will be communication failure.
- 2) Quiet Operation Setting. Set the DIP "8" to ON position of SW5, the system will run with lower noise, but the max. capacity will also reduce slightly.
- 3) Do not change the settings of other switches, wrong settings can make the system damage or other malfunctions.

7. Precautions for Laying Refrigerant Piping

• Cautions on pipe handling

- 1) Protect the open end of the pipe against dust and moisture.
- 2) All pipe bends should be as gentle as possible. Use a pipe bender for bending. (Bending radius should be 30 to 40mm or larger.)

• Selection of copper and heat insulation materials

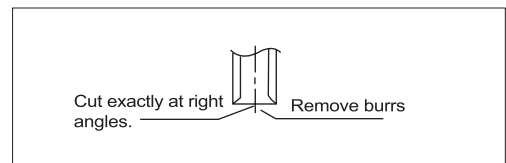
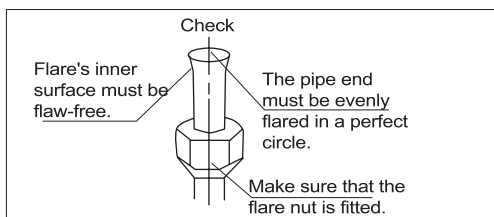
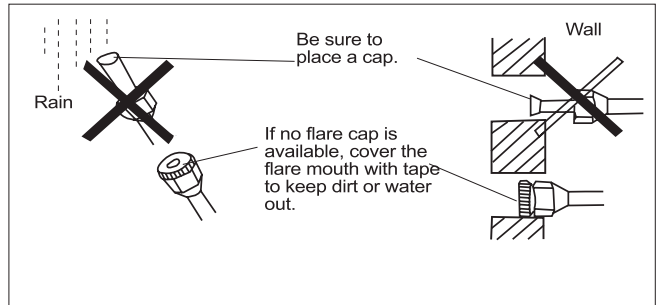
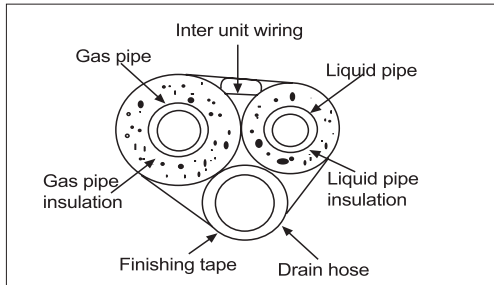
When using commercial copper pipes and fittings, observe the following :

- 1) Insulation material: Polyethylene foam
Heat transfer rate: 0.041 to 0.052W/mK(0.035to 0.045kcal/mh°C)
Refrigerant gas pipe's surface temperature reaches 110°C max.
Choose heat insulation materials that will withstand this temperature.
- 2) Be sure to insulate both the gas and liquid piping and to provide insulation dimensions as below.

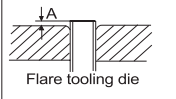
Gas pipe	Gas pipe insulation
O.D.:9.52mm, 12.7mm Thickness:0.8mm	I.D.:12-15mm, 12.7mm Thickness:13mm min.
Liquid pipe	Liquid pipe insulation
O.D.:6.35mm Thickness:0.8mm	I.D.:18-10mm Thickness:10mm min.

Refrigerant Piping Work

3) Use separate thermal insulation pipes for gas and liquid refrigerant pipe.

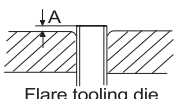


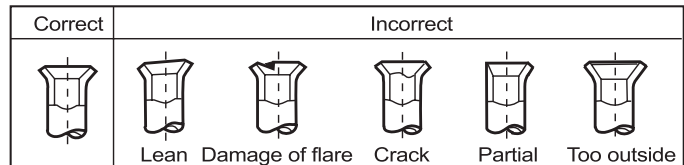
Set exactly at the position shown below.

 Flare tooling die	Flare tool for R410A	Conventional flare tool	
	Clutch-type	Clutch-type(Rigid-type)	Wing-nuttype(Imperial-type)
	0-0.5mm	1.0-1.5mm	1.5-2.0mm

8. Cutting and Flaring work of piping

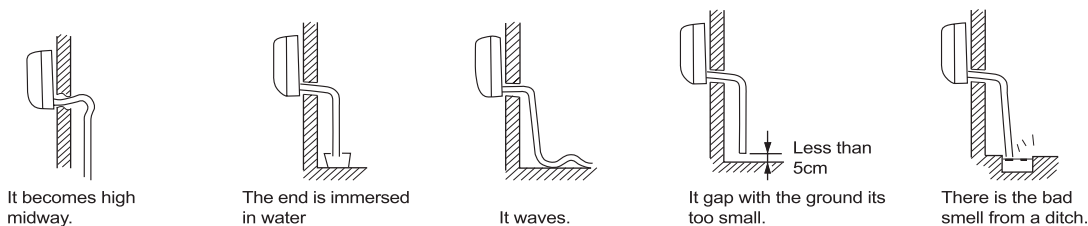
- Pipe cutting is carried out with a pipe cutter and burrs must be removed.
- After inserting the flare nut, flaring work is carried out.

 Flare tooling die	Pipe	Pipe diameter ϕ	Size A (mm)
	Liquid side	6.35mm(1/4")	0.8~1.5
	Gas side	9.52mm(3/8")	1.0~1.5
		12.7mm(1/2")	1.0~1.5



9. On drainage

- Please install the drain hose so as to be downward slope without fail. Please don't do the drainage as shown below.



- Please pour water in the drain pan of the indoor unit, and confirm that drainage is carried out serely to outdoor.
- In case that the attached drain hose is in a room, please apply heat insulation to it without fail.

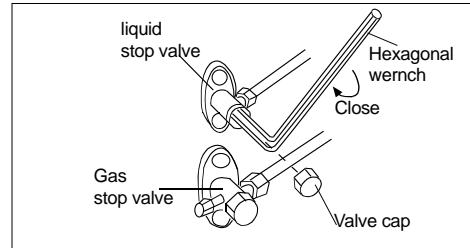
WARNING

- 1) Do not use mineral oil on flared part.
- 2) Prevent mineral oil from getting into the system as this would educe the lifetime of the units.
- 3) Never use piping which has been used for previous installations. Only use parts which are delivered with the unit.
- 4) Do never install a drier to this R410A unit in order to guarantee its lifetime.
- 5) The drying material may dissolve and damage the system.
- 6) Incom;ete flaring may cause refrigerant gas leakage.

Pump Down Operation

In order to protect the environment, be sure to pump down when relocating or disposing of the unit.

- 1) Remove the valve caps from liquid stop valve and gas stop valve.
- 2) Carry out forced cooling operation.
- 3) After five to ten minutes, close the liquid stop valve with a hexagonal wrench.
- 4) After two to three minutes, close the gas stop valve and stop forced cooling operation.



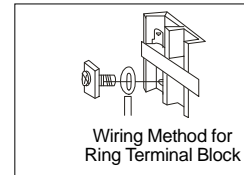
Wiring work

1. Electric wiring

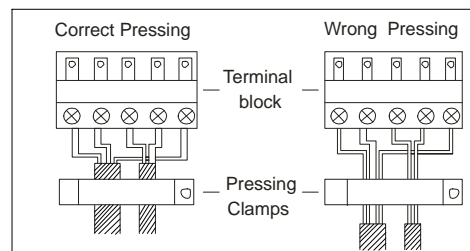
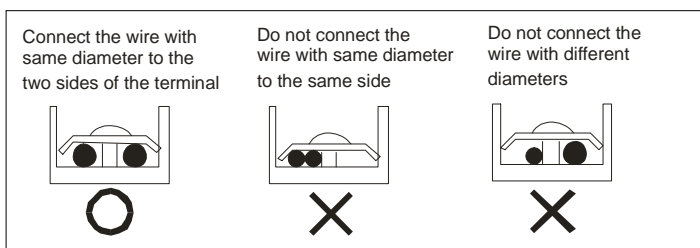
- The air conditioner must use special circuit, and wiring by the qualified electrician according to the wiring rules specified in national standard.
- The grounding wire and the neutral wire shall be strictly separated. Connect the neutral wire with grounding wire is incorrect.
- The electric leakage breaker must be installed.
- All the electric wire must be copper wire. Power supply: 1PH, 220-230V~, 50Hz.
- The wiring method of power line is Y connection. If the power line is damaged, in order to avoid risk of electric shock, it must be replaced by the manufacturer or its repair center or other similar qualified person. The connecting cable must be shielded.
Fuse: T3.15A 250VAC(Electronic control unit) T25A 250VAC(Power circuit board).
- Please check the circuit diagram about the fuse replaced.

2. Wiring method

- **Wiring method of orbicular terminals**
For the connection wire with orbicular terminals, its wiring method is as shown in the right figure: remove the connecting screw, put the screw through the ring at the end of the wire, then connect to the terminal block and fasten screw.
Wiring method of straight terminals.
- For the connection wire without orbicular terminals, its wiring method is: loosen the connection screw, and insert the end of the connection wire completely into the Terminal block, then fasten the screw.
Slightly pull the wire outwards to confirm it is firmly held.



- **Crimp connection method for wires without terminals**



- **Crimp connection method for connection wire**
After connection, the wire must be fastened by wire cover. The wire cover shall press on the protection coat of the connection wire, as shown in right top figure.
Note: When connecting the wiring, confirm the terminal number of indoor and outdoor units carefully. Incorrect wiring will damage the controller of air conditioner or the unit can not operate.

3. Wiring method of outdoor unit:

• Power line

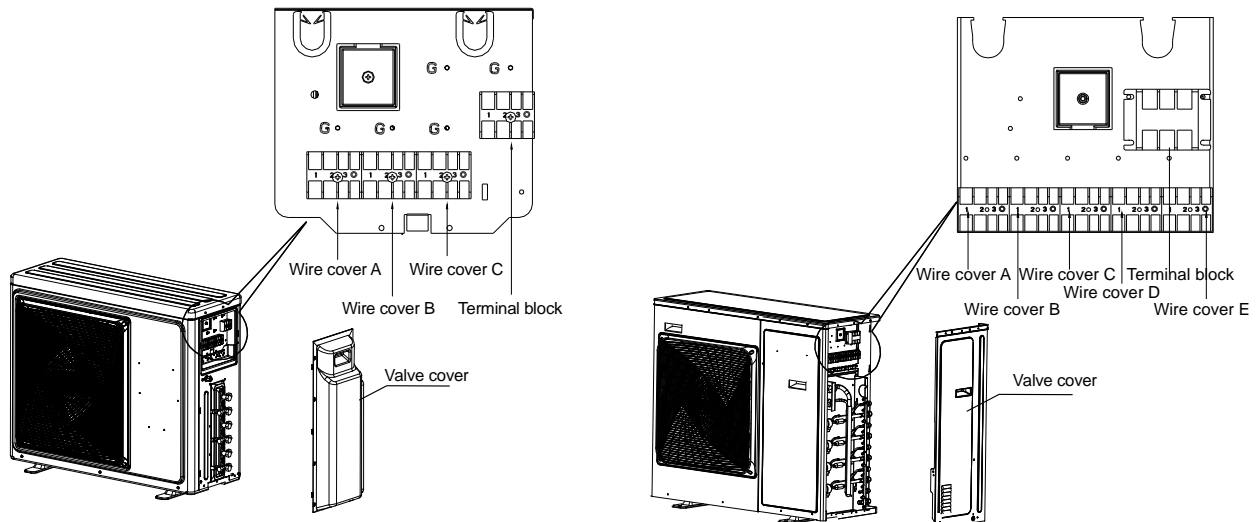
Remove the repair board of the outdoor unit and loosen the wire cover A, then put the live wire, neutral wire and grounding wire through the wire cover, and connect them to terminal block correspondingly. After connection, fasten wire cover to its previous state.

• Communication wire of indoor unit.

- Loosen wire cover, put the communication wire through the wire cover B, and connect them to terminal block correspondingly. After connection, fasten wire cover B to its previous state.

Note: Power line and communication wire are provided by consumers themselves.

Wiring work



4. Wiring method of indoor unit

Loosen wire cover and connect the power line and communication wire of indoor unit to the terminal correspondingly.

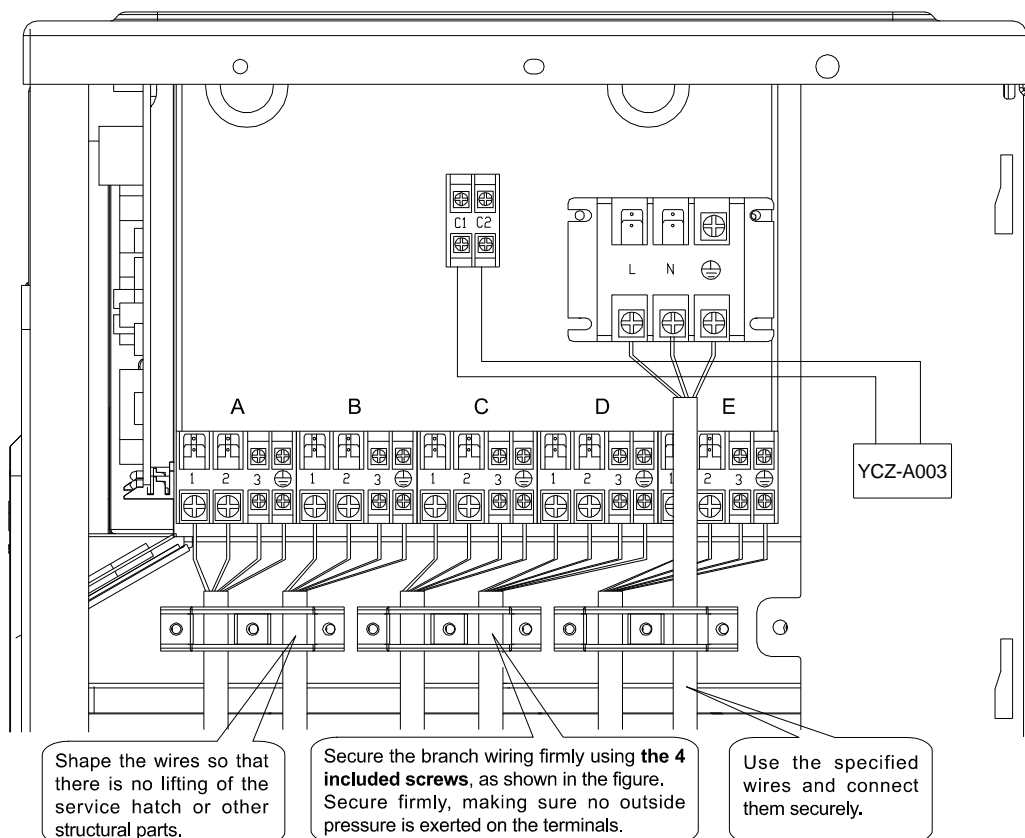
Note:

When connecting power line to power supply terminal, please pay attention to the following items:

- Do not connect the power line with different dimensions to the same connection wire end.
Improper contact will cause heat generation.
- Do not connect the power line with different dimensions to the same grounding wire end.
Improper contact will affect protection.
- Do not connect the power line to the connecting end of communication wire.
Incorrect connection will cause damage to the connected unit.

5. Example wiring diagram.

Wiring diagram please refers to 5U34HS2ERA



Test running

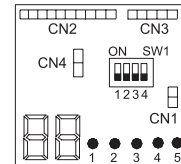
- Before starting the test running, please confirm the following works have been done successfully.
 - 1) Correct piping work;
 - 2) Correct wiring work;
 - 3) Correct match of indoor and outdoor unit;
 - 4) Proper recharge of refrigerant if needed.
- Make sure that all the stop valves are fully open.
- Check the voltage supplied to the outdoor and indoor units, please confirm that is 230V.

• Wiring Error Check

This product is capable of automatic checking of wiring error.

Switch on all the 4 dip-switches on the outdoor unit small service PC-board as shown on the right. Then power off the unit and power on again, the system will enter the operation of "Wiring Error Check". After 3 minutes stand-by, the unit starts for automatic wiring checking.

Approximately 30 ~ 50minutes (depends on how many units installed in the system) after the unit starts, the Errors of the wiring will be shown by the LEDs (1 to 5).



During this operation, the digital-number will alternately show the compressor working frequency (e.g. 50 stands for the current running frequency) and letter "CH"(means checking).

After this operation, if all the wiring is correct, the digital-number will show "0", if there has wrong wiring, the digital-number will show "EC"(error connection) and also it will flashing.

The service monitor LEDs indicate the error of wiring, as shown in the table below. For details about how to read the LED display, refer to the service manual.

If self-checking is not possible, check the indoor unit wiring and piping in the usual manner.

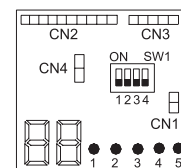
LED	1	2	3	4	5	Message
Status	OFF					Unit not connected
	ALL Flashing					Automatic checking impossible, all units connect wrong
	ALL ON					All units connect correctly
	ON	FLASHING	FLASHING	ON	FLASHING	ON: unit connect correctly FLASHING: unit connect wrong, need to change the wiring manually between 2,3,and 5
	ON	FLASHING	FLASHING	ON	ON	ON: unit connect correctly FLASHING: unit connect wrong, need to change the wiring manually between 2,3
Only one LED flashing						Abnormal

• Test running.

- 1) If the temperature is lower than 16 °C, it is impossible to test cooling with remote controller, and also when the temperature is higher than 30 °C, it is impossible to test heating.
- 2) To test cooling, set the lowest temperature at 16 °C. To test heating, set the highest temperature, at 30 °C.
- 3) Please check both cooling and heating operation of each unit individually and then also check the simultaneous operation of all indoor units.
- 4) After running the unit for about 20 minutes, check the indoor unit outlet temperature.
- 5) After the unit is stopped, or working mode changed, the system will not start again for about 3 minutes.
- 6) During cooling operation, frost may occur on the indoor unit or pipes, this is normal.
- 7) Operate the unit according to the operation manual. Please kindly explain to our customers how to operate through the instruction manual.

• Seven-segment numeric display

- 1) When unit is running, this seven-segment numeric will display the frequency of compressor. For example, "40" means compressor running frequency is 40 Hz, "108" means compressor running frequency is 108Hz.
- 2) When faulty happens, seven-segment numeric will flash and display some numbers, this number is failure code. For example, a flashing "32" means No.32 failure, that is indoor and outdoor communication error.



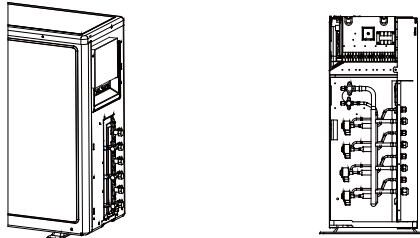
• Communication LED

5 green LED means 5 indoor units. If one LED keep lighting that means the corresponding indoor unit has good communication with outdoor unit. If one LED is not lighting, that means there is no communication between indoor and outdoor.

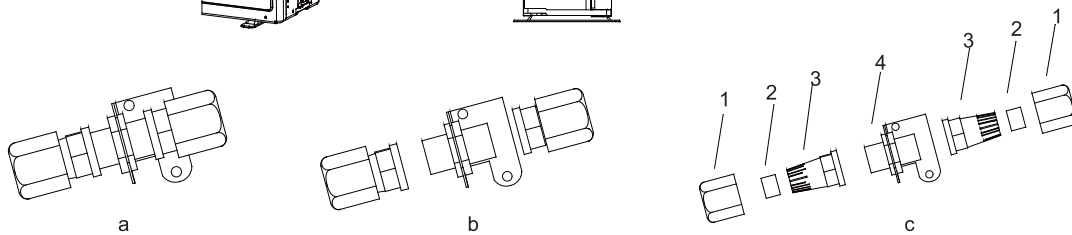
Dred function

Please consult your reseller and/or installer to determine if you have a DRED device.
Connect output from your DRED device (where available) to the RJ45 connector on the outdoor unit, as shown.

1. Open cover piece and locate the fixed DRM cable.

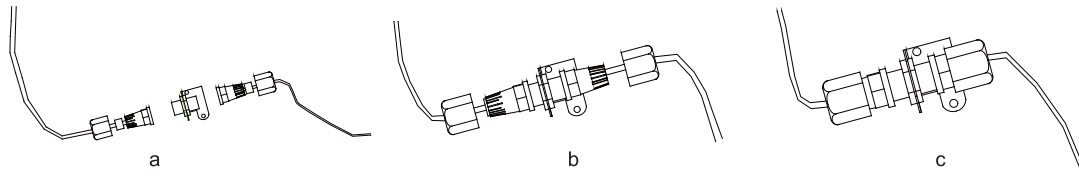


2.



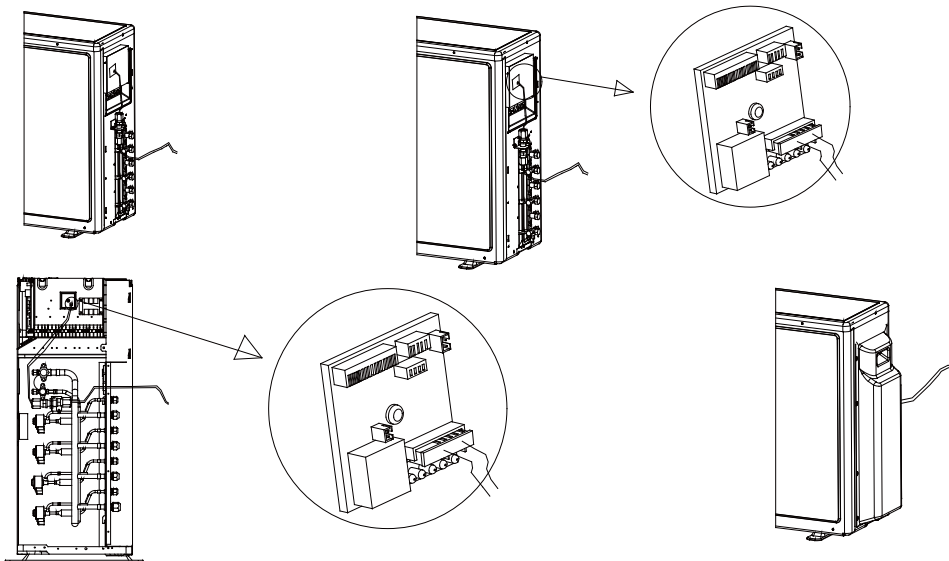
- a. Take out DRED module from indoor packing bag.
- b. Separate DRED module to 3 parts as shown.
- c. Continue to separate the DRED module to 7 parts as shown

3.



- a. Fix Pin 1 for contractor supplied line through nut 1, seal ring 2, tapered cup nut 3 insert to stud 4.
- b. Repeat step 1 for fixed DRM line.
- c. Tighten the screw position on both sides.

4.



- a. Tighten the DRED module to right side plate.
- b. Tighten the screw .
- c. Insert the DRED terminal into the 5 core ports in PCB , check the picture.
- d. Refit the trim cover.

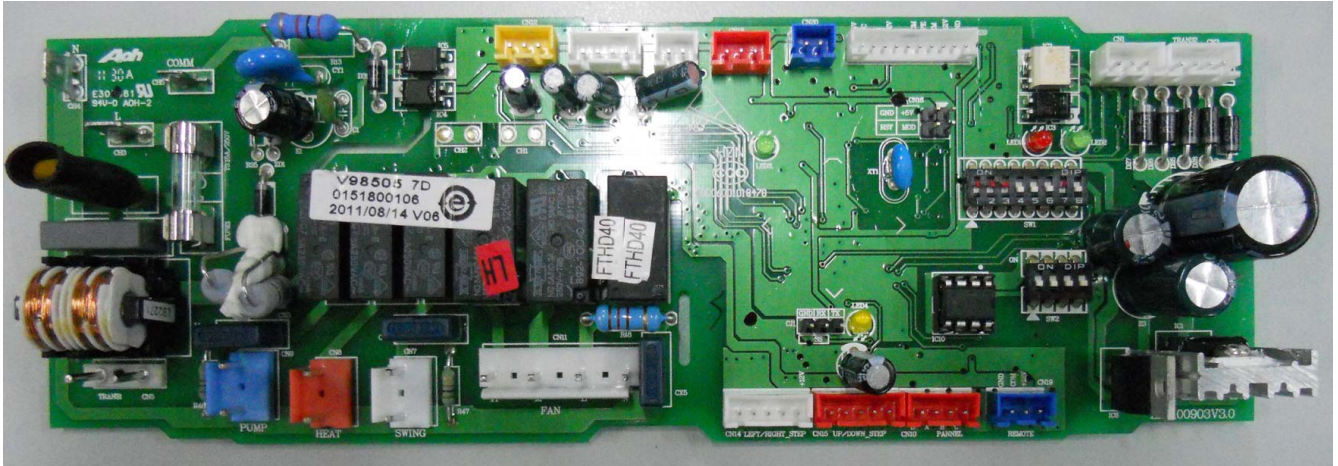
Part 4 Electric Control and Debugging

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1. Indoor unit PCB

PCB(0151800106)

AB24ES1ERA(S)



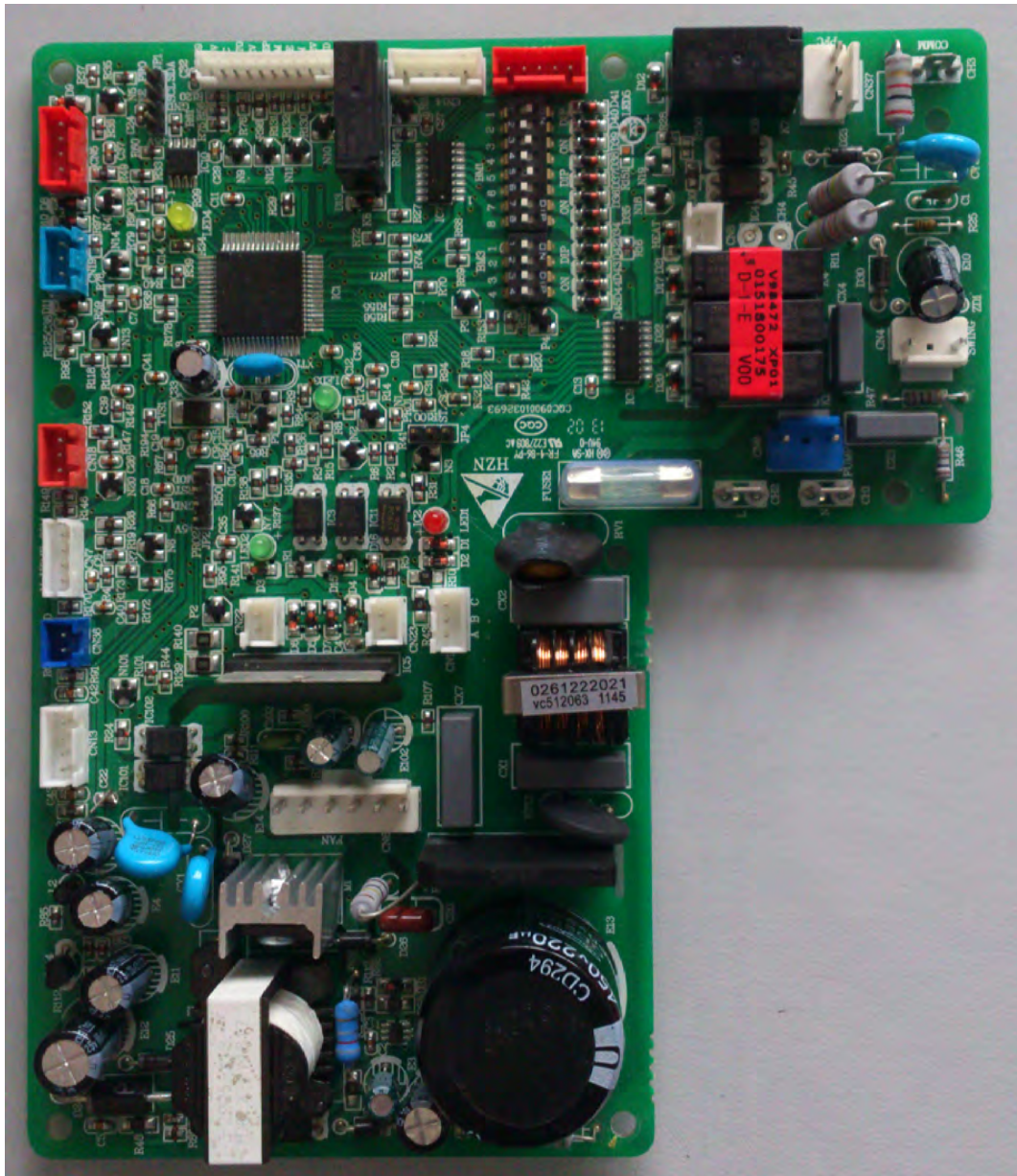
PCB(0151800208A)

AB09CS2ERA AB12CA2ERA AB18CA2ERA



PCB(0151800175)

AD09~24SS1ERA(N)(P) AD12MS1ERA AD18MS1ERA AD24MS2ERA



2. Indoor unit dip switch setting and function

2.1 Indoor unit dip switch setting

AB09CS2ERA AB12CS2ERA AB18CS2ERA

BM1-1	BM1-2	BM1-3	BM1-4	BM1-5	BM1-6	BM1-7	BM1-8	Description
OFF	OFF	OFF	--	--	--	--	--	Unit capacity: 9000
ON	OFF	OFF	--	--	--	--	--	Unit capacity: 12000
OFF	ON	OFF	--	--	--	--	--	Unit capacity: 18000
--	--	--	OFF	--	--	--	--	Room card invalid(default)
--	--	--	ON	--	--	--	--	Room card valid
--	--	--	--	OFF	--	--	--	Heat pump(default)
--	--	--	--	ON	--	--	--	Cooling only
--	--	--	--		OFF	OFF	OFF	Cassette(American)

AB24ES1ERA(S) (1: ON 0: OFF)

SW1-1	SW1-2	SW1-3	SW1-4	SW1-5	SW1-6	SW1-7	SW1-8	Description
1	0	1	---	---	---	---	---	24K indoor unit
---	---	---	0	---	---	---	---	Room card unavailable
---	---	---	1	---	---	---	---	Room card available
---	---	---	---	0	---	---	---	heat pump
---	---	---	---	1	---	---	---	cooling only
---	---	---	---	---	0	---	---	Tempetature compensation unavailable
---	---	---	---	---	1	---	---	Tempetature compensation available
---	---	---	---	---	---	0	0	Cassette

AD09~24SS1ERA(N)(P) AD12MS1ERA AD18MS1ERA AD24MS2ERA

SW1-1	SW1-2	SW1-3	SW1-4	SW1-5	SW1-6	SW1-7	SW1-8	Description
1	0	0	---	---	---	---	---	09K indoor unit
0	1	0	---	---	---	---	---	12K indoor unit
0	0	1	---	---	---	---	---	18K indoor unit
1	0	1	---	---	---	---	---	24K indoor unit
0	1	1	---	---	---	---	---	28K indoor unit
---	---	---	0	0	---	---	---	Static pressure: 1st
---	---	---	0	1	---	---	---	Static pressure: 2nd
---	---	---	1	0	---	---	---	Static pressure: 3rd
---	---	---	1	1	---	---	---	Static pressure: 4th
---	---	---	---	---	1	---	---	Room card valid
---	---	---	---	---	0	---	---	Room card invalid
---	---	---	---	---	---	0	0	Slim duct (AD**SS1ERA)
---	---	---	---	---	---	1	0	Med ESP duct(AD*MS2ERA)

Note:

Static pressure value for AD09~24SS1ERA(N)(P) ,AD12/18/MS1ERA and AD24MS2ERA (selection by SW1-4 SW1-5)

Static pressure(Pa)	1st	2nd	3rd	4th
AD**SS1ERA(N)(P)	0	10	20	30
AD12MS1ERA AD18MS1ERA AD24MS2ERA	10	30	50	70
	10	30	50	70
	10	30	50	70
	10	30	50	70
	10	30	50	70
	10	30	50	70

SW2: wiring controller communication address

wiring controller address	SW2-1	SW2-2	SW2-3	SW2--4
Master unit	0	0	0	0
Slave unit 1	1	0	0	0
Slave unit 2	0	1	0	0
Slave unit 3	1	1	0	0
-----	-----	-----	-----	-----
Slave unit 15	1	1	1	1

In single split system, when the wired controller control more than 1 units, please set the indoor unit address by adjusting the PCB DIP switch SW2 as above. In MAXI split system, no need to set the indoor unit address, just keep the factory setting (SW2 :OFF/OFF/OFF/OF).

2.2 Indoor unit function

2.2.1 Water pump control

A: Water pump will be electrified when indoor unit enters non-heating mode until indoor unit stops. 5 minutes later after indoor unit stops, water pump will stop.

B: When indoor unit is in heating mode, water pump will not operate.

C: In OFF state and in any mode, once float switch signal is measured, indoor unit will send OFF signal to outdoor and send the failure code of drainage system to the wired controller, then the water pump will work until the float switch signal is cancelled. After water pump is forced to run for 5 minutes, indoor unit will be back to normal state.

2.2.2 Compulsory defrosting operation

A: After indoor receives the compulsory defrosting signal, it will send continuously the signal to outdoor for 10 times, in this period, indoor unit will work normally and it will enter defrosting operation until it receives the enter-defrost signal from outdoor unit.

B: Wired control type: In heating mode, make a jumper for D2 to enter compulsory defrosting.

C: Remote control type: In heating mode, high speed, 30°C, press SLEEP button 6 times, and the buzzer will sound 3 times, then enter the manual defrosting.

2.2.3 Trial operation

A: Enter condition

a: Wired control type: In OFF state of COOL or HEAT mode, press ON/OFF button for over 5 seconds to enter the cooling or heating trial operation;

b: Remote control type: In OFF state, keep pressing ON/OFF button until 5 seconds later, the buzzer sounds twice, then enter the cooling or heating trial operation;

B: Response in trial operation

a: Cooling trial operation: indoor sends S-CODE=SD to outdoor, indoor: at high speed, set temp: 16°C;

b: Heating trial operation: indoor sends S-CODE=SF to outdoor, indoor: at high speed, set temp: 30°C;

c: In this period, anti-freezed and overheat functions are invalid.

C: Quit condition

a: Receiving the signal of cancelling trial operation from wired controller or remote controller;

b: After trial operation has run for 20 minutes, it will quit trial operation automatically and enter the normal mode with the set temp.: 24°C.

2.2.4 Timer operation

A: Wired control type: wired controller will control the unit ON/OFF;

B: Remote control type: indoor unit will confirm the unit ON or OFF according to the current clock and the timer clock set by remote controller. When setting timer function, the timer LED will be ON.

2.2.5 SLEEP function

A: Wired control type unit is without sleep function;

B: Remote control type unit consists of cooling sleep and heating sleep, after the sleep is set, the unit will change mode; the sleep will begin to count.

a: In cooling/dry mode, after running for 1 hour, the set temp. will increase 1°C, another 1 hour later, the set temp. will increase 1°C again, then 6 hours (or set time-2) later, it will stop.

b: In heating mode, after running for 1 hour, the set temp. will reduce 2°C, another 1 hour later, the set temp. will reduce 2°C again, then 3 hours later, the set temp. will increase 1°C, and another 3 hours(or set time-5), it will stop.

c: When setting sleep function, indoor motor is forced at low speed.

2.2.6 Healthy negative ion function

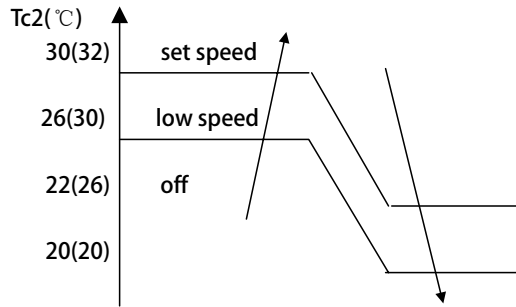
When receiving the healthy signal from the wired controller or remote controller, if fan motor is running, the negative ion will work;

2.2.7 Control for discontinuous operation

After the unit starts up in cooling/heating mode, in 5 minutes, the compressor run/stop will not be controlled by the room temp., but after changing the set temp., if compressor stop condition can be met, the system will stop compressor immediately.

2.2.7 Anti-cold air control

In heating mode, after compressor startup, the system will control indoor fan motor according to indoor coil temperature. Detailed operation is as below:



Note:

- 1) The data in the parentheses is the control point when $T_{ao} > 10^{\circ}\text{C}$;
- 2) Indoor unit will send "pre-heat" signal to wired controller in anti-cold air period.

2.2.8. Fan motor control in defrosting

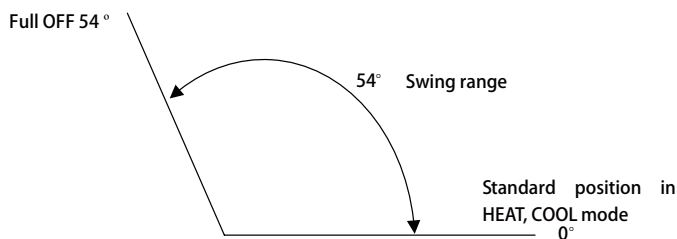
- A. On receiving outdoor defrosting signal, indoor unit will stop after blowing remaining heat at low speed for 20 seconds.
- B. In defrosting period, indoor fan motor stops running.
- C. Defrosting is over, and indoor motor will run as anti-cold air state.

2.2.9 Blowing remaining heat operation

When the unit shuts off in heating mode or the thermostat is OFF, indoor motor will stop running after running at low speed for 30 seconds.

2.2.10 Swing motor control

Indoor unit will control the swing motor according to the swing signal from the wired controller.



2.2.11 Water pump control

A: Water pump will be electrified when indoor unit enters non-heating mode until indoor unit stops. 5 minutes later after indoor unit stops, water pump will stop.

B: When indoor unit is in heating mode, water pump will not operate.

C: In OFF state and in any mode, once float switch signal is measured, indoor unit will send OFF signal to outdoor and send the failure code of drainage system to the wired controller, then the water pump will work until the float switch signal is cancelled. After water pump is forced to run for 5 minutes, indoor unit will be back to normal state.

2.2.12 Compulsory defrosting operation

A: After indoor receives the compulsory defrosting signal, it will send continuously the signal to outdoor for 10 times, in this period, indoor unit will work normally and it will enter defrosting operation until it receives the enter-defrost signal from outdoor unit.

B: Wired control type: In heating mode, make a jumper for D2 to enter compulsory defrosting.

C: Remote control type: In heating mode, high speed, 30°C, press SLEEP button 6 times, and the buzzer will sound 3 times, then enter the manual defrosting.

2.2.13 Trial operation

A: Enter condition

a: Wired control type: In OFF state of COOL or HEAT mode, press ON/OFF button for over 5 seconds to enter the cooling or heating trial operation;

b: Remote control type: In OFF state, keep pressing ON/OFF button until 5 seconds later, the buzzer sounds twice, then enter the cooling or heating trial operation;

B: Response in trial operation

a: Cooling trial operation: indoor sends S-CODE=SD to outdoor, indoor: at high speed, set temp: 16°C;

b: Heating trial operation: indoor sends S-CODE=SF to outdoor, indoor: at high speed, set temp: 30°C;

c: In this period, anti-freezed and overheat functions are invalid.

C: Quit condition

a: Receiving the signal of cancelling trial operation from wired controller or remote controller;

b: After trial operation has run for 20 minutes, it will quit trial operation automatically and enter the normal mode with the set temp.: 24°C.

2.2.14 Timer operation

A: Wired control type: wired controller will control the unit ON/OFF;

B: Remote control type: indoor unit will confirm the unit ON or OFF according to the current clock and the timer clock set by remote controller. When setting timer function, the timer LED will be ON.

2.2.15 SLEEP function

A: Wired control type unit is without sleep function;

B: Remote control type unit consists of cooling sleep and heating sleep, after the sleep is set, the unit will change mode; the sleep will begin to count.

a: In cooling/dry mode, after running for 1 hour, the set temp. will increase 1°C, another 1 hour later, the set temp. will increase 1°C again, then 6 hours (or set time-2) later, it will stop.

b: In heating mode, after running for 1 hour, the set temp. will reduce 2°C, another 1 hour later, the set temp. will reduce 2°C again, then 3 hours later, the set temp. will increase 1°C, and another 3 hours(or set time-5), it will stop.

c: When setting sleep function, indoor motor is forced at low speed.

11.2.16 Healthy negative ion function

When receiving the healthy signal from the wired controller or remote controller, if fan motor is running, the negative ion will work;

If the fan motor stops, the negative ion generator will stop.

2.2.17 Auto-restart function

A: Wired control type:

YR-E14: pls refer to the dip switch setting SW1-6: ON means auto-restart unavailable; OFF(default means available).

YR-E16:if this function is on, the state before power failure will be in the memory; after restoration of power failure, the unit will continue operating in the state as before the power failure. If this function is off, the state will not be memorized; if the unit is energized after power failure, it is in shutdown state; after startup, the default mode is in automatic mode as automatic air 24*. If the auto recovery is set to be on and the sleep function is also set, in case of accidental power failure, the unit is in shutdown state when the power supply is resumed.(please refer to the user manual about the operation method)

2.2.18 Room card function

The unit adopts room card function(220VAC input), which only make ON/OFF control. When it is connected, the unit is ON; when it is disconnected, the unit is OFF, and the other parameters will be as default or the data in memory.

A: When room card function is available

The central control, remote control/wired control and the room card are “AND” logical relationship. On the condition that the room card is connected, the unit can be controlled by remote controller or wired controller; indoor unit will run at the set state by the central controller, remote controller or wired controller; otherwise, if room card is not connected, the unit can not be controlled.

B: When room card function is not available

The unit will be controlled by the remote controller, the wired controller or the central controller.

2.2.19 Setting method of temperature compensation Tcomp

A. Wired control type unit: this function is not available

B. Remote control type unit:

In cooling or heating mode, there is always with the temp. compensation.

In heating mode: In 24°C heating mode, press SLEEP(or SWING) button 7 times continuously within 5 seconds, indoor buzzer sounds twice, that shows temp. compensation works. Switch on the unit in heating mode by the remote controller, press TEMP button to set the set temp., so temperature compensation=the current set temp. - 24°C. For example, if the set temp. is 24°C, the temp. compensation is 0°C; if the set temp. is 25°C, the temp. compensation is 1°C. The max. compensation temp. is 6°C (the set temp. is 30°C). If you want to cancel it, set the temp. as 24°C.

In cooling mode: In 24°C cooling mode, press SLEEP(or SWING) button 7 times continuously within 5 seconds, indoor buzzer sounds twice, that shows temp. compensation works. Switch on the unit in heating mode by the remote controller, press TEMP button to set the set temp., so temperature compensation=24°C-the current set temp. . For example, if the set temp. is 24°C, the temp. compensation is 0°C; if the set temp. is 23°C, the temp. compensation is -1°C. The max. compensation temp. is -8°C (the set temp. is 16°C). If you want to cancel it, set the temp. as 24°C.

So the temp. compensation range is +8°C~-6°C.

2.2.20 Anti-freezed protection

When compressor has run for over 5 minutes, to prevent indoor evaporator freezing (in cooling/dry mode), if indoor mid-coil temp. is below -1 degree for over 5 minutes, indoor EEV will close, and compressor will stop. When indoor mid-coil temp. is over about 10 degree, the unit will be normal.

2.2.21 Overload protection in heating mode

It is valid only in heating mode, if indoor mid-coil temp. is over about 65 degree continuously for 10 seconds, indoor will stop; while when indoor mid-coil temp. is below 52 degree for 3 seconds, indoor will resume.

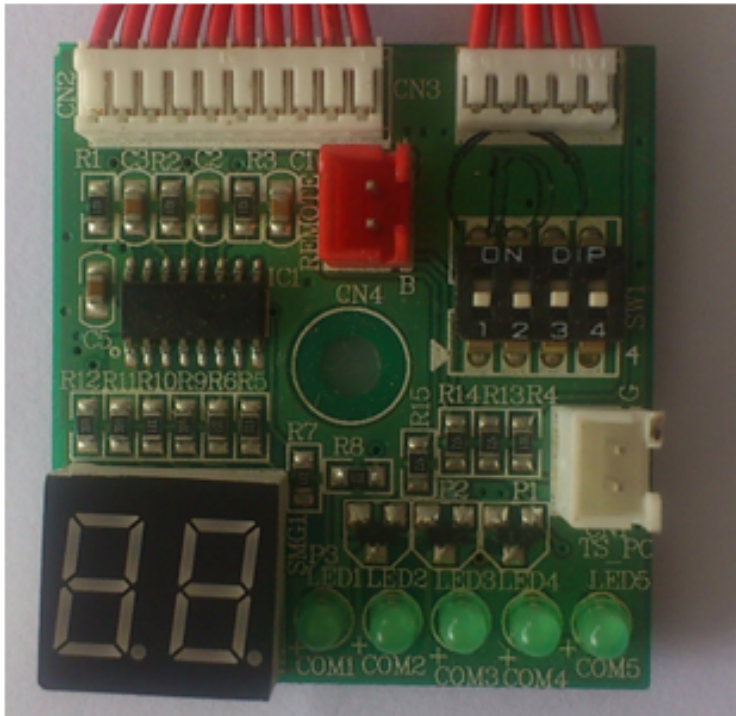
3. Outdoor unit PCB photo, dip switch setting and function

3.1 Outdoor unit PCB photo and dip switch setting

Model	PCB	Power module	Filter board
3U19FS2ERA	0151800075C 0151800076A	0150400643B	0150400699
3U24GS2ERA	0151800075C 0151800076A	0150400643A	0150400699
4U30HS2ERA	0151800075C 0151800076A	0150400908	0150400699
5U34HS2ERA	0151800075C 0151800076A	0150400908	0150400699

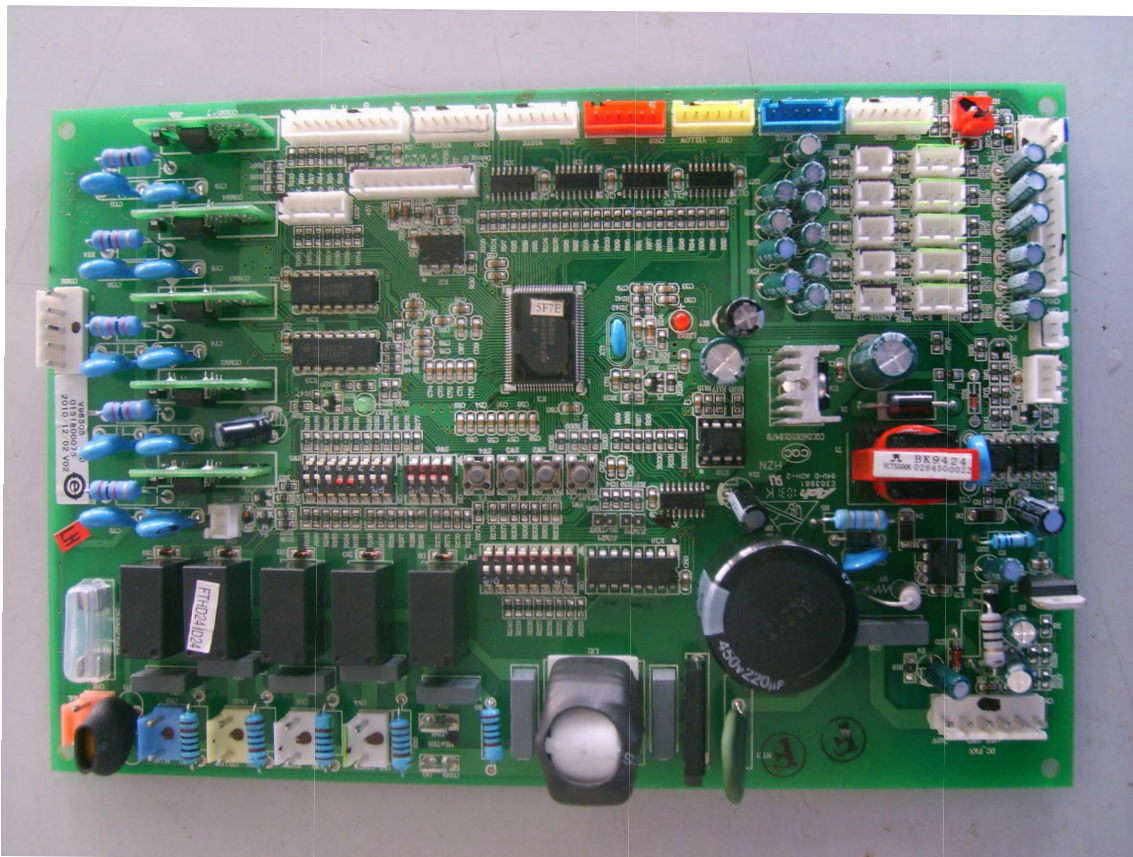
PCB(0151800076A)

3U19FS2ERA 3U24GS2ERA 4U30HS2ERA 5U34HS2ERA



PCB (0151800075C)

3U19FS2ERA 3U24GS2ERA 4U30HS2ERA 5U34HS2ERA



Power module(0150400643A) 3U24GS2ERA

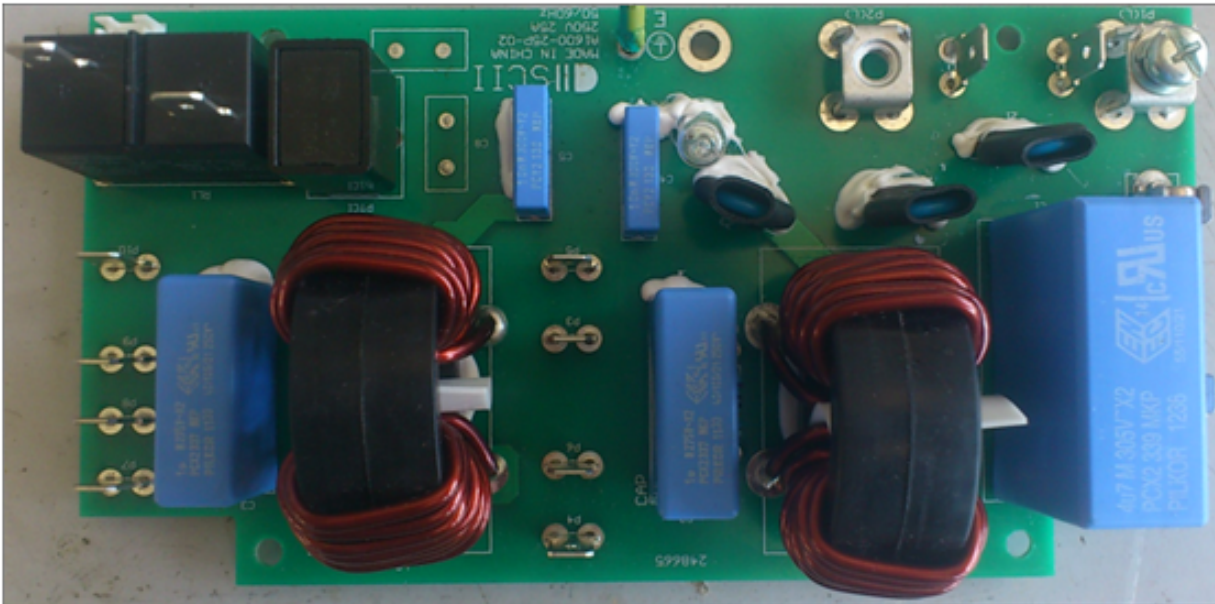


Power module(0150400643B) 3U19FS2ERA



Filter board(0150400699)

3U19FS1ERA 3U24GS2ERA 4U30HS1ERA 5U34HS1ERA



Dip switch setting

Outdoor main PCB 0151800075C dip switch setting

1	2	3	4	5	6	7	8	Description
ON	---	---	---	---	---	---	---	Cooling only
OFF	---	---	---	---	---	---	---	Heating pump(default)
---	ON	---	---	---	---	---	---	set ON if frost easily
---	OFF	---	---	---	---	---	---	set OFF if hard to frost(default)
---	---	ON	---	---	---	---	---	Max.running current is 15A
---	---	OFF	---	---	---	---	---	Normal control(default)
---	---	---	OFF	OFF	ON	---	---	3U19
---	---	---	OFF	ON	OFF	---	---	3U24
---	---	---	ON	OFF	ON	---	---	4U30
---	---	---	ON	ON	OFF	---	---	5U34
---	---	---	---	---	---	ON	---	temperature correction valid
---	---	---	---	---	---	OFF	---	temperature correction null(default)
---	---	---	---	---	---	---	ON	Quiet operation valid
---	---	---	---	---	---	---	OFF	Quiet operation valid(default)

SW6: outdoor central control address setting

1	2	3	4	Outdoor central control address
OFF	OFF	OFF	OFF	1
OFF	OFF	OFF	ON	2
OFF	OFF	ON	OFF	3
OFF	OFF	ON	ON	4
OFF	ON	OFF	OFF	5
OFF	ON	OFF	ON	6
OFF	ON	ON	OFF	7
OFF	ON	ON	ON	8
ON	OFF	OFF	OFF	9
ON	OFF	OFF	ON	10
ON	OFF	ON	OFF	11
ON	OFF	ON	ON	12
ON	ON	OFF	OFF	13
ON	ON	OFF	ON	14
ON	ON	ON	OFF	15
ON	ON	ON	ON	16

SW7: pre-set dip switch (default : all OFF)

Small service PCB:0151800076A dip switch setting

SW1 definition:

1	2	3	4	Definition
OFF	OFF	OFF	OFF	State when out of factory
ON	OFF	OFF	OFF	Compulsory heating: 50Hz, outdoor motor 5-class, standard open angle 200, the others are normal
OFF	ON	OFF	OFF	Compulsory cooling: 60Hz, outdoor motor 7-class, standard open angle 200, the others are normal
OFF	OFF	ON	OFF	Rated operation
OFF	OFF	OFF	ON	Time defrost valid
ON	ON	ON	ON	Detection for wrong wiring

3.2 Outdoor unit control

3.2.1 Outdoor frequency control

A. Compressor running frequency range: 3U19:20-100RPS 3U24:20-94RPS, the others are 20~95RPS

3.2.2 Electronic expansion valve (EEV) control

A: Electronic characteristic

Max. open angle	500 pulse
Driving speed	PPS

B: Standard open angle control

In Cool/Dry mode, standard open angle: outdoor ambient temp. $\geq 20^{\circ}\text{C}$, 250 pulse(E); Outdoor ambient temp. $< 20^{\circ}\text{C}$, 210 pulse(E);

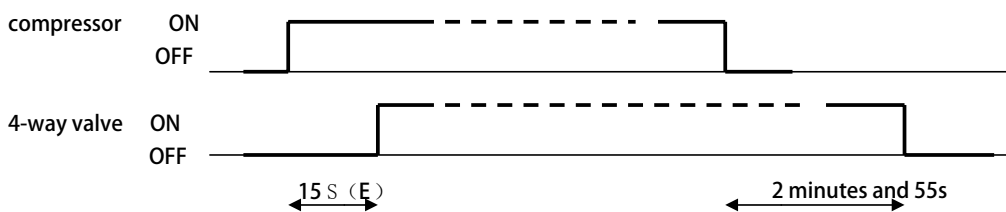
In Heat mode, standard open angle: outdoor ambient temp. $\geq 10^{\circ}\text{C}$, pulse (E); outdoor ambient temp. $< 10^{\circ}\text{C}$, 210 pulse (E).

E. In order to cooperate the compressor discharging temp. over high protection, the system will enlarge the EEV open angle. Within 5 minutes after compressor starts up, it will not modify. The detecting period is 30 seconds.

Cooling mode	Indoor modification angle
$100^{\circ}\text{C} < \text{discharging temp.}$	+50degree/30seconds, it will stop until up to the max. permitted opening angle
$90^{\circ}\text{C} < \text{discharging temp.} \leq 100^{\circ}\text{C}$	Keep the angle
$\leq 90^{\circ}\text{C}$	-5degree/30seconds, and reduce to 0 degree gradually
Heating mode	Indoor modification angle
$100^{\circ}\text{C} < \text{discharging temp.}$	+50degree/30seconds, it will stop until up to the max. permitted opening angle
$90^{\circ}\text{C} < \text{discharging temp.} \leq 100^{\circ}\text{C}$	Keep the angle
$\leq 90^{\circ}\text{C}$	-5degree/30seconds, and reduce to 0 degree gradually

3.2.3 4-way valve control in heating

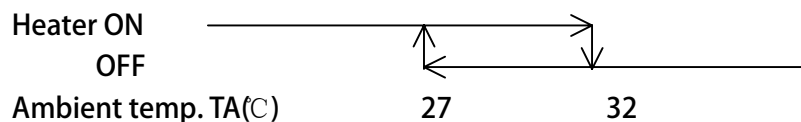
Multi: Protection when 4-way valve can not reverse in heating: 10 minutes later after compressor startup, if indoor coil average temp. is below 15degree and keeps for 1 minute, the unit will stop and occur the 4-way valve protection.



3.2.4 Electric heater control

If compressor has not run for a long time, the refrigerant will deposit on the bottom of compressor and mix with the refrigerant oil. When re-startup, because low pressure reduces, refrigerant will be segregated from the refrigerant oil and cause soam in the oil, which will make compressor exhaust a lot of oil. Therefore please stop heating the compressor bottom to ensure the low pressure in startup period should not go down greatly.

- Ambient temp. $T_A \leq 27^{\circ}\text{degree}$, when compressor stops, the electric heater will be electrified.
- When $T_A \geq 32^{\circ}\text{degree}$, or compressor running, the electric heater will be off.



3.2.5 Control of defrosting in heating

In heating mode, defrosting temp. sensor will check the frosting condition of outdoor heat exchanger and make defrosting control.

A: Enter condition:

a. In heating mode, if the compressor has run for 10 minutes continuously and run for 45 minutes in all, the system will measure the defrosting temperature sensor T_e and outdoor ambient temp. sensor T_A , if the below condition can be met for continuous 5 minutes, the unit will enter defrosting operation:

$$T_e \leq C \times T_A - \alpha$$

Herein: C: $T_A < 0^\circ$ C=0.8 $T_A \geq 0^\circ$ C, C=0.6

According to SW5-2, the setting is as follow: in the place easy to frost, it is H; when out of factory, it is M.

Jumper selection	M(out of factory)	H
$\alpha(^{\circ}\text{C})$	8(E)	6(E)

b. Defrosting entering condition: $-15^{\circ}\text{C} \leq C \times T_A - \alpha \leq -2^{\circ}\text{C}$;

c. Stop and Pause condition of compressor running accumulative time in heating mode:

Checking Stop: running operation changes from heating to cooling.

Checking Pause: thermostat OFF, or the unit stops.

Cancel condition:

It will take the max. 10 minutes from beginning defrosting to quit it. T_e sensor will measure the condition of outdoor heat exchanger, if the temp. is over 7°C for 60 seconds in all or is up to 12°C for 30 seconds in all, the defrosting will be over.

3.2.6 Compulsory defrosting control

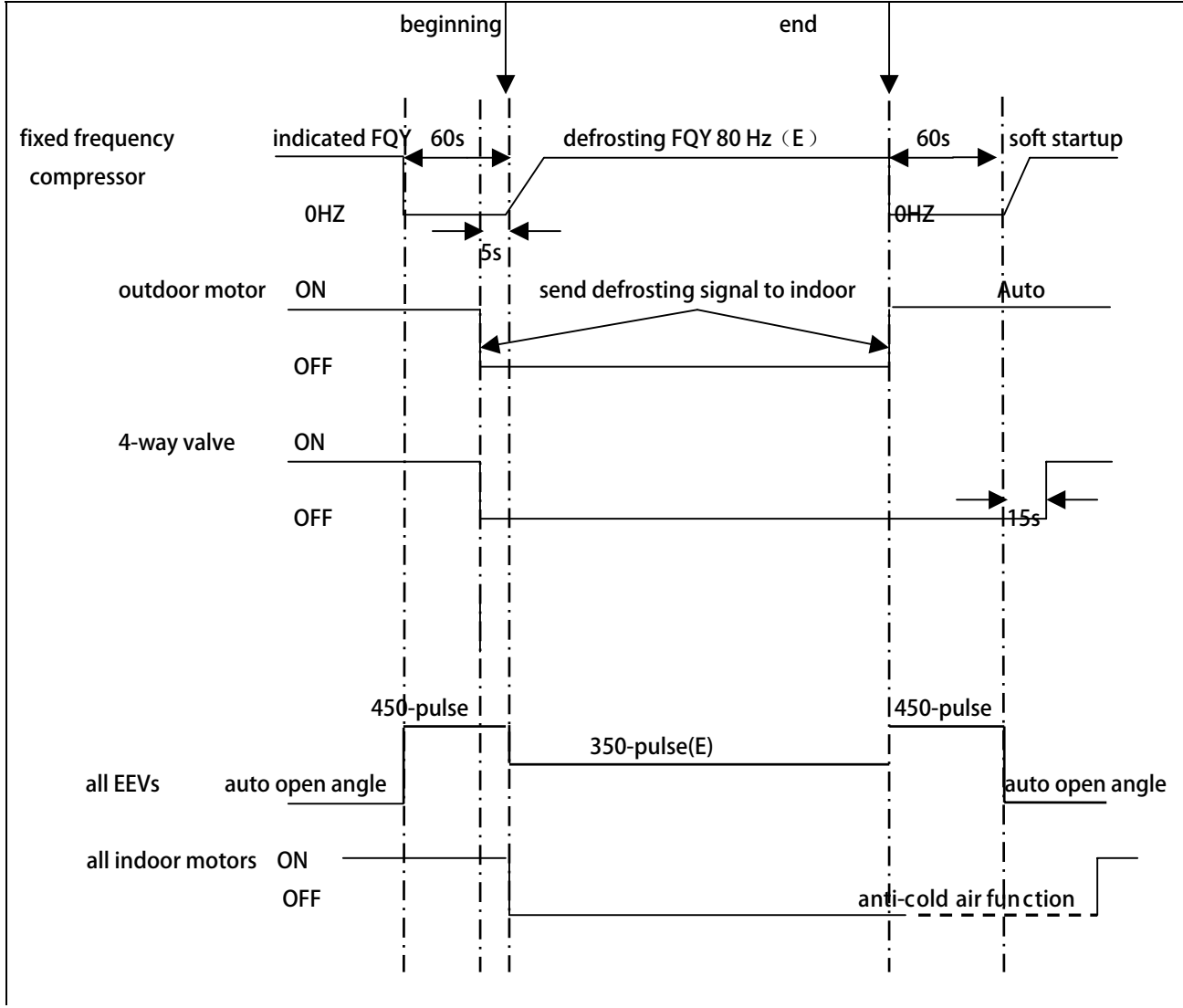
Enter condition: in heating mode, after receiving the compulsory defrosting signal from indoor unit, the unit will perform the compulsory defrosting operation.

Cancel condition: $T_e \geq 12^{\circ}\text{C}$ and keep for 1 minute or the defrosting time is over 10 minutes. The manual defrosting signal of indoor unit will remain until the outdoor enters defrosting mode.

Note: When outdoor compressor not running, the unit still can enter manual defrosting, but it will comply with the 3-minute protection of compressor.

3.2.7 Defrosting operation flow chart:

Multi:

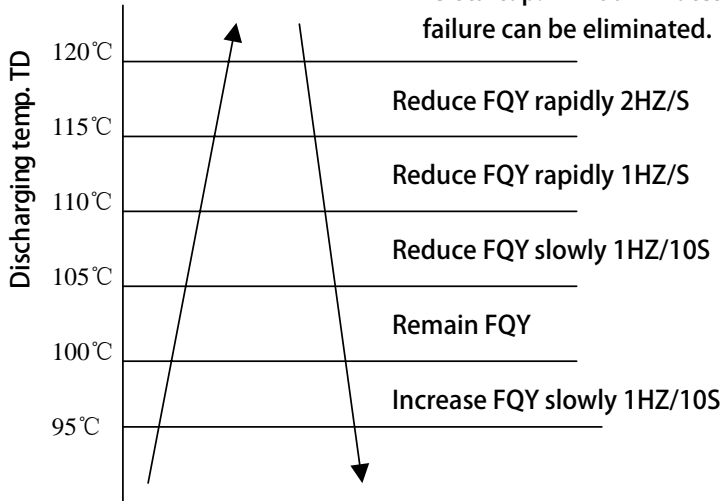


3.2.8 Frequency control when Td is too high

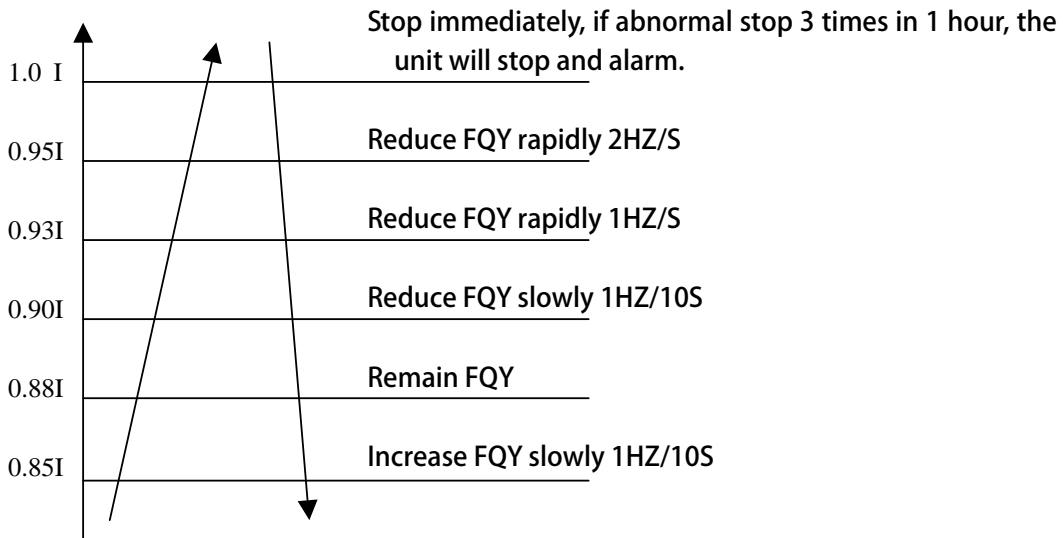
Purpose: make compressor frequency control if the discharging temp. is too high, to lower the discharging temp. efficiently and ensure the system can run normally.

Multi:

If keeping for 10s, the unit stops, 3 minutes later, the unit can re-startup. If in 60 minutes the unit occurs alarm for 3 times, the failure can be eliminated.



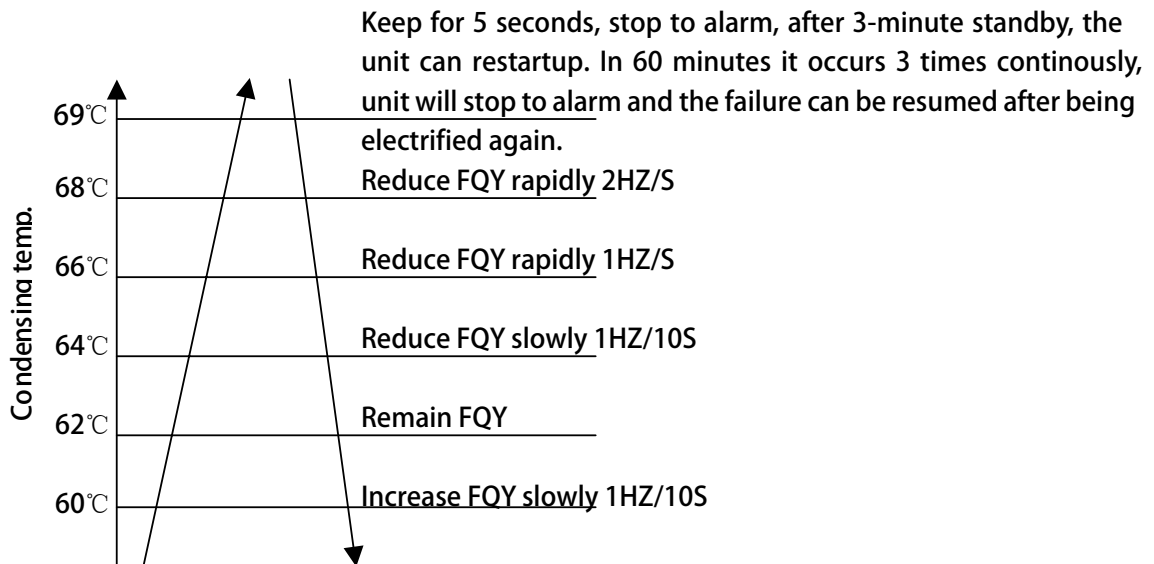
3.2.8. Frequency control when there is CT over current protection



3.2.9. High pressure protection (Multi)

When the input signal of pressure switch is high level:1, that shows there is no protection.
 When the input signal of pressure switch is low level: 0 for 1 minute, that shows high pressure protection works. At this time, compressor stops, outdoor will send the alarm signal. The alarm can be resumable. If in 60 minutes, the failure occurs 3 times, the failure can be confirmed and send failure code to indoor. Meanwhile, by controlling the max. condensate temp. Tc (cooling) or TmAVE (heating), please confirm as follow:

In nominal cooling/dry/heating mode, high pressure can be controlled by limiting the max. frequency.



3.2.10. Low pressure protection (Multi)

- (1) When compressor is running, if output signal of low pressure switch is low level: 0 for 1 minute continuously, compressor will stop, outdoor alarms. The alarm can be resumable. If in 60 minutes, the failure occurs 3 times, the failure can be confirmed and send failure code to indoor.
- (2) When compressor no running, if output signal of low pressure switch is low level: 0 for 30 seconds continuously, alarm will occur.

- When unit stops, the reason that system still checks the low pressure : in a long time stop, make protection for the compressor on the condition of great refrigerant leakage.
- The reason that low pressure switch action time is 30 seconds: when compressor stops, low pressure does not change, so it will be shorter than the set time in operation.

(3) When compressor starts up, in 8 minutes, low pressure switch signal will be shielded.

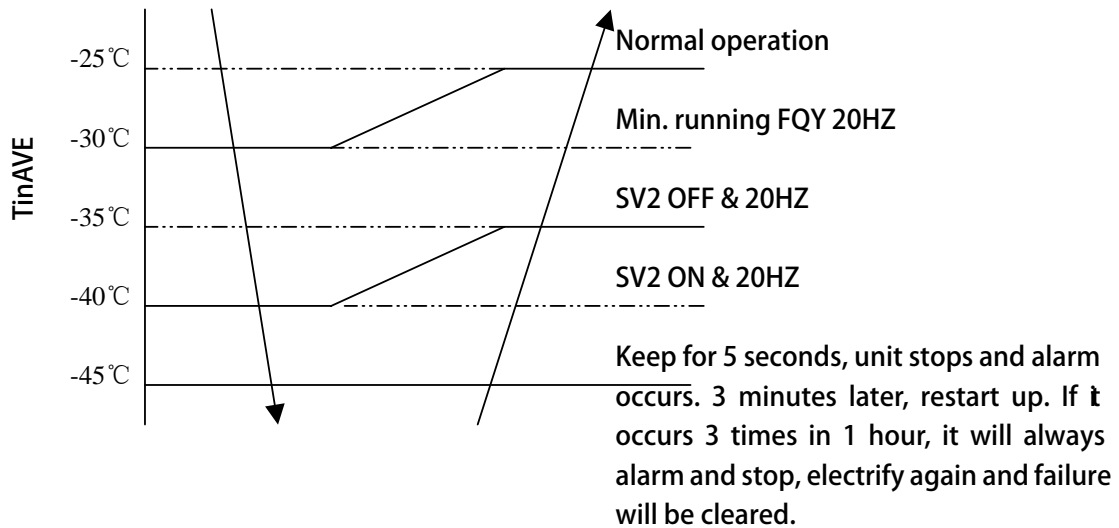
(4) In defrosting, low pressure switch will be shielded.

(5) In oil return procedure, low pressure switch will be shielded.

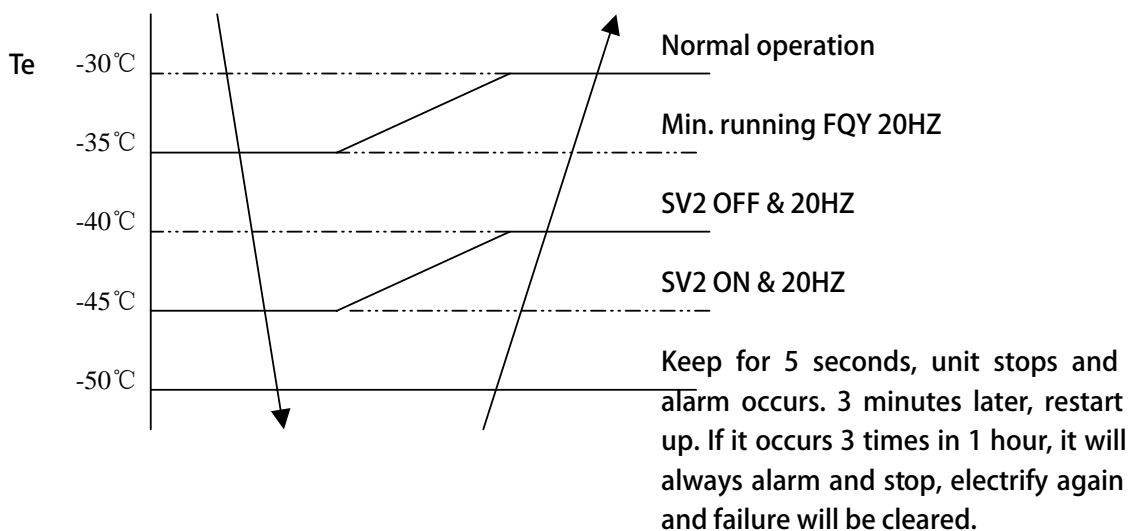
(6) In the refrigerant discharging procedure after the oil return in cooling is over, low pressure switch will be shielded.

In addition, the system will control low pressure through the evaporator temp T_e to realize the low pressure protection function.

In cooling, confirm through T_{inAVE} :



In heating, confirm through defrosting temp. T_e :



If the failure is not confirmed as the permanent protection, outdoor will not send failure code to indoor, and indoor will not alarm.

4. Diagnostic code

3U19FSERA 3U24GS2ERA 4U30HS2ERA 5U34HS2ERA

PRODUCT DIAGNOSIS PROCEDURE		Diagnosis using the Numerical Light Indicator	
Malfunction Code	Diagnosis	Malfunction Code	Diagnosis
1	Faulty of outdoor unit EEPROM	33	Malfunction of gas pipe temp. sensor for indoor unit B
2	IPM overcurrent or short circuit	34	Malfunction of gas pipe temp. sensor for indoor unit C
4	Communication failure between Module and ECU	35	Malfunction of gas pipe temp. sensor for indoor unit D
5	Module operated overload	36	Malfunction of gas pipe temp. sensor for indoor unit E
6	Module low or high voltage	38	Malfunction of module temp.senssor Momentary power failure detection
8	Discharging temperature overheating.Lack of refrigerant, ambient temperature too high or PMVs blocked.	39	Malfunction of condensing temp. sensor
9	Malfunction of the DC fan motor	40	Malfunction of liquid pipe temp. sensor for indoor unit E
10	Malfunction of defrosting temp. sensor	41	Malfunction of 'Toci' temp. sensor
11	Malfunction of compressor suction temp. sensor	42	System high pressure switch off
12	Malfunction of ambient temp. sensor	43	System low pressure switch off
13	Malfunction of compressor discharge temp. sensor	44	System high pressure protection,Refrigerant overabundance.High condensing temp. or malfunction of fan motor.
15	Communication failure between indoor&outdoor unit	45	System low pressure protection,Refrigerant shortage, Low defrosting temp., or malfunction of fan motor.
16	Lack of refrigerant or discharging		
17	4-way valve switching failure		
18	Loss of synchronism detection		
20	Indoor thermal overload		
21	Indoor frosted		
23	Module thermal overload		
24	Compressor start failure		
25	Module input overcurrent		
26	MCU reset		
27	Module current detect circuit malfunction		
28	Malfunction of liquid pipe temp. sensor for indoor unit A		
29	Malfunction of liquid pipe temp. sensor for indoor unit B		
30	Malfunction of liquid pipe temp. sensor for indoor unit C		
31	Malfunction of liquid pipe temp. sensor for indoor unit D		
32	Malfunction of gas pipe temp. sensor for indoor unit A		

Diagnosis using the Numerical Light Indicator		Precautions For Adding Refrigerant	
Malfunction Code	Diagnosis	Outdoor Unit	Std. Value Max. Value
33	Malfunction of gas pipe temp. sensor for indoor unit B	3U19FS1ERA	30m 50m
34	Malfunction of gas pipe temp. sensor for indoor unit C	3U24GS1ERA	30m 60m
35	Malfunction of gas pipe temp. sensor for indoor unit D	4U26HS1ERA	40m 70m
36	Malfunction of gas pipe temp. sensor for indoor unit E	4U30HS1ERA	40m 70m
38	Malfunction of module temp.senssor Momentary power failure detection	5U34HS1ERA	40m 80m
39	Malfunction of condensing temp. sensor	5U45L1ERA	40m 100m
40	Malfunction of liquid pipe temp. sensor for indoor unit E	3U19FS1ERA(N)	30m 50m
41	Malfunction of 'Toci' temp. sensor	3U24GS1ERA(N)	30m 60m
42	System high pressure switch off	3U19FS2ERA	30m 50m
43	System low pressure switch off	3U24GS2ERA	30m 60m
44	System high pressure protection,Refrigerant overabundance.High condensing temp. or malfunction of fan motor.	4U30HS2ERA	40m 70m
45	System low pressure protection,Refrigerant shortage, Low defrosting temp., or malfunction of fan motor.	5U34HS2ERA	40m 80m

Notes:

- When using this product,you need not to set the address.But the L/N wires between indoor & outdoor units must be corresponded,or there will be communication failure.
- Quiet Operation Setting.Set the DIP "8" to ON position of SW5,the system will run with lower noise,but the max capacity will also reduce slightly.
- Do NOT change the settings of other switches,wrong settings can make the system damage or other malfunctions.
- For some malfunctions, this system can make back up running.

Definition of SW1 on Malfunction Display				
1	2	3	4	Definition
OFF	OFF	OFF	OFF	State when out of factory (Normal Operating)
ON	OFF	OFF	OFF	Compulsive Heating;F:frequency 50HZ; PMV 200 pulse;Class.5 of outdoor fan motor.
OFF	ON	OFF	OFF	Compulsive Cooling;F:frequency 60HZ; PMV 200 pulse;Class.7 of outdoor fan motor.
OFF	OFF	ON	OFF	Rated Operating
OFF	OFF	OFF	ON	Time Defrost Valid

* ECU:Electronic Control Unit
 * MCU:Micro Control Unit
 * PMV:Pulse Modulated Valve

0150504996

AD09~24SS1ERA(N)(P) AD12MS1ERA AD18MS1ERA AD24MS2ERA

INDOOR UNIT TROUBLE SHOOTING

LED flash times of indoor PCB		Wired controller display	Contents of Malfunction	Possible reasons
LED4	LED3			
0	1	01	Malfunction of indoor unit ambient temperature sensor	Sensor disconnected, or broken, or at wrong position, or short circuit
0	2	02	Malfunction of indoor unit piping temperature sensor	Sensor disconnected, or broken, or at wrong position, or short circuit
0	4	04	EEPROM wrong of indoor PCB	EEPROM chip disconnected or broken or wrong programmed, or PCB broken
0	7	07	Abnormal communication between indoor and outdoor units	Wrong connection, or the wires be disconnected or wrong address setting of indoor unit or faulty power supply or faulty PCB
0	8	/	Abnormal communication between wired controller and indoor unit	Wrong connection or wired controller broken, or PCB faulty
0	12	0C	Malfunction of drain system	Pump motor disconnected or at wrong position, or the float switch, disconnected, or at wrong position, or the short circuit bridge disconnected
0	13	0D	Zero cross signal wrong	Zero cross signal detected wrong
0	14	0E	Indoor unit DC fan motor abnormal	DC Fan motor disconnected, or DC Fan broken or circuit broken

Note:

1. The outdoor failure can also be indicated by the indoor unit, the checking method as follows: LED4 flash times stands for ten's place, and LED3 flash times stands for one's place, use this ten-digit number minus 20, then will get the outdoor error code. For example, if the outdoor error code is 15, LED4 will flash 3 times firstly, two seconds later, LED3 will flash 5 times, and four seconds later the process will repeat again.

2. LED4 is a yellow one on the indoor PCB, LED3 is a green one.

3. To get much more details about the outdoor unit failure, please refer to the outdoor unit trouble shooting list.

0150511710

AB09CS2ERA AB12CS2ERA AB18CS2ERA

INDOOR UNIT TROUBLE SHOOTING

LED flash times of indoor PCB		Wired controller display	Contents of Malfunction	Possible reasons
LED5	LED1			
0	1	01	Malfunction of indoor unit ambient temperature sensor	Sensor disconnected, or broken, or at wrong position, or short circuit
0	2	02	Malfunction of indoor unit piping temperature sensor	Sensor disconnected, or broken, or at wrong position, or short circuit
0	4	04	EEPROM wrong of indoor PCB	EEPROM chip disconnected or broken or wrong programmed, or PCB broken
0	7	07	Abnormal communication between indoor and outdoor units	Wrong connection, or the wires be disconnected or wrong address setting of indoor unit or faulty power supply or faulty PCB or slave unit malfunction in MAXI system
0	8	/	Abnormal communication between wired controller and indoor unit	Wrong connection or wired controller broken, or PCB faulty
0	12	0C	Malfunction of drain system	Pump motor disconnected or at wrong position, or the float switch, disconnected, or at wrong position, or the short circuit bridge disconnected
0	13	0D	Zero cross signal wrong	Zero cross signal detected wrong
0	14	0E	Indoor unit DC fan motor abnormal	DC Fan motor disconnected or DC Fan broken or circuit broken
<p>Note:</p> <p>1. The outdoor failure can also be indicated by the indoor unit, the checking method as follows: LED5 flash times stands for tens digit, and LED1 flash times stands for units digit, use this bidigitate figure minus 20, then will get the outdoor error code. For example, if the outdoor error code is 15, LED5 will flash 3 times firstly, two seconds later, LED1 will flash 5 times, and four seconds later the process will repeat again.</p> <p>2. LED5 is a red one on the indoor PCB, LED1 is a yellow one.</p> <p>3. To get much more details about the outdoor unit failure, please refer to</p>				
				0150515407

AB24ES1ERA(S)

INDOOR UNIT TROUBLE SHOOTING				
LED flash times of indoor PCB		Wired controller display	Contents of Malfunction	Possible reasons
LED4	LED3			
0	1	01	Malfunction of indoor unit ambient temper- ature sensor	Sensor disconnected,or broken,or at wrong position,or short circuit
0	2	02	Malfunction of indoor unit piping temper- ature sensor	Sensor disconnected,or brok- en,or at wrong position,or short circuit
0	4	04	EEPROM wrong of indoor PCB	EEPROM chip disconnected or broken or wrong programmed,or PCB broken
0	7	07	Abnormal communi- cation between indo- or and outdoor units	Wrong connection,or the wires be disconnected or wrong adress setting of indoor unit or faulty power supply or faulty PCB or slave unit malfunction in MAXI system
0	8	/	Abnormal communi- cation between wired controller and indoor unit	Wrong connection or wired controller broken,or PCB faulty
0	12	0C	Malfunction of drain system	Pump motor disconnected or at wrong position,or the float switch,disconnected, or at wrong position,or the short circuit bridge disconnected
0	13	0D	Zero cross sigal wrong	Zero cross sigal detected wrong
0	16	10	Indoor abnormal mode operation	Different from outdoor unit mode
21		15	Outdoor unit abnormal	Refer to the outdoor unit troubleshooting list
22		16	Outdoor unit abnormal	
24		18	Outdoor unit abnormal	
25		19	Outdoor unit abnormal	
27		1B	Outdoor unit abnormal	
28		1C	Outdoor unit abnormal	
29		1D	Outdoor unit abnormal	
30		1E	Outdoor unit abnormal	
31		1F	Outdoor unit abnormal	
32		20	Outdoor unit abnormal	
33		21	Outdoor unit abnormal	
35		23	Outdoor unit abnormal	
36		24	Outdoor unit abnormal	
37		25	Outdoor unit abnormal	
38		26	Outdoor unit abnormal	
39		27	Outdoor unit abnormal	
43		2B	Outdoor unit abnormal	
44		2C	Outdoor unit abnormal	
47		2F	Outdoor unit abnormal	
48		30	Outdoor unit abnormal	
49		31	Outdoor unit abnormal	
58		3A	Outdoor unit abnormal	
59		3B	Outdoor unit abnormal	
63		3F	Outdoor unit abnormal	
64		40	Outdoor unit abnormal	

Note:

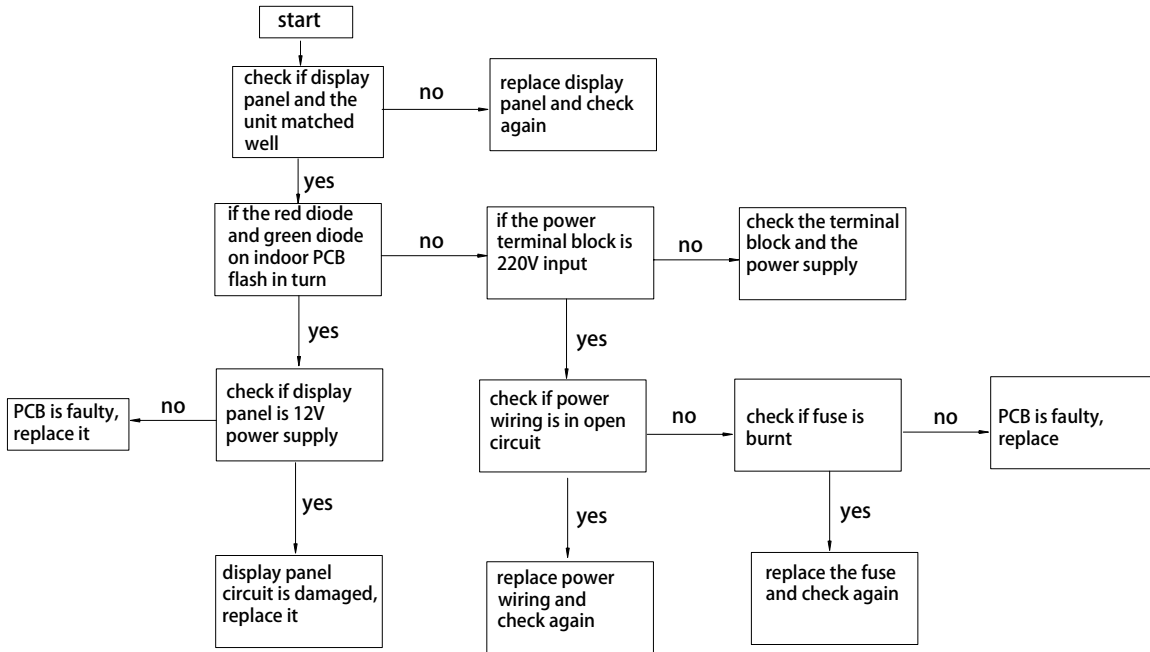
1.The outdoor failure can also be indicated by the indoor unit,the checking method as follo- ws: LED4 flash times stands for tens digit,and LED3 flash times stands for units digit, use this bidigitate figure minus 20,then will get the outdoor error code. For example,if the outdoor error code is 15,LED4 will flash 3 times firstly,two seconds later,LED3 will flash 5 times , and four seconds later the process will repeat again.

2.LED4 is a yellow one on the indoor PCB,LED3 is a green one.

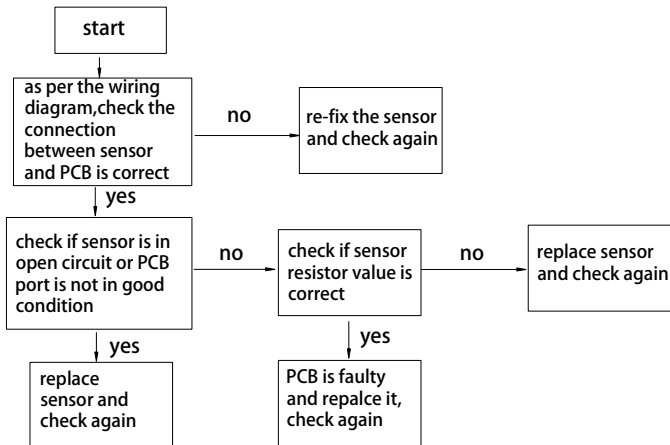
3.To get much more details about the out door unit failure,please refer to the outdoor unit trouble shooting list.

5. Trouble shooting

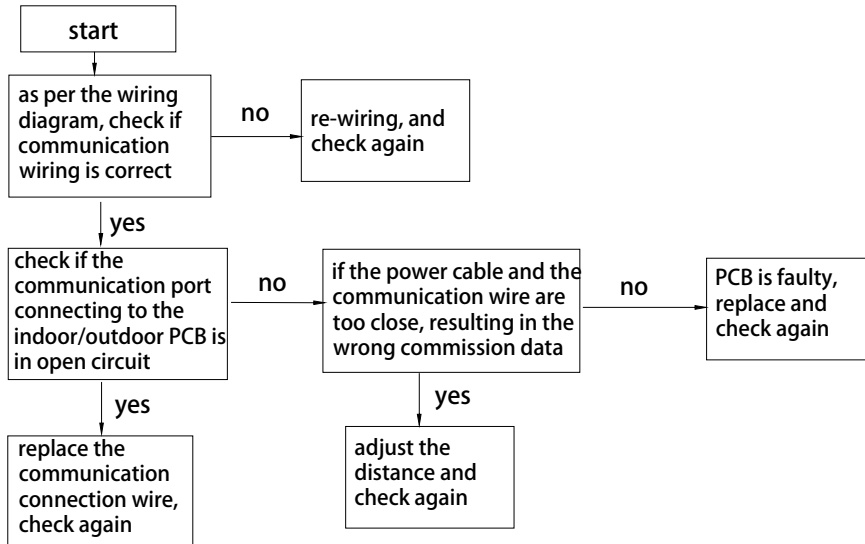
Trouble 1: No display on the operation panel



Trouble 2: Sensor failure



Trouble 3: Communication failure between indoor and outdoor



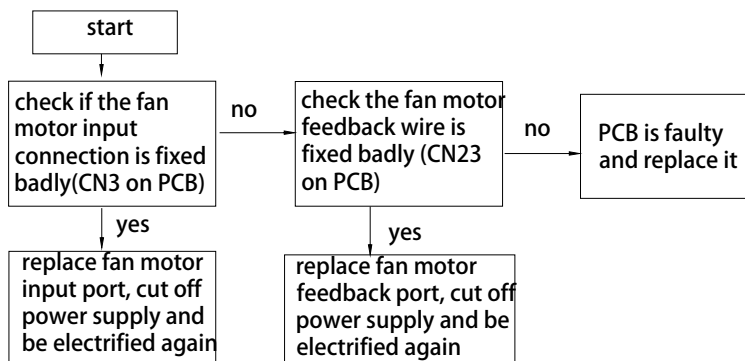
Trouble 4: Indoor PCB EEPROM data is wrong

- 1.If the failure occurs when being electrified for the first time, that shows EEPROM (8-bit pin) not fixed firmly or damaged.
- 2.If the failure occurs when running, that shows EEPROM is faulty and need to be replaced.

Trouble 5: Indoor repeated unit number

- 1.Firstly query the unit number: switch off the unit, press SLEEP for about 15 seconds until the buzzer sounds 5 times, on the display panel there will be digit, which is indoor number. By this method, you can check if there is repeated unit number, if yes, please re-set the number as per the unit number setting procedure.
- 2.Re-set the unit number directly, the unit with outdoor pipe A is No. 1; the unit with outdoor pipe B is No. 2; the unit with pipe C is No.3

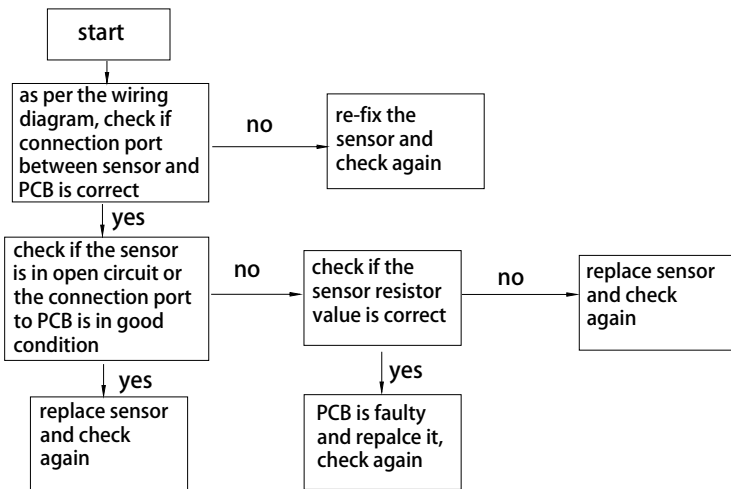
Trouble 6: Indoor fan motor failure, AC fan motor has not 50Hz zero-crossing detection



Trouble 7: Outdoor unit failure

Check the failure code on outdoor indicator board (5-lamp)

Trouble 8: Outdoor unit alarms sensor failure



Trouble 9: AC current over current protection or current transducer damaged, or compressor blocked rotor, compressor great vibration, compressor abnormal startup, state detecting circuit abnormal or compressor damaged.

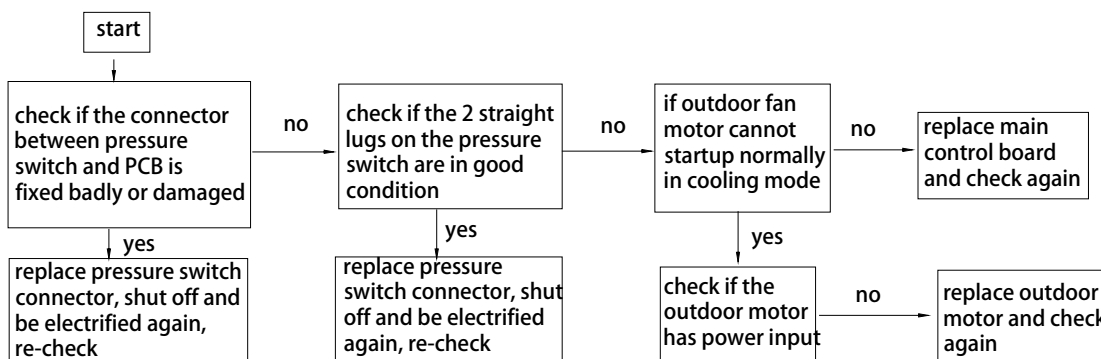
The former twice failure can be resumed automatically, if outdoor board occurs this failure always, and can not be resumed for a long time, that shows:

1. Power module (SPDU) damaged, please replace the power module, then re-wiring as per the wiring diagram (70% possibility)
2. Short circuit in power board results in the power module damaged (15% possibility)
3. Damaged compressor results in this failure (10% possibility)
4. Main control board is faulty, replace it (5% possibility)

Trouble 10: High pressure failure

Reasons:

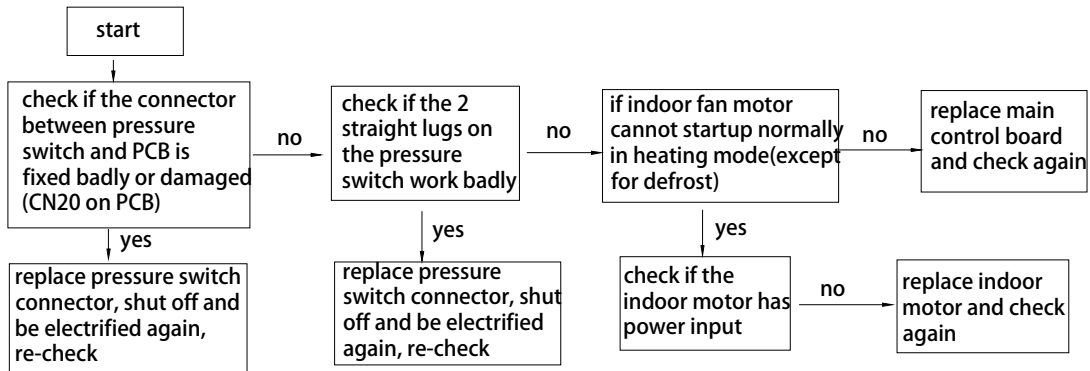
1. Over high system pressure results that the unit stop, and the compressor protection will work. The failure can be resumed.
2. Pressure switch wire is not fixed well or in open circuit.



Failure 11: Low pressure switch failure

Reason: 1. Too low system pressure causes that the unit stops and the compressor protection works, the failure can be resumed.

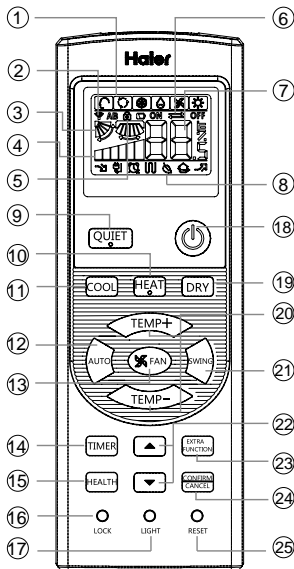
2. Pressure switch wire is not fixed well or in open circuit.



6.Controller

YR-HD

Remote controller

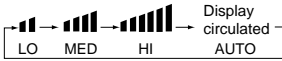


7. TEMP display
8. Additional functions display
9. QUIET but
10. HEAT but
11. COOL but
12. AUTO but
13. FAN but
14. TIMER but
15. HEALTH but
16. LOCK but
Used to lock buttons and LCD display.
17. LIGHT but
Control the lightening and extinguishing of the indoor LED display board.
18. POWER ON/OFF but
19. DRY but
20. TEMP but
21. SWING but
22. HOUR but
23. EXTRA FUNCTION but
Function: Auto, health airflow upwards and downwards sending function, sleep function, air-refresh(reserved function) Fahrenheit Celsius conversion Power setting function
24. CANCEL/CONFIRM button
Function: Setting and cancel to the timer and other additional functions.
25. RESET but
When the remote controller appears abnormal, use a sharp pointed article to press this button to reset the remote

1. Mode displ

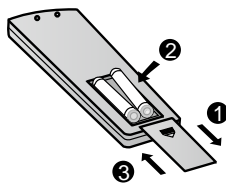
Operation mode	AUTO	COOL	DRY	HEAT	FAN
Remote controller					

2. Signal sending displ
3. SWING display
4. FAN SPEED display



On the remote control do not have the functions of HEALTH.

Loading of the battery



- 1 Remove the battery cover;
- 2 Load the batteries as illustrated.
2 R-03 batteries, resetting key (cylinder);
- 3 Be sure that the loading is in line with the "+" and "-";
- 4 Load the battery, then put on the cover again.

Note:

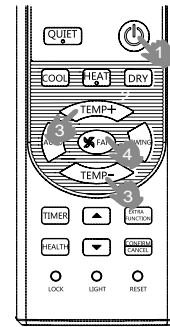
- The distance between the signal transmission head and the receiver hole should be within 7m without any obstacle as well.
- When electronic-started type fluorescent lamp or change-over type fluorescent lamp or wireless telephone is installed in the room, the receiver is apt to be disturbed in receiving the signals, so the distance to the indoor unit should be shorter.
- Full display or unclear display during operation indicates the batteries have been used up. Please change batteries.
- If the remote controller can't run normally during operation, please remove the batteries and reload several minutes later.

Hint:

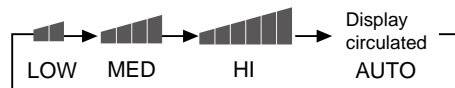
Remove the batteries in case won't be in use for a long period. If there is any display after taking-out, just press reset key.

Base Operation

Remote controller







1. Unit start
Press ON/OFF on the remote controller, unit starts.
2. Select operation mode
COOL button: Cooling mode
HEAT button: Heating mode
DRY button: Dehumidify mode
3. Select temp. setting
Press TEMP+ / TEMP- button
TEMP+ Every time the button is pressed, temp. setting increase 1°C, if kept depressed, it will increase rapidly
TEMP- Every time the button is pressed, temp. setting decrease 1°C, if kept depressed, it will decrease rapidly
Select a desired temperature.
4. Fan speed selection
Press FAN button. For each press, fan speed changes as follows:
Remote controller:



Air conditioner is running under displayed fan speed. When FAN is set to AUTO, the air conditioner automatically adjusts the fan speed according to room temperature.

Operation Mode	Remote Controller	Note
AUTO		Under the mode of auto operation, air conditioner will automatically select Cool or Heat operation according to room temperature. When FAN is set to AUTO the air conditioner automatically adjusts the fan speed according to room temperature.
COOL		
DRY		In DRY mode, when room temperature becomes lower than temp. setting +2°C, unit will run intermittently at LOW speed regardless of FAN setting.
HEAT		In HEAT mode, warm air will blow out after a short period of the time due to cold-draft prevention function. When FAN is set to AUTO, the air conditioner automatically adjusts the fan speed according to room temperature.
FAN		In FAN operation mode, the unit will not operate in COOL or HEAT mode but only in FAN mode. AUTO is not available in FAN mode. And temp. setting is disabled. In FAN mode, sleep operation is not available.

■ Sleep Operation

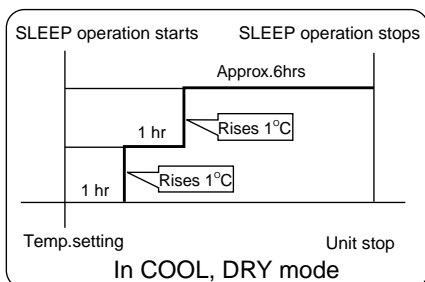
Press  button to enter additional options, when cycle display to  ,  will flash. And then press  enter to sleep function.



Operation Mode

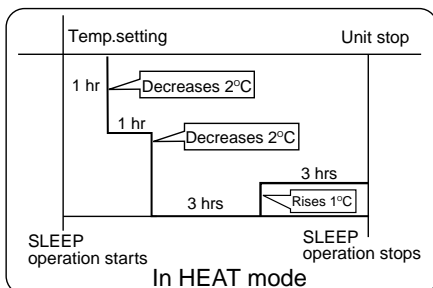
1. In COOL, DRY mode

1 hours after SLEEP mode starts, temp. will become 1°C higher than temp. setting. After another 1 hour, temp. rises by 1°C further. The unit will run for further 6 hours then stops. Temp. is higher than temp. setting so that room temperature won't be too low for your sleep.



2. In HEAT mode

1 hours after SLEEP mode starts, temp will become 2°C lower than temp. setting. After another 1 hour, temp decrease by 2°C further. After more another 3 hours, temp. rises by 1°C further. The unit will run for further 3 hours then stops. Temp. is lower than temp. setting so that room temperature won't be too high for your sleep.



3. In AUTO mode

The unit operates in corresponding sleep mode adapted to the automatically selected operation mode.

4. In FAN mode

It has no SLEEP function.

5. Set the wind speed change when sleeping

If the wind speed is high or middle before setting for the sleep, set for lowering the wind speed after sleeping. If it is low wind, no change.





Note

When TIMER function is set, the sleeping function can't be set up. After the sleeping function is set up, if user resets TIMER function, the sleeping function will be cancelled; the machine will be in the state of timing-on.


■ POWER/QUIET Operation

(1) POWER Operation

When you need rapid heating or cooling, you can use this function.

Press  button to enter additional options, when cycle display to  ,  will flash, and then press , enter to power function. When cancel the function, please enter additional options again and to cancel power function.

(2) QUIET Operation

You can use this function when silence is needed for rest or reading. Press QUIET button, the remote controller will show , and then achieve to the quiet function. Press again this QUIET button, the quiet function will be cancelled.

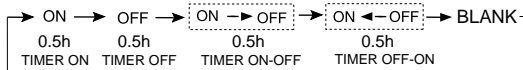
Note :

During POWER operation, in rapid HEAT or COOL mode, the room will show inhomogeneous temperature distribution. Long period QUIET operation will cause effect of not too cool or not too warm.

■ Timer On/Off On-Off Operation

1. After unit starts, select your desired operation mode.
2. Press TIMER button to change TIMER mode. Every time the button is pressed, display changes as follows:

Remote controller:




Then select your desired TIMER mode (TIMER ON or TIMER OFF or TIMER ON-OFF). " ON "or " OFF "will flash.

3. Press ▼ ▲ button to set time.

- ▲ Press the button for each time, setting time in the first 12 hours increased by 0.5 hour every time, after 12 hours, increased by 1 hour every time.
- ▼ Press the button for each time, setting time in the first 12 hours decreased by 0.5 hour every time, after 12 hours, decreased by 1 hour every time. It can be adjusted within 24 hours.

4. Confirm timer setting

After adjust the time, press  button and confirm the time ON or OFF button will not flash any more.

5. Cancel timer setting

Press the timer button by times until the time display eliminated.

Hints:

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



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

■ Healthy airflow Operation

1. Press  to s



Setting the comfort work conditions.

2. The setting of healthy airflow function

Press  button to enter additional options, Press this button continuously, the louvers location will cycle between in the following three locations, to choose the swing location what you needed, and then press  button to confirm.





3. The cancel of the healthy airflow function

Press  button to enter additional options, Press this button continuously, the louvers location will cycle between in the following three locations again, and then press  button to cancel.

Notice: Do not direct the flap by hand. Otherwise, the grille will run incorrectly. If the grille is not run correctly, stop for a minute and then start, adjusting by remote controller.

Note:

1. After setting the healthy airflow function, the position of the grill is fixed.
2. In heating, it is better to select the  mode.
3. In cooling, it is better to select the  mode.
4. In cooling and dry, using the air conditioner for a long

All the products are in conformity with the following European provision:

- Low Voltage Directive 73/23/EEC
- Low Voltage Directive 2006/95/EC
- Electromagnetic Compatibility 89/336/EEC
- Electromagnetic Compatibility 2004/108/EC

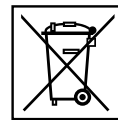
ROHS

The products are fulfilled with the requirements in the directive 2002/95/EEC of the European parliament and of council on the Restriction of the use of Certain Hazardous Substances in Electrical and Electronic Equipment (EU RoHS Directive)

WEEE

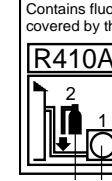
In accordance with the directive 2002/96/CE of the European parliament, herewith we inform the consumer about the disposal requirements of the electrical and electronic products.

DISPOSAL REQUIREMENTS:



Your air conditioning product is marked with this symbol. This means that electrical and electronic products shall not be mixed with unsorted household waste. Do not try to dismantle the system yourself: the dismantling of the air conditioning system, treatment of the refrigerant, of oil and of other part must be done by a qualified installer in accordance with relevant local and national legislation. Air conditioners must be treated at a specialized treatment facility for reuse, recycling and recovery. By ensuring this product is disposed of correctly, you will help to prevent potential negative consequences for the environment and human health. Please contact the installer or local authority for more information. Battery must be removed from the remote controller and disposed of separately in accordance with relevant local and national legislation.

IMPORTANT INFORMATION REGARDING THE REFRIGERANT USED

Contains fluorinated greenhouse gases covered by the Kyoto Protocol		A
R410A	1= _____ kg	B
	2= _____ kg	C
	1+2= _____ kg	D
		

This product contains fluorinated greenhouse gases covered by the Kyoto Protocol. Do not vent into the atmosphere.

Refrigerant type: R410A

GWP* value: 1975

GWP=global warming potential

Please fill in with indelible ink,

- 1 the factory refrigerant charge of the product
- 2 the additional refrigerant amount charged in the field and
- 1+2 the total refrigerant charge

on the refrigerant charge label supplied with the product.

The filled out label must be adhered in the proximity of the product charging port (e.g. onto the inside of the stop value cover).

A contains fluorinated greenhouse gases covered by the Kyoto Protocol

B factory refrigerant charge of the product: see unit name plate

C additional refrigerant amount charged in the field

D total refrigerant charge

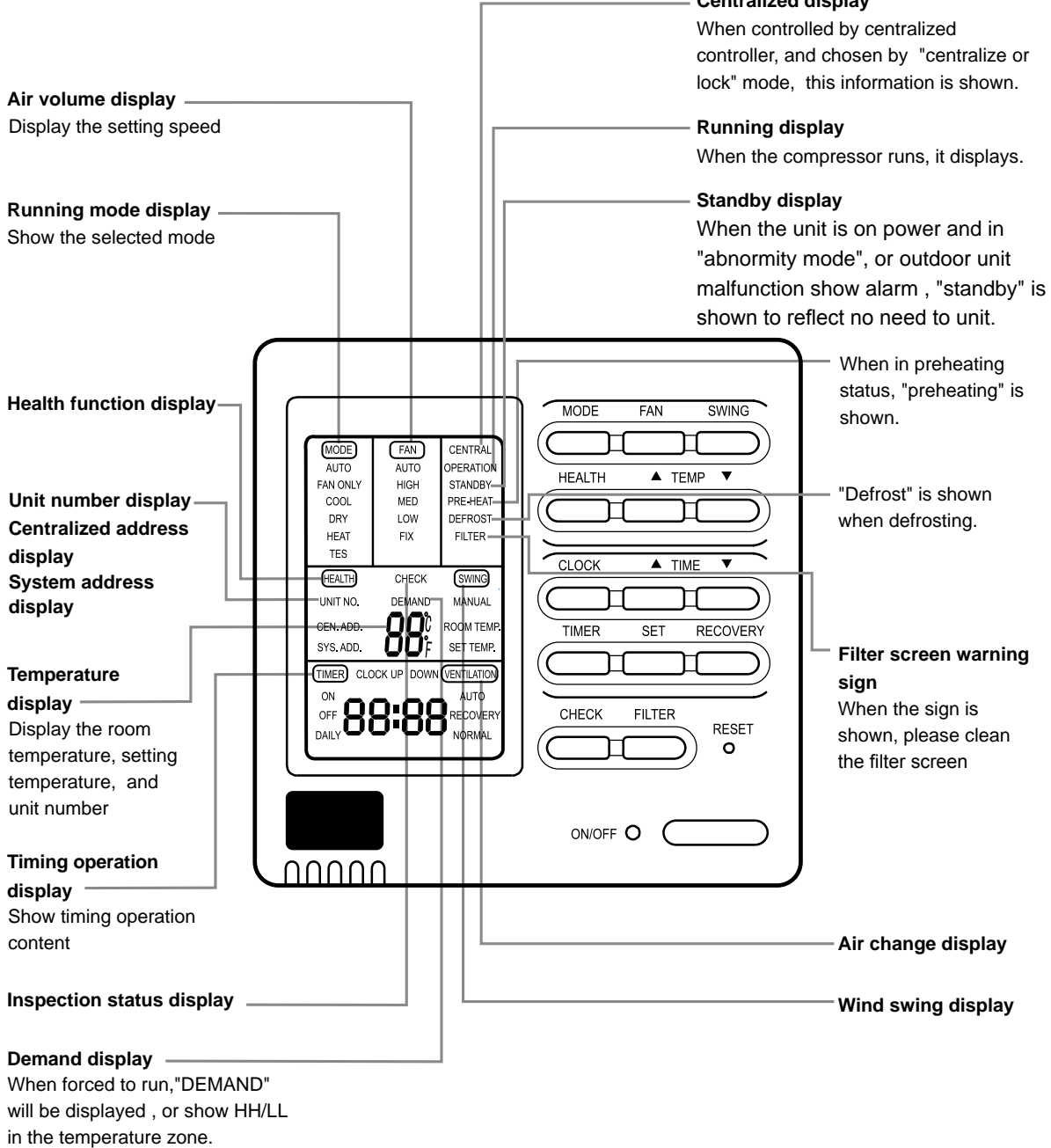
E outdoor unit

F refrigerant cylinder and manifold for charging

YR-E14

Parts and Functions

Display of the wire controller



Remarks

- The models in the manual don't have health, filter reset and Air change function.

Parts and Functions

Buttons of the wire controller

Mode switch

Choose running mode

Health switch

Used to control oxygen function and negative ion

Fan speed switch

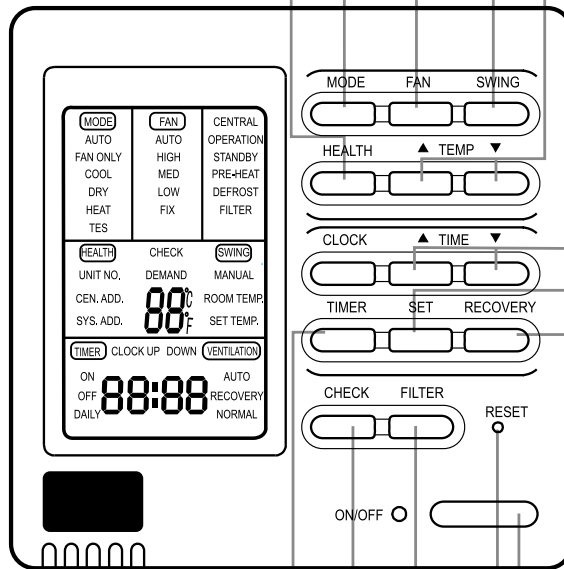
Change wind speed

Swing switch

Open and close air flap

TEMP switch

Used for changing set temperature



Time switch

It is used to regulate setting time.

Clock, timing and address setting

Air change switch

It is used to open and close air change function. The mode is as follows:
No display-air change (automatic)-
air change (RECOVERY)-air
change (NORMAL)

Timing switch

It is used for choosing timing running

Self-inspection switch

It is used for inspection service

Filter reset

After cleaning air inlet and filter, press this switch. The unit begins to run

ON/OFF switch

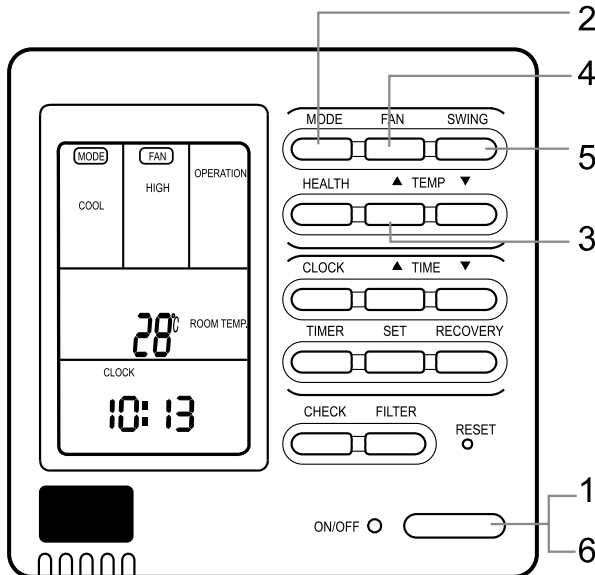
Do on and off function. The unit is on when pressing it; and is off when pressing it again.

Reset key

When in abnormal state, push the reset key with a spike, which may return the unit to normal

Operation

ON/OFF operation



2 Press ON/OFF switch on line controller directly
 4 The line controller displays the running state in the latest time (timing and swing state may not be displayed).

1. Press "ON/OFF" switch.
 The air conditioner starts operating, and the light on the wired controller is on.

2. Choose operation mode.
 Press "mode" switch to change to "AUTO"---"FAN ONLY"---"COOL"---"DRY"---"HEAT".

3. Press "TEMP" switch
 Change set temperature: press TEMP ▲ or TEMP ▼ every time, [SET] will display, and set temperature will increase/reduce 1°C

4. Press "FAN SPEED" switch
 FAN ONLY Operation:
 Press "FAN SPEED" switch to change to "HIGH"--"MED"--"LOW"--"HIGH"

In AUTO, COOL, DRY, HEAT Operation:
 Press "FAN SPEED" switch to change to "AUTO"--"HIGH"--"MED"--"LOW"--"AUTO"

5. Press "SWING" switch on the line controller to swing the wind screen.

6. Press "ON/OFF" switch, off.
 The light on the line controller is off.

Note

Several seconds after the operation of the line controller, the setting of the unit will change.

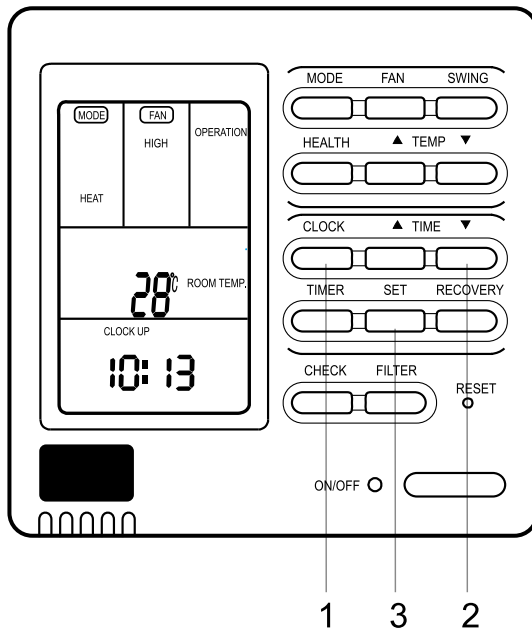
Remarks

- Avoid pressing "ON/OFF" switch frequently.
- Do not press line controller or switches by sharp objects.
- The temperature is on the basis of the setting value. The wind temperature may not reach the setting value because of the outer air conditioner and system protection.
- When the wired controller is power on, the screen fully displays it for two seconds. and clock zone "8888"--"888"--"88"--"8" flicker for 30 seconds. All the switches are invalid at the time.

Operation

Present time setting

- The timing is based on the real time. Thus, the real time should be regulated in advance.
- The clock regulation steps are as follows:



1. Press "CLOCK" switch

"CLOCK" flickers, and the time displayed is the real time.

2. Press "▲" and "▼" to regulate the time.

The time increases a minute each time you press "▲" switch.
The time decreases a minute each time you press "▼" switch.

3. Press "SET" switch. The setting is achieved.

Notes

- If not in timing, the screen displays the real time.
- If in timing, the screen displays the timing time.
- If you want to know the real time, go to the first step.

Setting of power failure compensation function

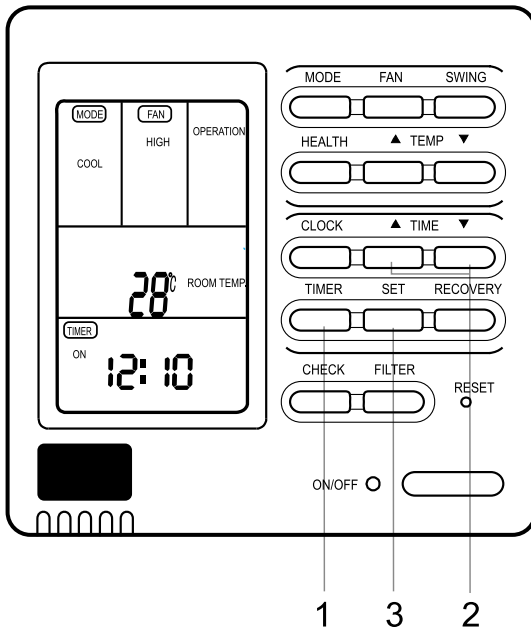
When SW1-6 on PCB of wire controller is OFF, it will be in power failure compensation. If the SW1-6 is ON, it has no compensation function.

When the power is on after blackout, the unit will return to the former state if compensation function is set. Otherwise, it will stop. When restarting the unit, press "ON/OFF" switch on wired controller.

Operation

Timing setting

- OFF timing: when a set time has elapsed, the unit stops running.
- ON timing: when a set time has elapsed, the unit starts.

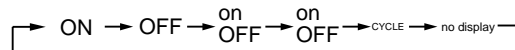


Press "ON/OFF" switch firstly, and set up operation mode. Please regulate the clock in advance before using the timing function.

1. Press "TIMER" switch.

1. Press "TIMER" switch.

The display changes with the following sequence:



2. Set up "TIMER"

When timing ON or timing OFF flickers, press "▲" or "▼" to regulate the time

Press "▲" or "▼" set up ON/OFF time.

The setting time increases ten minutes each time you press "▲" switch.

The setting time decreases ten minutes each time you press "▼" switch.

When setting timing ON and timing OFF at the same time, press "timing" switch to change the setting item.

3. Time setting is achieved. Press "setting" switch.

Cancel timing

If you want to change the timing mode to normal operation, press "timing" until there is no timing display. When the timing is invalid, the mode is in normal operation.

parts of wired controller explanation :

1. The unit starts or stops at the setting time. Meanwhile, it displays the timing time.
2. "ON Timing, OFF timing and circulation" means that the unit is on and off at the setting time everyday.

Note

- The shorter setting time will be carried out firstly.
- If the ON timing and OFF timing are the same, the setting is invalid.
- Even in timing condition, you may start or close the unit through pressing "ON/OFF" switch.

Operation

Query indoor malfunction history:

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

How to change the function switches?

No.	Type	State of switch	Function description
SW1-1	Select the master or the slave controller	ON	Set as the slave controller
		OFF	Set as the master controller
SW1-2	Select the controller mode	ON	Standard controller
		OFF	Air handler controller
SW1-3	Room temperature display option	ON	Visible room temperature
		OFF	Invisible room temperature
SW1-4	26° lock	ON	Unavailable 26° lock
		OFF	Available 26° lock
SW1-5	Temperature sensor position option	ON	Sensor of the controller
		OFF	Sensor in the unit
SW1-6	Auto restart	ON	Unavailable
		OFF	Available
SW1-7	Factory Setting	ON	Default setting
SW1-8	Factory Setting	OFF	Default setting

Note

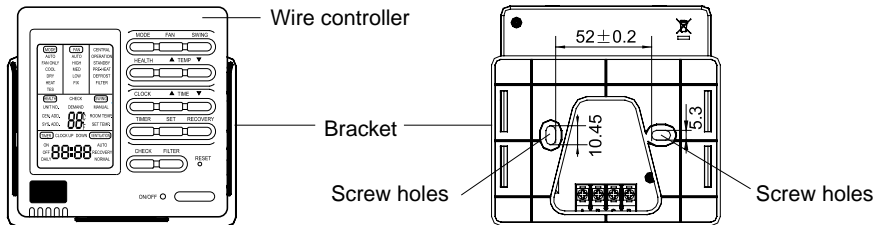
1. Switches or jumper wire must be adjusted when the wire controller is powered off. If the wire controller is powered on, the above operations will be invalid.

2. Function difference between master wire controller and slave one:

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

Installation Manual For Wire Controller

1. Take down wire controller from the holder



2. Install the controller holder

According to the position of 2 screw holes on the holder, drill 2 holes on the wall, and strike the wood stopper to the holes respectively.

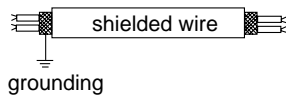
Then align the 2 screw holes of wired controller holder to the wood stopper, fix the holder on the wall with wood screw.

Note:

Try a wall as flat as possible for installation. Don't use excessive force to tighten screws, otherwise, the holder will be damaged.

3. Wiring instruction

Use shielded wire between indoor and wire controller. And be earthed on one side, or the unit will not work normally because of interference.



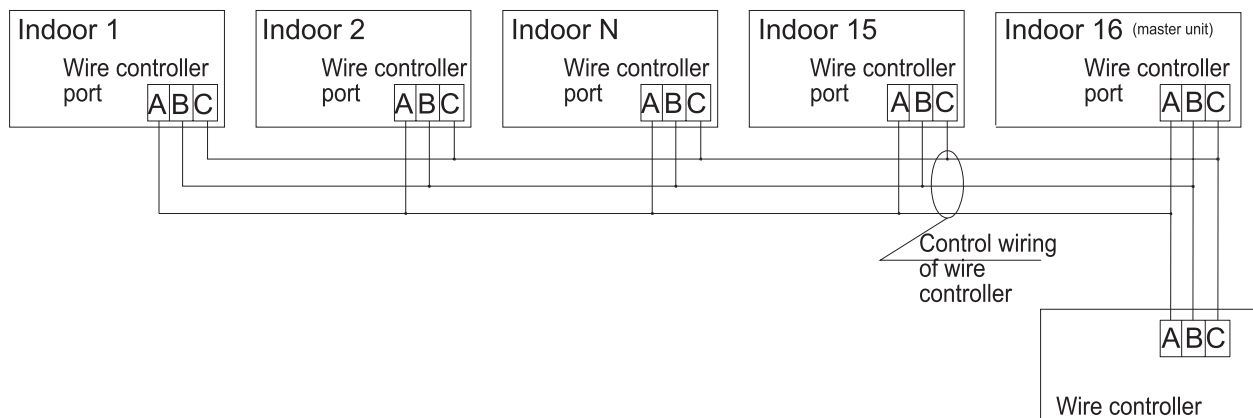
Note:

Confirm the terminal connection firmly, and do not get in touch with shielded wire. Don't touch the PC panel with your hands.

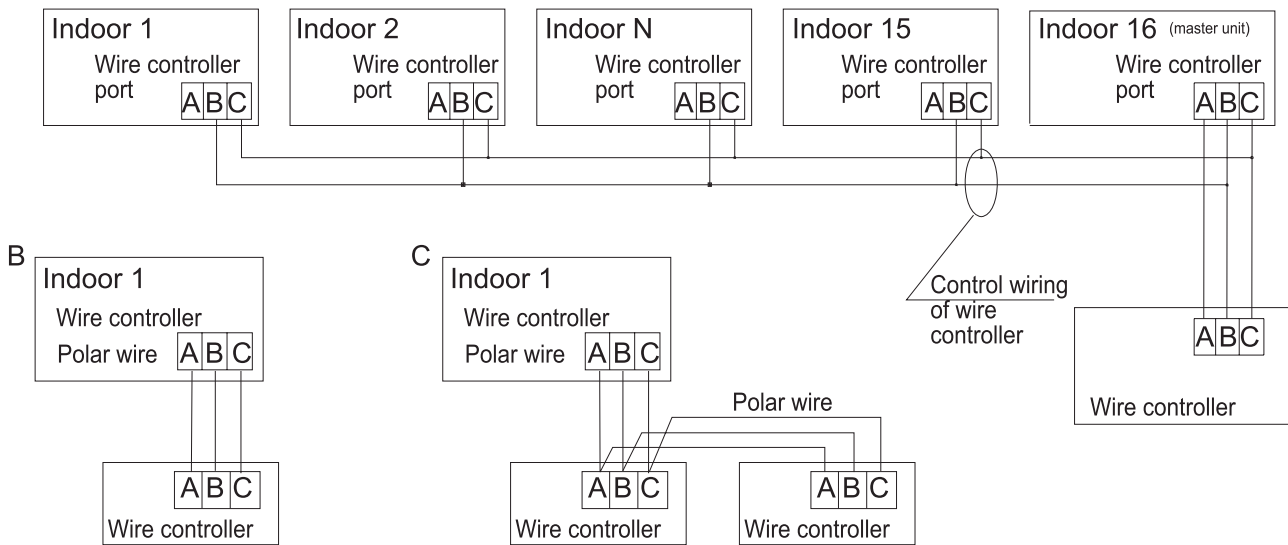
4. Place wire controller on the holder, and pay attention not to pressing any wires.

5. Wiring connections of wire controller:

A TYPE1: For AD09~24SS1ERA(N)(P) AD09~24SS1ERA(N) AD12/18MS1ERA AD12/18MS1ERA(D) AD24MS2ERA AD24MS2ERA(D)



TYPE 2: For other indoor units.



Installation Manual For Wire Controller

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

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

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

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

6. Communication wiring:

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

The communication wiring is 5 meter long; if the actual length is more than it, please distribute wiring according to below table:

Communication wiring length(m)	Dimensions of wiring
≤ 100	0.3mm ² x3-core shielded wire
≥ 100 and <200	0.5mm ² x3-core shielded wire
≥ 200 and <300	0.75mm ² x3-core shielded wire
≥ 300 and <400	1.25mm ² x3-core shielded wire
≥ 400 and <600	2mm ² x3-core shielded wire

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

USER'S MANUAL

Wired Controller

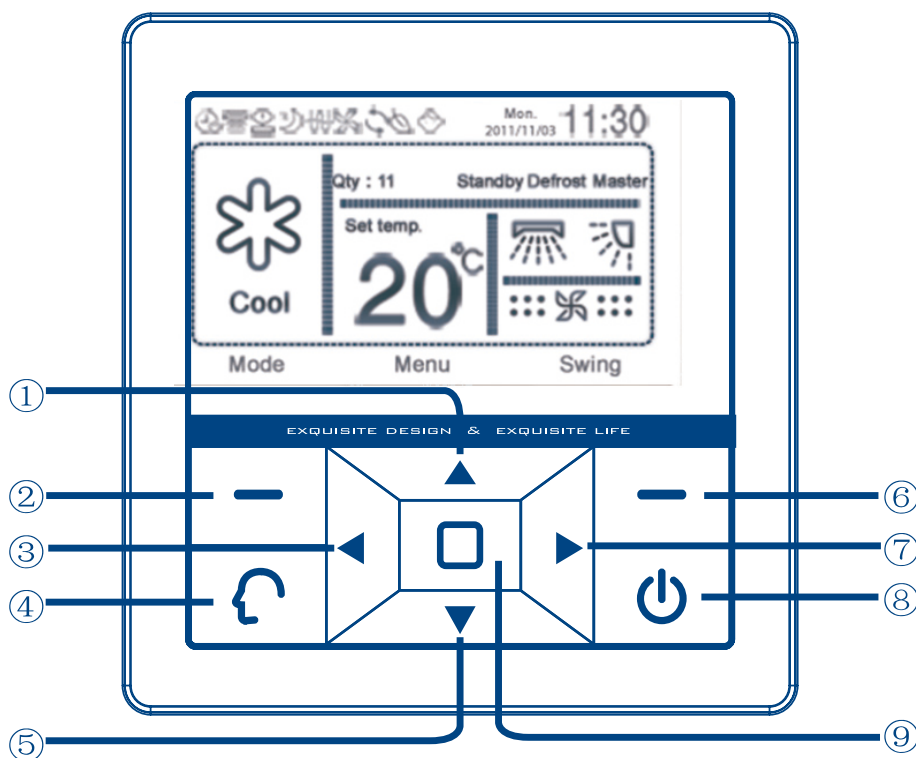
YR-E16



Read this manual before installation and operation
Make sure that it is well kept for later reference

Parts and Functions

•Key instructions for the wired controller



① Up direction key:

It provides temperature rise function in the mode switching interface; if this key is pressed in the menu interface, the cursor moves upward; It raises the numerical value when adjusting value.

② Left function key:

According to the function prompt above the key, it provides mode switching function in the mode interface and return function in the menu interface.

③ Left direction key:

It provides air speed switching function (when the right key is the swing key); it provides cursor leftward movement function in other interfaces.

④ Intelligent key:

In the main menu interface, press this key to initiate the intelligent work mode (excluding single cold mode and single heat mode and when there is no intelligent mode for indoor DIP switch setting.).

⑤ Down direction key:

It provides temperature drop function in the mode switching interface; if this key is pressed in the menu interface, the cursor moves downward; It reduces the numerical value when adjusting value.

⑥ Right function key:

According to the function prompt above the key, it provides swing on/off function or air speed (when both the left-right and up-down options are not selected in the air direction setting interface) switching in the mode interface; it provides the confirmation function in the menu interface and it provides the "Next step" function in the interface of "service Set -Password-Original password".

Parts and Functions

⑦ Right direction key:

It provides air speed switching function (when the right key is the swing key); it provides cursor rightward movement function in other interfaces.

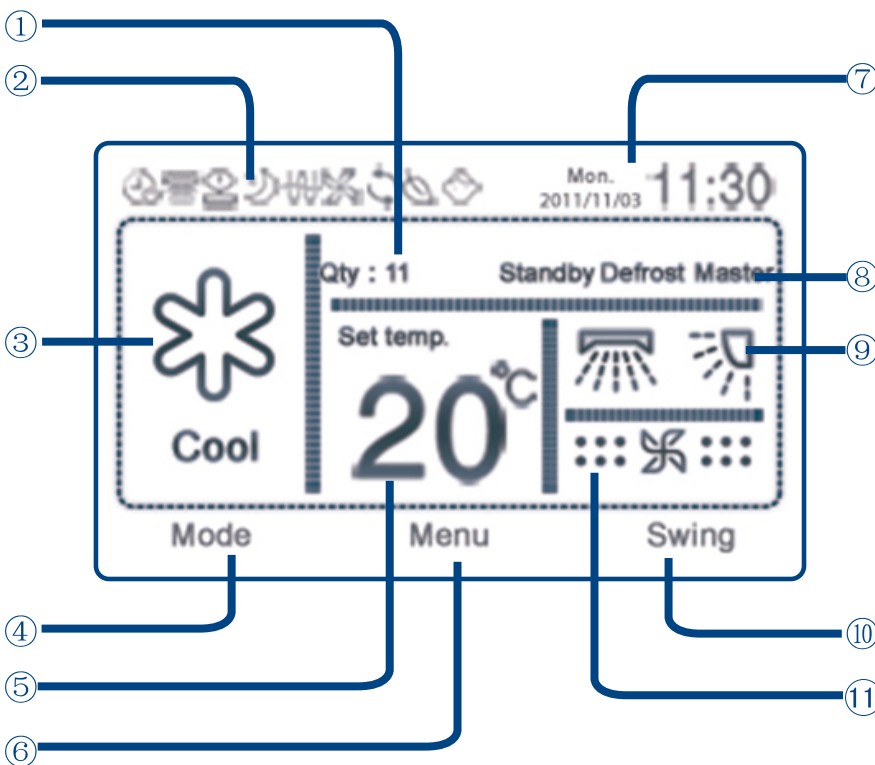
⑧ Startup & Shutdown key:

It provides startup and shutdown function. When in shutdown state, press this key to start it up; press the key again to shut it down.

⑨ Menu/main interface/input key:

It provides menu function in the mode interface; in the menu interface, it will enter the main interface; in the password interface, it functions as the characters input key referring to the prompting character above the key.

•Main interface display



① Online units display area:

It displays the number of the units controlled by one wired controller.

② Special function/fault icon display area:

Such as weekly timer, Swing, sleep, children lock, force, air exchange and energy conservation; each icon corresponds to a function; if a fault appears, the fault icon is displayed.

③ Mode display area:

Intelligent, heating, cooling, dehumidification and fan modes (the single cold mode has only cooling, dehumidification and fan modes; the single heat mode has only heating and fan modes; except when DIP switch of indoor unit has mode limit.)

④ Left function key function prompt area

Parts and Functions

⑤ **Set temperature display area:**

The range of adjustment is 16° to 30° (except when in the setting of energy conservation function).

⑥ **"Menu/main interface/input" key function prompt area:**

if any function is prompted here, press the menu/main interface/input to execute the prompted function

⑦ **Date and time display area.**

⑧ **Status indication area:**

Indication of the master/slave unit of the wired controller, filter screen cleaning prompt/defrosting status indication/forced defrosting issuance prompt, operation/standby status indication.

⑨ **Swing:**

Dynamic display during setting of swing (single swing, or both swings or no swing, depending on the set air direction)



















⑩ **Right function key function prompt area**

⑪ **Air speed display area:**

Automatic, weak air, moderate air, strong air; the fan mode has no automatic air

Parts and Functions

•Explanation of the icons of the wired controller




	Intelligent mode		Time setting
	Heating mode		Weekly timer
	Cooling mode		Sleep
	Dehumidification mode		Left-right swing
	Fan only mode		Up-down swing
	Energy conservation function		Swing function
	Fault		Air change
	Force		Children lock
	Mute		Health





•Display and adjustment of air speed

1. Default air speed upon initial energization

Mode	Cooling	Heating	Intelligent	Dehumidification	Fan
Air speed	Strong air	Weak air	Automatic air	Automatic air	Weak air

2. Press the "left-right"key to set air speed

Strong air:  Moderate air:  Weak air: 




Automatic:  →  →  →  i.e. automatic cyclic display in weak→moderate→strong→weak air.

3. In the fan mode, automatic air is unavailable. The other displays are the same with the above.



4. For some models, the right function key is the "air speed" key (i.e. the bottom right corner of the interface displays "speed", so air speed is adjusted using the right function key, instead of left-right direction key.

Operation

3. Time setting of timing switch

- A. After the timing items for week have been set, each group of set timing information displays 5 seconds cyclically; when it is displayed in the timing information group, press the "Downward"key to initiate the time setting of the timing switch of the current group;
- B. The cursor is flickering where it stays; when the right function key, as an "Enter"key, is pressed, the cursor becomes static, which indicates that it is in the adjustment state; press the upward-downward key to adjust the time and temperature. After adjustment of time and temperature, move the cursor leftward and rightward to confirm the time and temperature.
- C. For adjustment of time, keep the "Upward"key or "Downward"pressed down for 5s, the clock change will accelerate, with acceleration frequency of 10times/s.
- D. During flicker of the cursor, move upward, downward, leftward or rightward to select the circle below; use the right function key, as an "Enter"key, to confirm or cancel the setting;  represents setting valid and  represents setting invalid.
- E. If  is present in a timing item containing week, this means the corresponding timing information is valid.

4. Deletion of timing information

If, in a "Weekly timer"interface, the cursor is at " "press the leftward-rightward key to select ""; then press "Enter"key to pop out the window as shown in Figure 4. Then press the left key or right key to delete or retain the timing information.

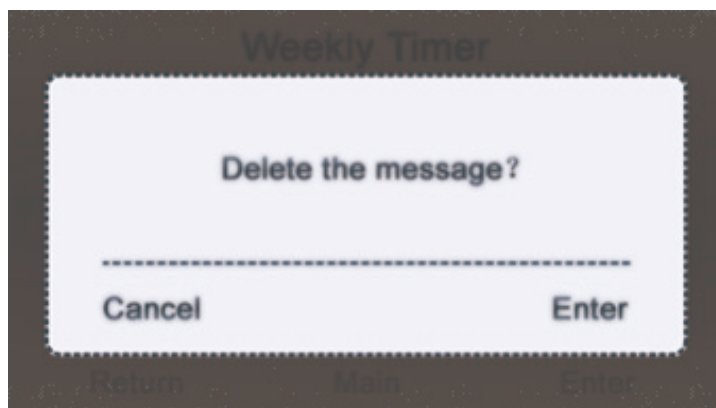


Figure 4

5. Timing switch on/off conflict prompt: if the timing has been set in such a way that timing on/off setting conflicts occur at the same time on the same day, those shown in Figure 5 will pop out.

Note: In the time setting state of week timing(cursor still), if no order input for 1 minute, screen saver will be activated and it will automatically return to main interface; In which state, non-conflicting orders are effective and otherwise no interface popping out; Latter input conflicting orders are ineffective with NON-SET state displaying

Operation



Figure 5

6. Prior to setting of weekly timer, please make time setting through main interface→ Menu→ Time interface.

7. The slave unit of the wired controller has no setting of weekly timer.

8. Weekly timer setting done, it needs to exit the weekly timer interface to execute the order.

•Current clock setting

1. Proceed through main interface→Menu→Time→"Enter" key to enter, which is shown in Figure 6,

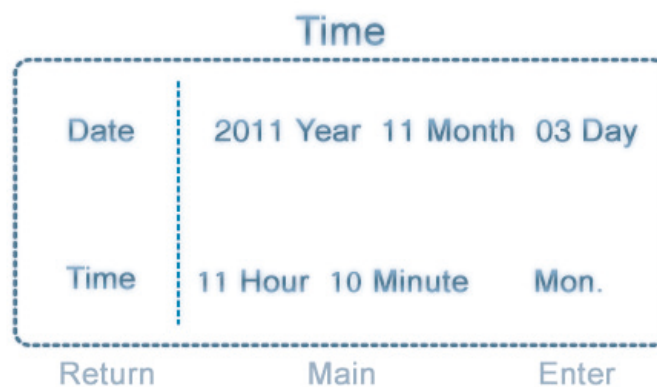


Figure 6

2. Default setting starts with the "Year" value, press the "Rightward key" to select "Year"-Month→"Day"→"Hour"→"Minute"→"Week"; or press the "Leftward key" to select "Week"→"Minute"→"Hour"→"Day"→"Month"→"Year"

3. When the time to be changed has been selected, press the "Upward key" or "Downward key" to adjust the time;

4. After all the times have been adjusted, press "Enter" key to complete the setting.

Operation

•Service setting

1. Proceed through main interface→Menu→Other→enter password→press "Enter"key→Service Set→press "Enter"key to initiate the setting, which is shown in Figure 7.

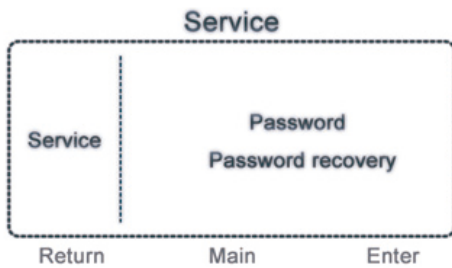


Figure 7

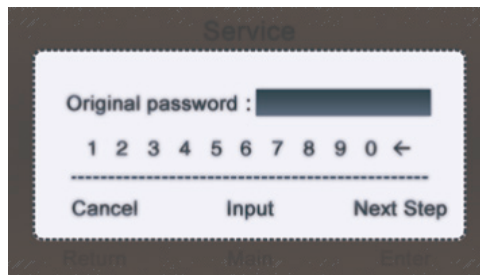


Figure 8

2. Password setting

A. Common users are provided with a four-digit password which is initially 1234; high-class users are provided with a six-digit password 841226 which can be operated by the technical personnel only.

B. Press the "Upward"key or "Downward"key to select "Password" and press "Enter"key to initiate password setting, which is shown in Figure 8. Password setting is intended for changing only the password of a common user.

C. Press the "Leftward"key and "Rightward"key to select in the line of numbers; press the "Input"key to fix the selected numbers in the password box. When password entry is completed, press the right key to proceed with "Next step" If the original password is input incorrectly, a window prompting "Wrong password" will pop out as shown in Figure 9. Press "Enter" or "Cancel" in this window to return to the figure 8.

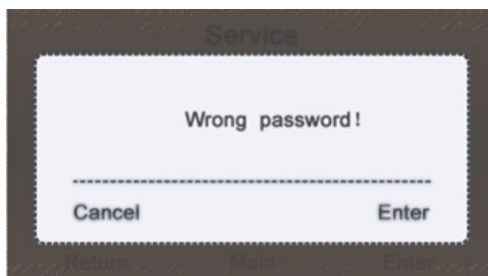


Figure 9



Figure 10

D. If the "Original password" is entered successfully, a window will pop out as shown in Figure 10 prompting "New password? enter the password in the same way as described above and then press "Enter"key again to confirm successful setting of new password or press "Cancel" key to cancel the password setting.

Operation

E. If the new password has been set successfully, a window prompting "New password set Successfully!", as shown in Figure 11 will appear; press "Enter" or "Cancel" to return to the previous menu

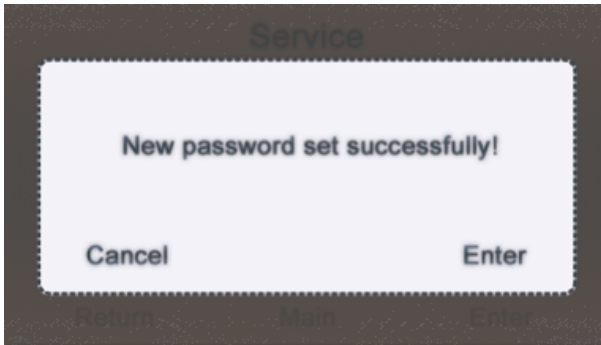


Figure 11

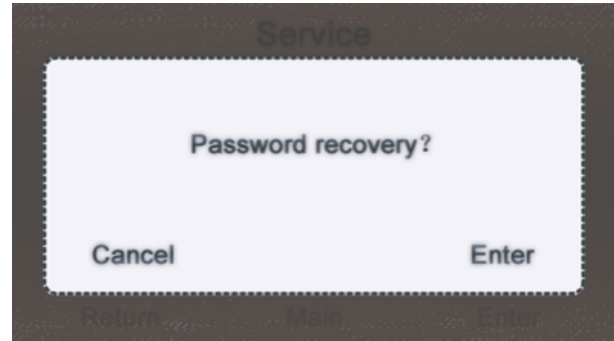


Figure 12

3. Restore the initial password

A. Select "Password recovery" as shown in Figure 7 and then press "Enter" key to enter the interface as shown in Figure 12; press the left key "Cancel" or the right key "Enter" to cancel this operation or confirm restoration of the initial password.

B. This operation here is used for restoring only the password of a common user

•Fault code query:

Proceed through main interface→Menu→Other→enter password→press "Enter" key→Error code→enter 14. The password entry interface is shown in Figure 13 and the entry method is the same as password setting.

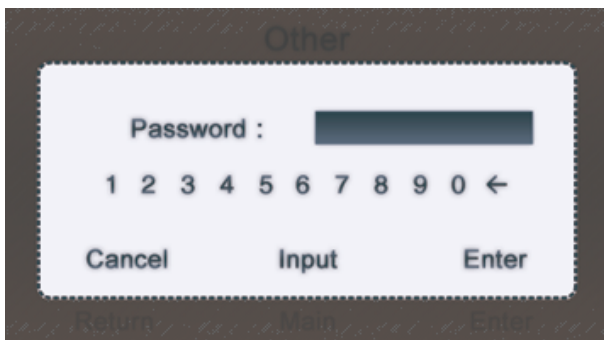


Figure 13

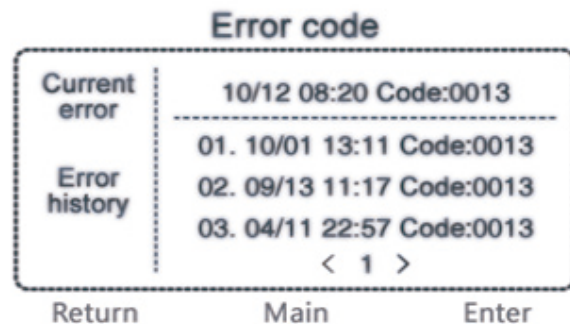


Figure 14

1. Use the "Leftward" key and "Rightward" key to check the fault codes inside the unit; where <1> can be 1 to 16, which is the address code within the wired controller group.

2. In the current interface, keep both the "Left" key and "Right" key pressed down for 5 seconds to clear the historic faults record.

Operation

3. A common user can view the current faults and historic faults; a high-class user can view 10 historic faults, using the "Downward" key and "Upward" key. If a common user presses the "Downward" key, a window as shown in Figure 15; a high-class user can enter his/her password to view ten historic faults.

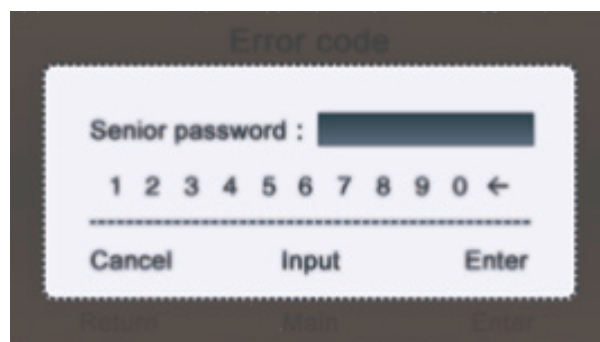


Figure 15

•Air direction setting

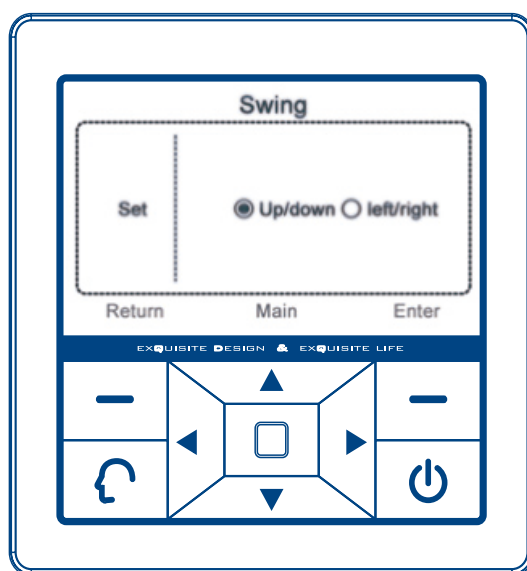


Figure 16

1. Proceed through main interface→Menu→Swing→press "Enter" key; the default air direction is up/down. If a left/right air deflector is being controlled, the "Left/right" option can be selected.
2. If only the left/right direction is selected when setting the swing function, only the left/right air deflector will swing; if only the up/down direction is selected when setting the swing function, only the up/down air deflector will swing; if both the left/right direction and up/down direction are selected, both the left/right air deflector and up/down air deflector will swing (for different models, some units have only the left/right air deflector or up/down air deflector; the setting needs to be made consistent with the specific model).
3. ● Indicates "Selected" ○ indicates "Unselected"?
4. If both the up/down direction and left/right direction are not selected, the bottom right corner of the main interface will display the air speed; Use the right key to switch the air speeds.

Operation

•Sleep setting

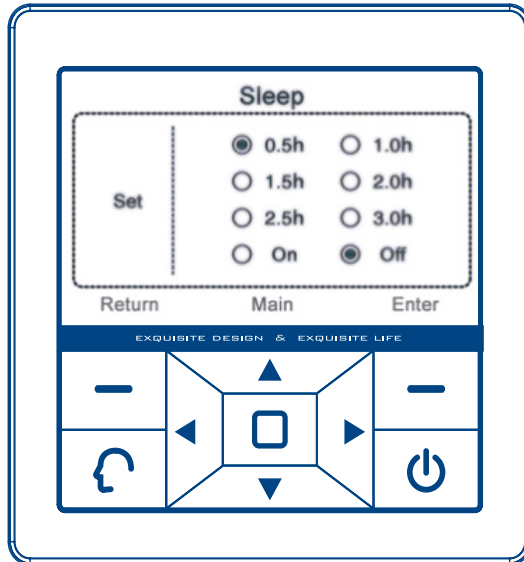


Figure 17

1. Proceed through main interface→Menu→Sleep→press "Enter" key to initiate this mode; The default state is shutdown.
2. Use the up ,down, left and right keys to adjust the cursor; The location where the cursor stays has the circle flickering; press the "Enter" key to select the time and switch between on/off.
3. The selected time 0.5, 1, 1.5, 2, 2.5 and 3 mean that the wired controller will shut down in 0.5/1/1.5/2/2.5/3 hours from time setting.
4. If the sleep mode has been set, the main interface will have the sleep icon.
5. Prior to setting of sleep mode, please make the time setting, so that the time can be consistent with the current actual time.
6. The slave unit of the wired controller has no setting of sleep setting.
7. If wired controller is powered off, sleeping function is "OFF"; Reset the function if needed.

Operation

• Unit number setting

(This function is intended for debugging by technical personnel. The wired controller No. with no permission of address setting by indoor DIP switch setting displays grey, with access to checking and no access to changing the communication No.)

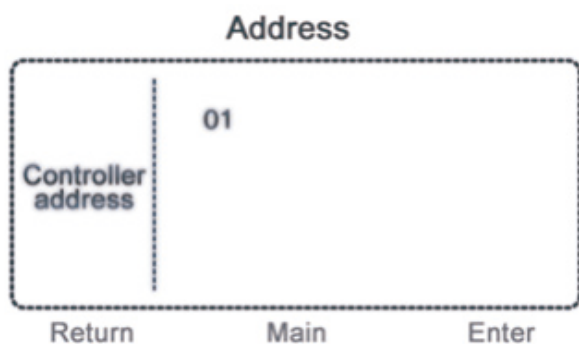


Figure 18

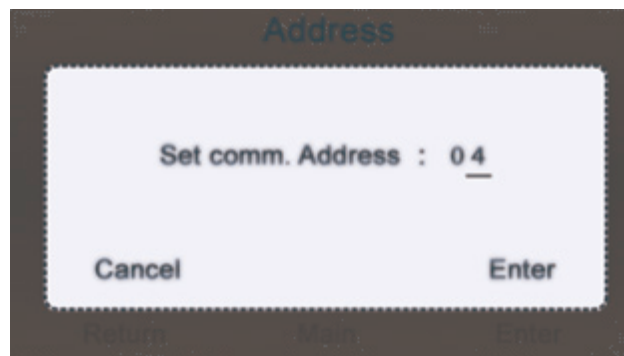




Figure 19

1. Proceed through main interface→Menu→Other →enter the password of the technical personnel→press "Enter" key→Addressing→press "Enter" to enter the interface as shown in Figure 18.
2. Wired controller number, as shown in Figure 18, is set by DIP switch of indoor unit. If one wired controller controls one unit, there is only 01; it displays the unit numbers corresponding to the indoor units in operation.
3. When in the interface as shown in Figure 18, if there are more than one wired controller numbers, use the "Upward" "Downward" "Leftward"and "Rightward" keys to select a unit number and press "Enter" key; Then the POP window as shown in Figure 19 will appear.
4. When the window in Figure 19 has popped out, the communication unit number of this controller can be set (communication addresses between the outdoor unit and indoor unit) 1-64; use the leftward and rightward keys to adjust the unit digits and tens digits and use the upward and downward keys to adjust the values on the corresponding digits; then press "Enter" or "Cancel" to return to the interface as shown in Figure 18.
5. The controller address equals the corresponding value of indoor unit's group address dial code plus 1.

• Mode lock setting

1. Proceed through main interface→Menu→Other →enter password→Mode→press "Enter" key. The default state is "Normal".
2. In single cold mode, only cooling, dehumidification and fan modes can be executed and the intelligent key is ineffective. In single heating mode, only heat and fan modes can be executed and the intelligent key is ineffective. In normal mode, the heating, cooling, dehumidification, fan and intelligent modes can be executed.
3. The location where the cursor stays has the circle flickering; use the leftward and rightward keys to adjust the cursor; press the cursor where it stays to select ; indicates "Selected" and  indicates "Unselected"

Operation

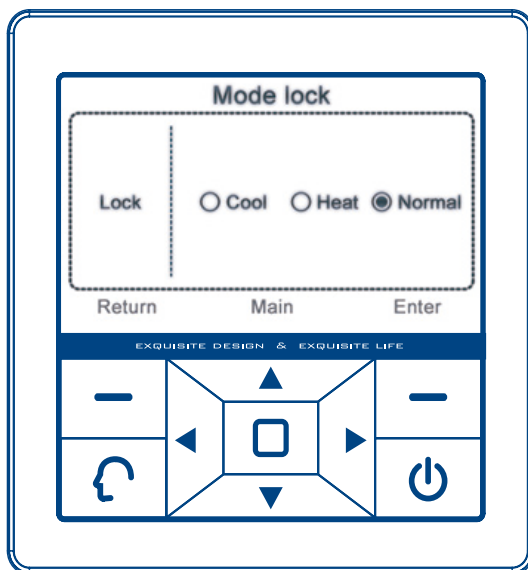


Figure 20

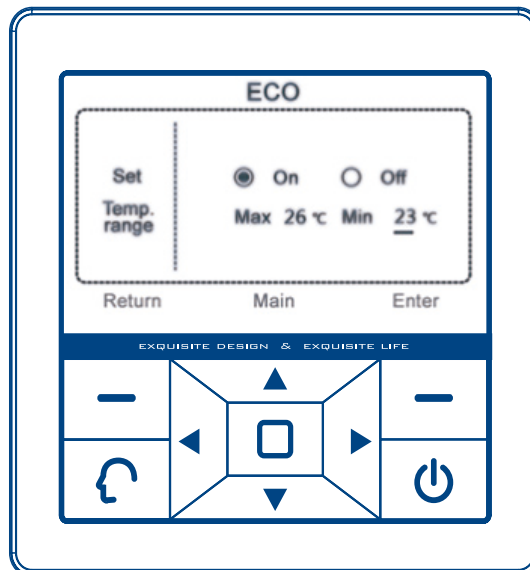




Figure 21

• Mode lock setting


1. Proceed through main interface → Menu → ECO → press the "Enter" key to initiate. The default state is shutdown.
2. Upper temperature limit --- the maximum temperature value that can be set for heating mode;
Lower temperature limit --- the minimum temperature value that can be set for cooling/dehumidification mode.
3. Use the leftward and rightward keys to adjust the cursor; the circle flickers where the cursor stays; indicates "Unselected" press "Enter" and it will change to  which indicates "selected".
4. When "Off" is selected, temperature setting is not constrained by energy conservation setting; The range of temperature adjustment is 16* to 30*; if "On" is selected, temperature setting is constrained with energy conservation setting.
5. When it has been adjusted to the values corresponding to "Upper limit" or "Lower limit" using leftward and rightward keys, an underline will appear below the temperature value and now the "Upward" and "Downward" keys can be used to adjust the temperature; the maximum and minimum temperature values are 16°C and 30°C.
6. If energy conservation is on, the main interface will display the icon  for energy conservation.

Operation

• Additional functions



Figure 22

1. Proceed through main interface→Menu→Addition→press "Enter" key to initiate. The default state is shutdown.
2. Ventilation: Some models have the air ventilation and some models do not. For those models that do not have this function, the ventilation setting will not be usable.
3. Health: Some models have the health function and some models do not. For those models that do not have this function, the health setting will not be usable.
4. Quiet: Some models have the quiet function and some models do not. For those models that do not have this function, the quiet setting will not be usable.
5. Turbo: Some models have the turbo function and some models do not. For those models that do not have this function, the turbo setting will not be usable.
6. When the children lock is on, it automatically returns to the main interface and all the keys are unusable. The main interface displays the icon  for children lock; keep both the leftward and rightward keys pressed down for 5 seconds and the children lock icon will disappear, and now the children lock is disengaged and all the keys are usable.
7. O/D defrost is effective in the heating mode; The O/D defrost command is sent to indoor unit.

Note: for some models, the turbo and quiet functions are reserved functions and are in grey color.

• Special parameters

This function is a reserved function and is temporarily in color grey

• Filter screen cleaning

1. If the state indication area of the main interface displays "filter " filter cleaning shall be performed.
2. When "filter" is being displayed, keep both the upward and downward keys pressed down for 5 seconds to cancel the "filter"icon.

• Temperature compensation

(this function is intended for debugging by technical personnel and can only be entered by high-class users)

Operation

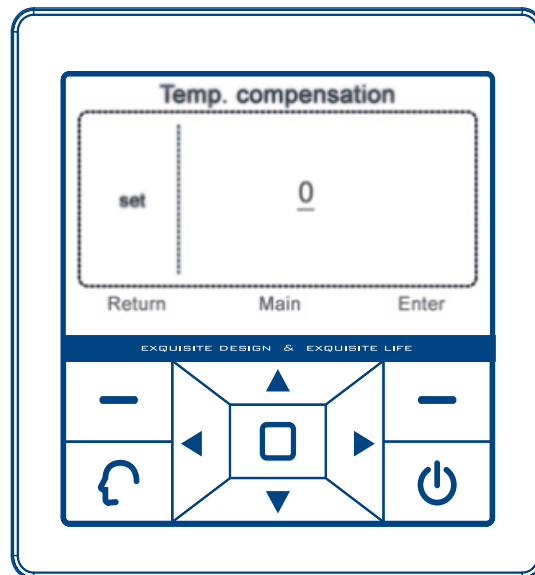


Figure 23

1. Proceed through main interface→Menu→Other→enter the high-class user password→Temp. Compensation→press "Enter" to initiate.
2. When in this interface, use the upward and downward keys to set the temperature value; the range of Celsius degrees is -4°C to 4°C ; the default value is 0; the range of Fahrenheit degrees is -7 to +7. Pressing "Enter" value change is done; If pressing "Return" original value is retained.

• Additional functions

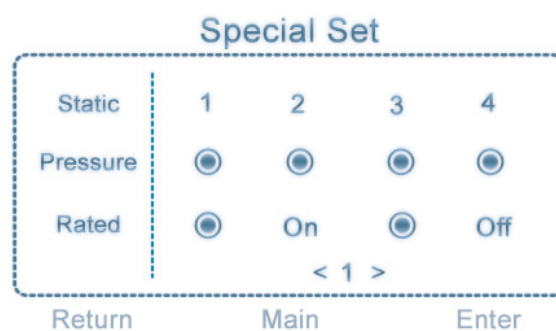


Figure 24

1. Special set is only effective to some types, with order ineffective if no such function equipped in the corresponding indoor units.
2. When powered on, the default static pressure grade is 1 and no rated value displayed; when communication stabilized (about 3 minutes later), static pressure and rated state can be checked.
3. Press up/down key to switch among Static pressure, rated value, wired controller group No.; press left/right key to move the cursor in every line and then press OK key to confirm the setting.

Operation

4. The circle flashes where the cursor locates when choosing static pressure and rated value; if the cursor moves to wired controller group No. location, the No. will be underlined and the range of No. is 1-16.

• Detailed information

(the common user password is required for access)

1. Proceed through main interface→Menu→other→enter the password→Details→press "Enter" to initiate.
2. 063 is the address of the wired controller inside the group; if one unit is controlled by one wired controller, the default address is 01; the range of this value is 01 to 16; the Indoor address is the communication address of both indoor unit and outdoor unit, ranging from 1 to 64.
3. The wired controller address equals the corresponding value of indoor unit's group address dial code plus 1.

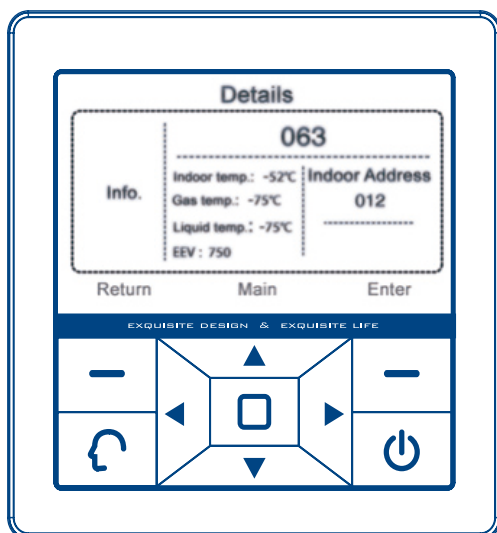


Figure 25

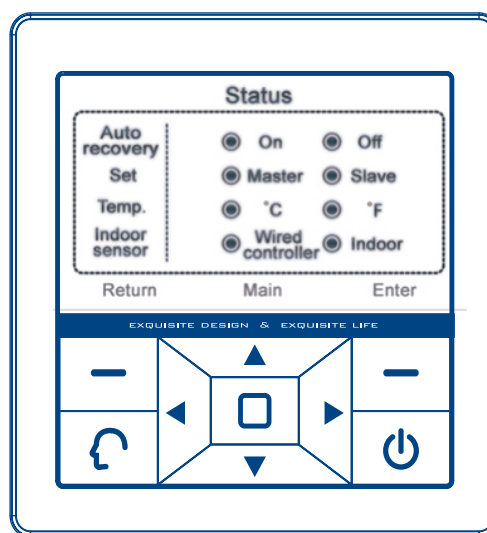





Figure 26

• State setting

(this function is intended for debugging by technical personnel and can be entered by high-class users only)

1. Proceed through main interface→Menu→Other→enter the high-class user password→Status set→press "Enter" to initiate.
2. Use the upward, downward, leftward and rightward keys to adjust the cursor; the location where the cursor stays has the circle flickering; press "Enter" key to change it to , and the setting is completed.  indicates "Selected" and  indicates "Unselected"
3. Auto recovery: if this function is on, the state before power failure will be in the memory; after restoration of power failure, the unit will continue operating in the state as before the power failure. If this function is off, the state will not be memorized; if the unit is energized after power failure, it is in shutdown state; after startup, the default mode is in automatic mode as automatic air 24*. If the auto recovery is set to be on and the sleep function is also set, in case of accidental power failure, the unit is in shutdown state when the power supply is resumed.
4. Master/slave setting: This setting is used for master/slave control of the wired controller and the master controller and slave controller are set separately.
5. Unit of temperature: Temperature is set in the units of Celsius degree and Fahrenheit degree.

Operation

6. Indoor sensor: Set the temperature source collection for ambient temperature sensor.

Differences between the function of the master wired controller and slave wired controller:


Comparison item	Master wired controller	Slave wired controller
Function	All functions	1. Air direction setting, time setting, mode lock, indoor sensor, auto recovery and ECO shall be consistent with the master wired controller. 2. Weekly timer, sleep setting, addressing, special set and temp. compensation are in grey color and are not operable.


Screen saver:



If there is no operation for one continuous minute, the luminance of the wired controller will be reduced to protect the screen and save energy. Press any key to terminate the function of screen saver and recover the pre-existing luminance.

The handling of Centralization/Lock mode:

If central controller is connected in the AC system,

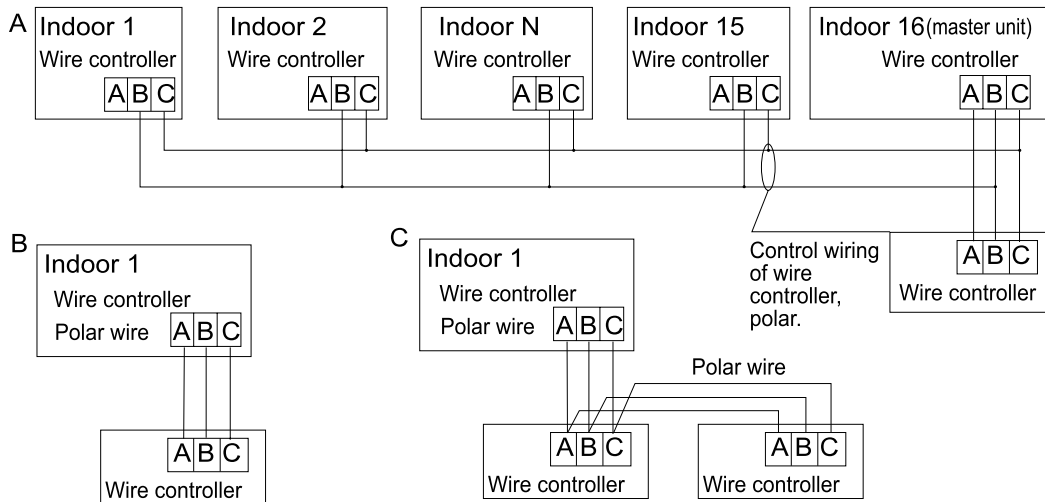
1. If there displays the icon of  in the main interface, the centralization mode is activated in the central controller in which only startup/shutdown keys can be operated and other keys are inoperable. If there is no operation for one continuous minute, the screen saver function will be initiated with the luminance of the wired controller reduced. Press any key to recover the pre-existing luminance.

2. If there displays the icon of  in the main interface, the lock mode is set in the central controller with no keys operable. If there is no operation for one continuous minute, the screen saver function will be initiated with the luminance of the wired controller reduced. Press any key to recover the pre-existing luminance.

If  or , weekly timer and sleep setting is invalid.

Operation

• Wiring connections of wire controller:



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

- A. One wired controller can control max. up to 16 sets of indoor units, and 3 pieces of polar wire must connect the wire controller and the master unit (the indoor unit connected with wire controller directly), the others connect with the master unit through 2 pieces of polar wire.
- B. One wire controller controls one indoor unit, and the indoor unit connects with the wire controller through 3 pieces of polar wire.
- C. Two wired controllers control one indoor unit. The wire controller connected with indoor unit is called master one, the other is called slave one. Master wire controller and indoor unit; master and slave wire controllers are all.

Note: For some slim duct type and middle ESP duct type (The PCB spare part number of which is 0151800175 or 0151800173), there will be a different wiring method, please refer to the service manual to get the wiring details.

• Communication wiring:

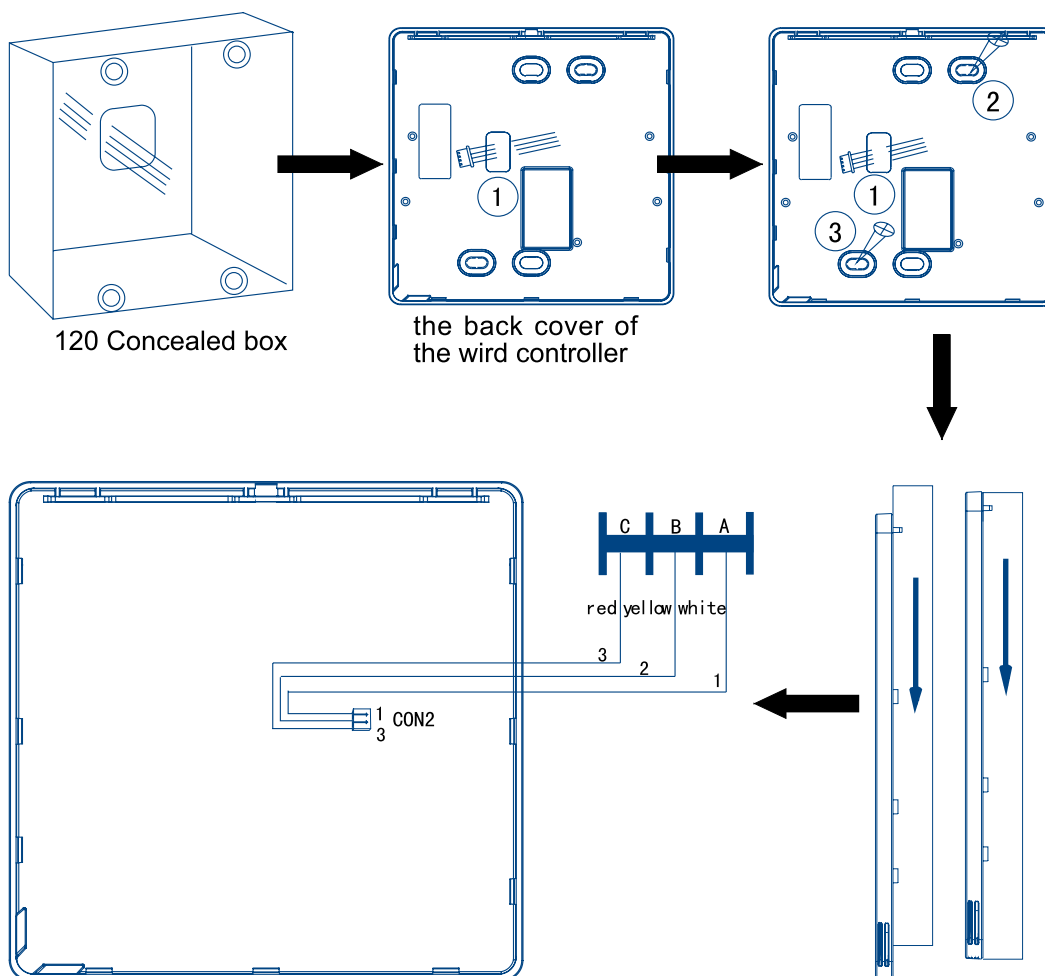
Communication wiring length(m)	Dimensions of wiring
< 100	0.3mm ² x3-core shielded wire
≥ 100 and <200	0.5mm ² x3-core shielded wire
≥ 200 and <300	0.75mm ² x3-core shielded wire
≥ 300 and <400	1.25mm ² x3-core shielded wire
≥ 400 and <500	2mm ² x3-core shielded wire

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

Installation Of Wire Controller

• Installation of wire controller:

1. Pass the communication cable through the hole of the concealed box.
2. Pass the cable through the back cover of the wired controller at the place No.1.
3. Mounted the back cover on the concealed box by screws.
4. Plug the terminals of the communication cables on the corresponding connectors, and slide the front cover of the wire controller from up to down, then fixed.
5. White wire, connected to indoor A, Yellow wire, connected to indoor B, Red wire, connected to indoor C



Haier SERVICE MANUAL

Wall Mounted Type DC Inverter SUPER MATCH Model No. AF09AB1HRA AF09AS1ERA



WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or Repair the product or products dealt with in this service information by anyone else could result in serious injury or death

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Haier Group

Version: V1

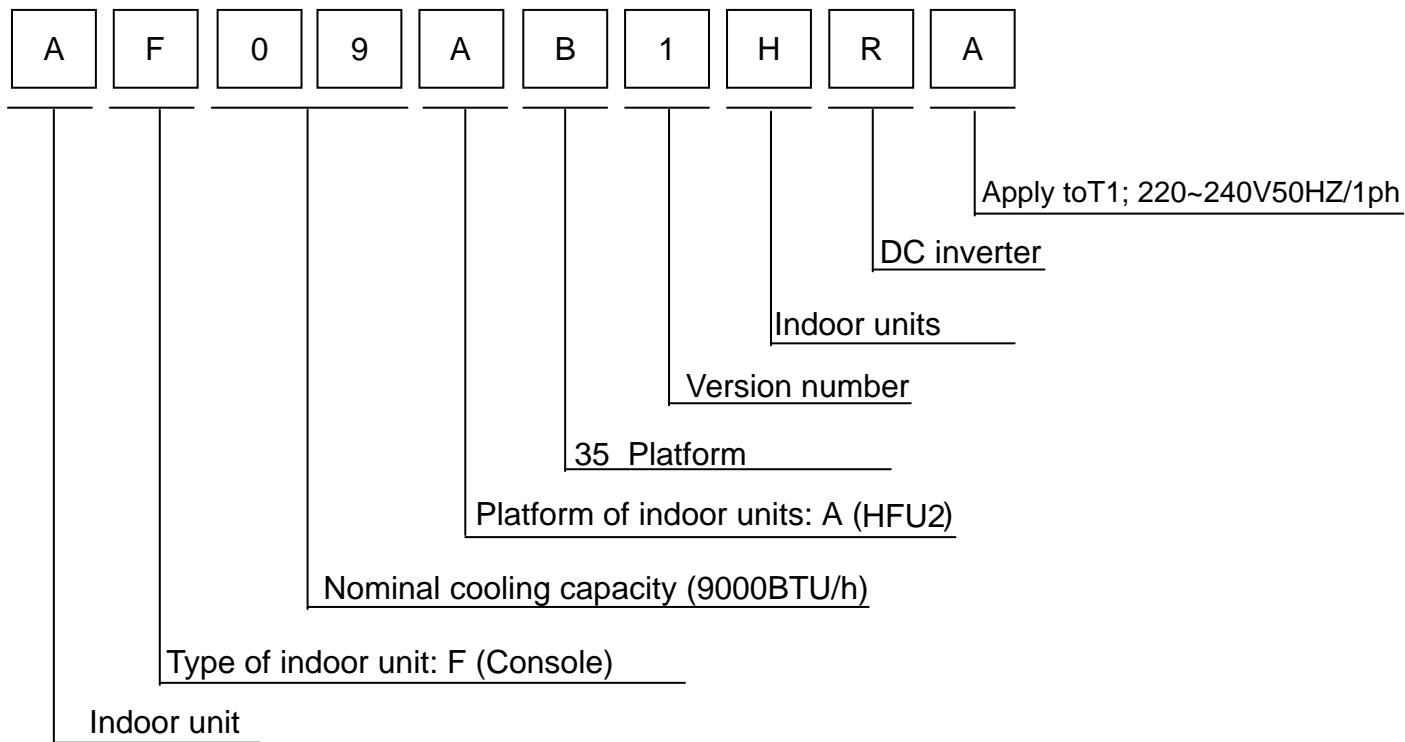
Date: 2013-11-25

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1 Introduction

1.1 Model name explanation



1.2 Safety Cautions

Be sure to read the following safety cautions before conducting repair work.

The caution items are classified into “Warning” and “Caution”. The “Warning” items are especially important since they can lead to death or serious injury if they are not followed closely. The “Caution” items can also lead to serious accidents under some conditions if they are not followed. Therefore, be sure to observe all the safety caution items described below.

About the pictograms

△ This symbol indicates an item for which caution must be exercised.

The pictogram shows the item to which attention must be paid.

○ This symbol indicates a prohibited action.






The prohibited item or action is shown inside or near the symbol.







● This symbol indicates an action that must be taken, or an instruction.

The instruction is shown inside or near the symbol.

After the repair work is complete, be sure to conduct a test operation to ensure that the equipment operates Normally, and explain the cautions for operating the product to the customer.



1.2.1 Caution in Repair


Warning	
<p>Be sure to disconnect the power cable plug from the plug socket before disassembling the equipment for a repair.</p> <p>Working on the equipment that is connected to a power supply can cause an electrical shock.</p> <p>If it is necessary to supply power to the equipment to conduct the repair or inspecting the circuits, do not touch any electrically charged sections of the equipment.</p>	
<p>If the refrigerant gas discharges during the repair work, do not touch the discharging refrigerant gas. The refrigerant gas can cause frostbite.</p>	
<p>When disconnecting the suction or discharge pipe of the compressor at the welded section, release the refrigerant gas completely at a well-ventilated place first.</p> <p>If there is a gas remaining inside the compressor, the refrigerant gas or refrigerating machine oil discharges when the pipe is disconnected, and it can cause injury.</p>	
<p>If the refrigerant gas leaks during the repair work, ventilate the area. The refrigerant gas can generate toxic gases when it contacts flames.</p>	
<p>The step-up capacitor supplies high-voltage electricity to the electrical components of the outdoor unit.</p> <p>Be sure to discharge the capacitor completely before conducting repair work. A charged capacitor can cause an electrical shock.</p>	
<p>Do not start or stop the air conditioner operation by plugging or unplugging the power cable plug.</p> <p>Plugging or unplugging the power cable plug to operate the equipment can cause an electrical shock or fire.</p>	

Warning	
Do not repair the electrical components with wet hands . Working on the equipment with wet hands can cause an electrical shock	
Do not clean the air conditioner by splashing water. Washing the unit with water can cause an electrical shock.	
Be sure to provide the grounding when repairing the equipment in a humid or wet place, to avoid electrical shock.	
Be sure to turn off the power switch and unplug the power cable when cleaning the equipment. The internal fan rotates at a high speed, and cause injury.	
Do not tilt the unit when removing it. The water inside the unit can spill and wet the furniture and floor.	
Be sure to check that the refrigerating cycle section has cooled down sufficiently before conducting repair work. Working on the unit when the refrigerating cycle section is hot can cause burns.	
Use the welder in a well-ventilated place. Using the welder in an enclosed room can cause oxygen deficiency.	



1.2.2 Cautions Regarding Products after Repair


Warning	
Be sure to use parts listed in the service parts list of the applicable model and appropriate tools to conduct repair work. Never attempt to modify the equipment. The use of inappropriate parts or tools can cause an electrical shock, excessive heat generation or fire.	
When relocating the equipment, make sure that the new installation site has sufficient strength to withstand the weight of the equipment. If the installation site does not have sufficient strength and if the installation work is not conducted securely, the equipment can fall and cause injury.	
Be sure to install the product correctly by using the provided standard installation frame. Incorrect use of the installation frame and improper installation can cause the equipment to fall, resulting in injury.	For integral units only
Be sure to install the product securely in the installation frame mounted on a window frame. If the unit is not securely mounted, it can fall and cause injury.	For integral units only


Warning	
<p>Be sure to use an exclusive power circuit for the equipment, and follow the technical standards related to the electrical equipment, the internal wiring regulations and the instruction manual for installation when conducting electrical work.</p> <p>Insufficient power circuit capacity and improper electrical work can cause an electrical shock or fire.</p>	
<p>Be sure to use the specified cable to connect between the indoor and outdoor units. Make the connections securely and route the cable properly so that there is no force pulling the cable at the connection terminals.</p> <p>Improper connections can cause excessive heat generation or fire.</p>	
<p>When connecting the cable between the indoor and outdoor units, make sure that the terminal cover does not lift off or dismount because of the cable.</p> <p>If the cover is not mounted properly, the terminal connection section can cause an electrical shock, excessive heat generation or fire.</p>	
<p>Do not damage or modify the power cable.</p> <p>Damaged or modified power cable can cause an electrical shock or fire. Placing heavy items on the power cable, and heating or pulling the power cable can damage the cable.</p>	
<p>Do not mix air or gas other than the specified refrigerant (R-410A / R22) in the refrigerant system.</p> <p>If air enters the refrigerating system, an excessively high pressure results, causing equipment damage and injury.</p>	
<p>If the refrigerant gas leaks, be sure to locate the leak and repair it before charging the refrigerant. After charging refrigerant, make sure that there is no refrigerant leak.</p> <p>If the leak cannot be located and the repair work must be stopped, be sure to perform pump-down and close the service valve, to prevent the refrigerant gas from leaking into the room. The refrigerant gas itself is harmless, but it can generate toxic gases when it contacts flames, such as fan and other heaters, stoves and ranges.</p>	
<p>When replacing the coin battery in the remote controller, be sure to disposed of the old battery to prevent children from swallowing it.</p> <p>If a child swallows the coin battery, see a doctor immediately.</p>	

Caution	
Installation of a leakage breaker is necessary in some cases depending on the conditions of the installation site, to prevent electrical shocks.	
Do not install the equipment in a place where there is a possibility of combustible gas leaks. If a combustible gas leaks and remains around the unit, it can cause a fire.	
Be sure to install the packing and seal on the installation frame properly. If the packing and seal are not installed properly, water can enter the room and wet the furniture and floor.	

1.2.3 Inspection after Repair

Warning	
Check to make sure that the power cable plug is not dirty or loose, then insert the plug into a power outlet all the way. If the plug has dust or loose connection, it can cause an electrical shock or fire.	
If the power cable and lead wires have scratches or deteriorated, be sure to replace them. Damaged cable and wires can cause an electrical shock, excessive heat generation or fire.	





Warning	
Do not use a joined power cable or extension cable, or share the same power outlet with other electrical appliances since it can cause an electrical shock, excessive heat generation or fire.	

Caution	
Check to see if the parts and wires are mounted and connected properly, and if the connections at the soldered or crimped terminals are secure. Improper installation and connections can cause excessive heat generation, fire or an electrical shock.	
If the installation platform or frame has corroded, replace it. Corroded installation platform or frame can cause the unit to fall, resulting in injury.	
Check the grounding, and repair it if the equipment is not properly grounded. Improper grounding can cause an electrical shock.	
Be sure to measure the insulation resistance after the repair, and make sure that the resistance is 1 M ohm or higher. Faulty insulation can cause an electrical shock.	
Be sure to check the drainage of the indoor unit after the repair. Faulty drainage can cause the water to enter the room and wet the furniture and floor.	












1.2.4 Using Icons

Icons are used to attract the attention of the reader to specific information. The meaning of each icon is described in the table below:

1.2.5 Using Icons List

Icon	Type of Information	Description
 Note	Note	A “note” provides information that is not indispensable, but may nevertheless be valuable to the reader, such as tips and tricks.
 Caution	Caution	A “caution” is used when there is danger that the reader, through incorrect manipulation, may damage equipment, lose data, get an unexpected result or has to restart (part of) a procedure.
 Warning	Warning	A “warning” is used when there is danger of personal injury.
	Reference	A “reference” guides the reader to other places in this binder or in this manual, where he/she will find additional information on a specific topic.

2.Features

-  DRY function: Make dehumidifying in the room when the unit is working in the "DRY" mode
-  24 Hour timer: Use the timer function to set on,or off,or from on to off,or from off to on
-  Auto restart: The function permits automatic return to previous peration conditions
-  Easy clean design: The panel is easy to wash and the airflow vents can be detached without any special tools for quick cleaning of the inside of the air conditioner
-  Anti-mold filter: Catches most small particles and remove unpleasant odors effectively
-  Sleep mode: The setting temprature and the indoor noise can be adjusted to a more comfortable level when you set the "sleep mode"during night sleep
-  4 Fan setting: Slect the fan speed LO,MED,HI,AUTO
-  Semi auto mode: adjust the operation automatically according to surrounding temperature
-  Child lock: Avoid the child's wrong operation on the remote controller
-  Power mode: Quick cooling or heating
-  Soft mode: Lower noise operation condition

3 Specifications

NOMINAL DISTRIBUTION SYSTEM VOLTAGE		
Phase	/	1
Frequency	Hz	50
Voltage	V	230

NOMINAL CAPACITY and NOMINAL INPUT			
		cooling	heating
Capacity rated	KW	2.5	2.8
	Btu/h	8535	9559
Power Consumption(Rated)	KW	1.01	1.06
SEER/SCOP	W/W	5.1	3.8
Annual energy consumption	KWh	284	
Moisture Removal	m ³ /h	1.4*10 ⁻³	

TECHNICAL SPECIFICATIONS			
Dimensions	H*W*D	mm	640*720*253
Packaged Dimensions	H*W*D	mm	719*784*305
Weight	/	KG	17.0
Gross weight	/	KG	19.5
Color	/	/	White
Sound level	Sound pressure(high/medium/low)	dB	39/35/30
	Sound power(high/medium/low)	dB	53

TECHNICAL SPECIFICATIONS-PARTS				
			cooling	heating
Fan	Type		Cross flow fan	
	Motor output	W	16	16
	Air flow rate(high)	m ³ /h	450	450
	Speed(super/high/low)	rpm	900/850/800	850/800/750
Heat exchanger	Type		ML fin- φ 7HI-HX tube	
	Segment *stage*fitch		2*14*1.4	
Air direction control			Right,Left,Horizontal,Downward	
Air filter			Removable/Washable/Mildew Proof	
Temperature control			Microcomputer Control	
Remote controller model			YR-HD01	

Note: the data are based on the conditions shown in the table below

cooling	heating	Piping length
Indoor: 27°CDB/19°CWB Outdoor: 35°CDB/24°CWB	Indoor:20°CDB Outdoor: 7°CDB/6°CWB	5m

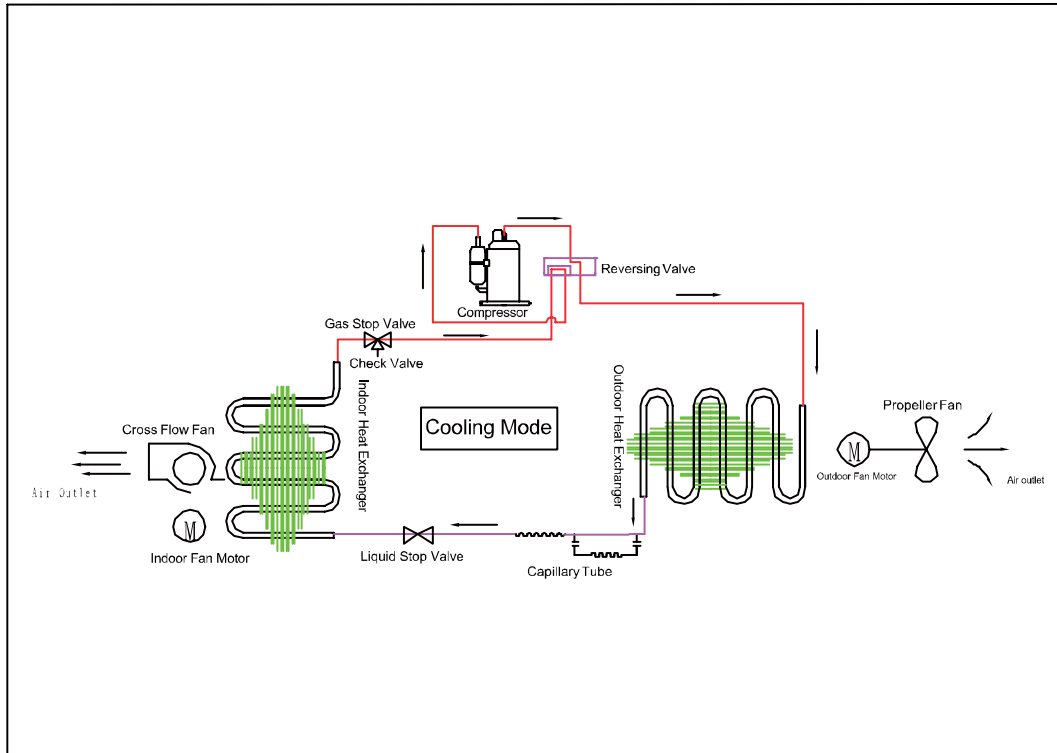
Conversation formulae
Kcal/h= KW×860
Btu/h= KW×3414
cfm=m ³ /min×35.3

4. Sensors list

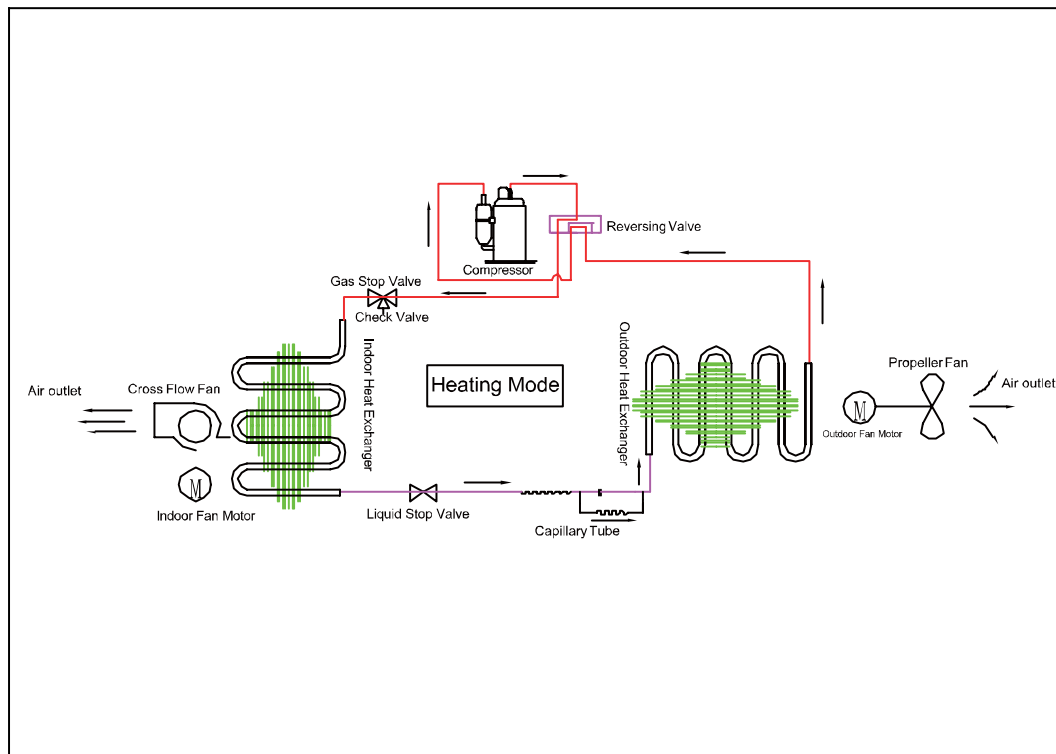
type	Description	Qty
Room sensor	Its used for detecting room temperature	1
Pipe sensor	Its used for detecting temperature of evaporator	1

5. Piping diagrams

Cooling mode



Heating mode



6. Printed Circuit Board Connector Wiring Diagram

Connectors

series	PCB connector	Connect with load
1	CON9	Connector for UP fan motor
2	CON9'	
3	CN6	Connector for heat exchanger thermistor and Room temperature thermistor
4	CON10	Connector for DOWN fan motor
5	CON10'	
6	CON6	Connector for UP&DOWN STEP motor
7	CON7	Connector for DOWN STEP motor
8	CN21	Connector for power N wire
9	CN22	Connector for power L
10	CN7	Connector for display board
11	CON2	C0N3 Connector for ions generator
12	CN23	Connector for communicate between the indoor board and the outdoor board
13	CN36	Connector for long-range control
14	CN51	Connector for room card

Note: Other designations

PCB(1) (INdoor Control PCB)

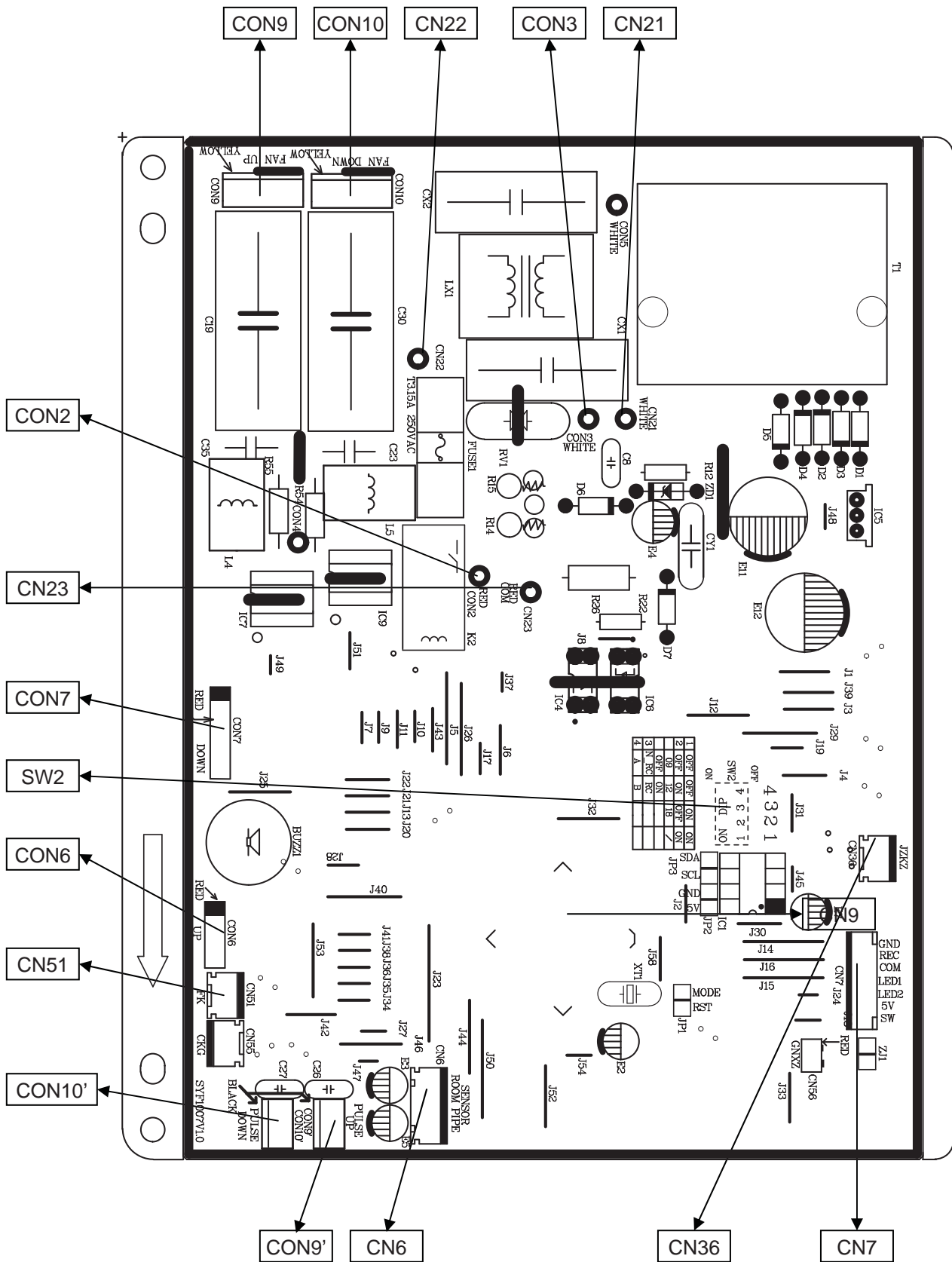
1) SW2 4 Select remote code A or B, 3 Select room card able or disable 1and 2 Select for capability

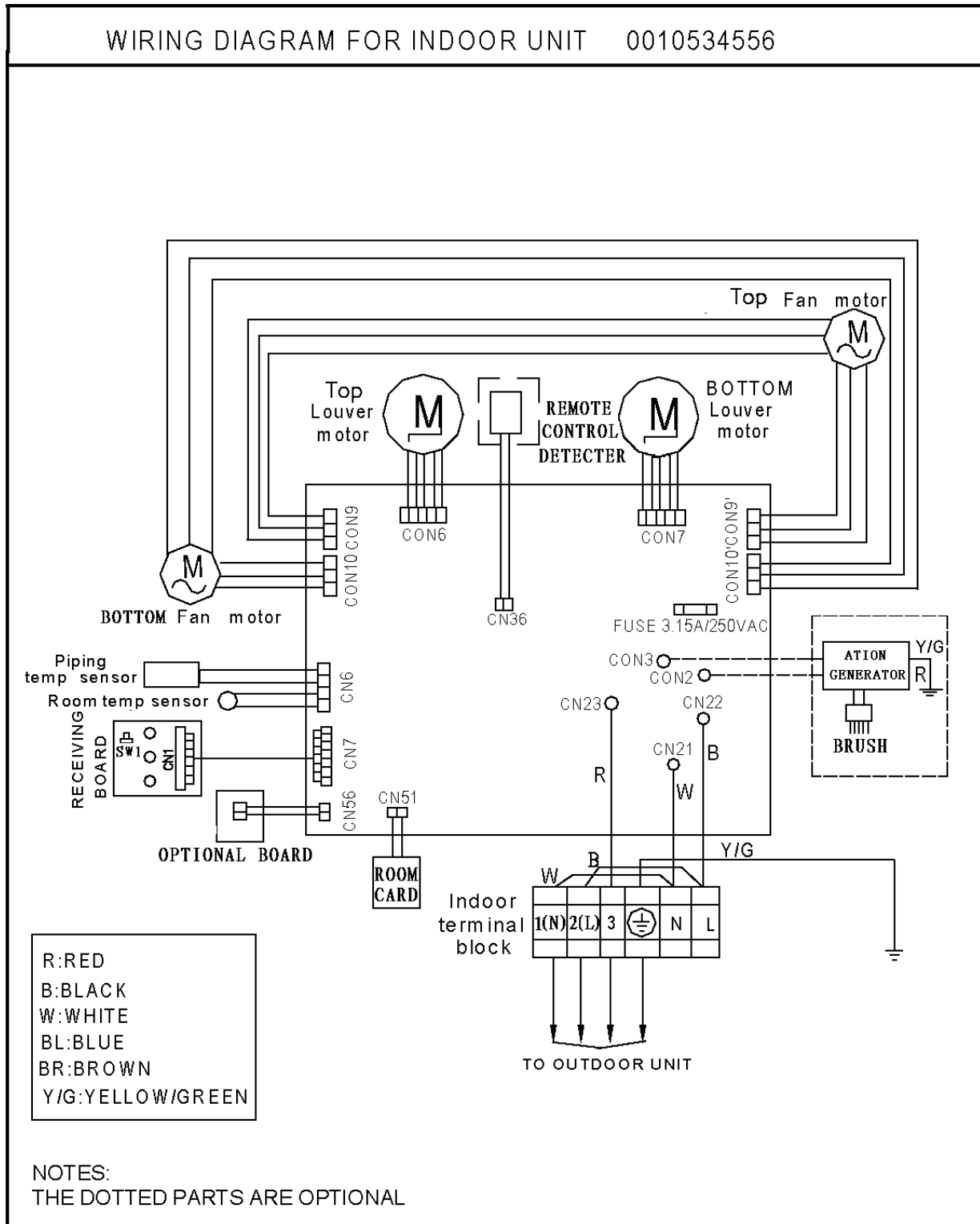
as this:

SW2-1	OFF	OFF	ON	ON
SW2-2	OFF	ON	OFF	ON
Capability	09K	12K	18K	

2) RV1 Varistor

3) FUSE1 Fuse 3.15A/250VAC





7. Functions and Control

7.1 Main functions and control specification of indoor unit

7.1.1 Automatic operation

When the running mode is turned to automation after starting the system, the system will first determine the running mode according to the current room temperature and then will run according to the determined mode. Tr in the following selection conditions means room temperature, Ts means setting temperature, Tp means temperature of indoor coil pipe

Tr \geq 23 $^{\circ}$ C Choose Cooling Mode

Tr $<$ 23 $^{\circ}$ C Choose Heating Mode

After turning to the automation mode, the running mode can be switched between cooling mode, fan mode and heating mode according to the change of the indoor ambient temperature. But the automatic conversion between cooling mode and heating mode must be conducted after 15 minutes.

7.1.2 Cooling operation mode

Temperature control range: 16 $^{\circ}$ C---30 $^{\circ}$ C

Temperature difference: \pm 1 $^{\circ}$ C

* Control features: When Tr (input airflow) $>$ Ts (set temperature) $^{\circ}$ C, the compressor will be opened, the indoor fan will operate at the set speed and the mode signal will be sent to the outdoor system. When Tr (input airflow) $<$ Ts (set temperature) $^{\circ}$ C, the compressor will be opened, the indoor fan will operate at the set speed and the mode signal will be sent to the outdoor system. The system will keep the original status if Tr= Ts.

Airflow speed control: (temperature difference 1 $^{\circ}$ C)

Automatic: When Tr \leq Ts+3 $^{\circ}$ C, high speed.

When Ts+1 $^{\circ}$ C \leq Tr $<$ Ts+3 $^{\circ}$ C, medium speed

When Tr $<$ Ts+1 $^{\circ}$ C, low speed

When the sensor is off, low speed

When the airflow speed has no delay from the high to low switching, the speed should be delayed for 3 minutes (remain at high speed for 3 minutes.) before the next switch.

Manus: When the system is operating, you can set the high, medium or low speed manually. (When the sensor is on or off, the system will change the speed 2 seconds after receiving the signal.)

* Airgate location control: the location for the airgate can be set according to your needs.

* Defrosting function: preventing the frosting on the indoor heat exchanger (when cooling or dehumidifying). When the compressor works continuously for 1/6 minutes (adaptable in EEPROM) and the temperature of the indoor coils has been below zero centigrade for 10 seconds, the compressor will be stopped and the malfunction will be recorded in the malfunction list. The indoor system will continue to run. When the temperature of the indoor coil is raised to 7 $^{\circ}$ C, the compressor will be restarted again (the requirement of 3 minutes' delay should be satisfied.)

* timing system on/off function.

* Dormant control function.

7.1.3 Dehumidifying mode.

* temperature control range: 16---30°C

* temperature difference: $\pm 1^\circ\text{C}$

Control feature: send the dehumidifying signal to the outdoor system.

When $T_r > T_s + 2^\circ\text{C}$, the compressor will be turned on, the indoor fan will operate at the set speed.

When T_r is between the T_s and $T_s + 2^\circ\text{C}$, the outdoor system will operate at the high dehumidifying frequency for 10 minutes and then at the low dehumidifying mode for six minutes. The indoor fan will operate at low speed.

When $T_r < T_s$, the outdoor system will be stopped, the indoor fan will be stopped for 3 minutes and then turned to the low speed option.

All the frequency converses have a $\pm 1^\circ\text{C}$ difference.

* Wind speed control: Automatic:

When $T_r \geq T_s + 5^\circ\text{C}$, high speed.

When $T_s + 3^\circ\text{C} \leq T_r < T_s + 5^\circ\text{C}$, medium speed.

When $T_s + 2^\circ\text{C} \leq T_r < T_s + 3^\circ\text{C}$, low speed.

When $T_r < T_s + 2^\circ\text{C}$, light speed.

If the outdoor fan stopped, the indoor fan will be paused for 3 minutes.

If the outdoor fan stopped for more than 3 minutes and the outdoor system still operates, the system will be changed into light speed mode.

When the airflow speed has no delay from the high to low switching, the speed should be delayed for 3 minutes (remain at high speed for 3 minutes.) before the next switch.

Manual: When the sensor is off or $T_r < T_s + 3^\circ\text{C}$, the manual operation can not be made. (obligatory automatic operation.)

* Airgate location control: the location for the airgate can be set according to your needs.

* Defrosting function: preventing the frosting on the indoor heat exchanger (when cooling or dehumidifying). When the compressor works continuously for 1/6 minutes (adaptable in EEPROM) and the temperature of the indoor coils has been below zero centigrade for 10 seconds, the compressor will be stopped and the malfunction will be recorded in the malfunction list. The indoor system will continue to run. When the temperature of the indoor coil is raised to 7°C , the compressor will be restarted again (the requirement of 3 minutes' delay should be satisfied.)

* coil protection (synchronic overheating protection) are installed for the four directions latch malfunctions when dehumidifying.

* timing system on/off function.

* Dormant control function.

7.1.4 Heating operation mode.

* temperature control range: 16---30°C

* temperature difference: $\pm 1^\circ\text{C}$

* control feature: the temperature compensation is automatically added and the system will send the heating signals to the outdoor system.

If $T_r \leq T_s$, the outdoor compressor is turned on, the indoor fan will be at the cold air proof mode.

If $T_r > T_s + 3^\circ\text{C}$, the outdoor system is turned off, the indoor fan will be at the heat residue sending mode.

If $T_r < T_s + 3^\circ\text{C}$, the outdoor system will be turned on again, the indoor fan will be at the cold air proof mode.

*Indoor fan control

manual control: You can choose high, medium, low and automatic speed control.

Automatic: When $T_r < T_s$, high speed.

When $T_s \leq T_r \leq T_s + 2^\circ\text{C}$, medium speed.

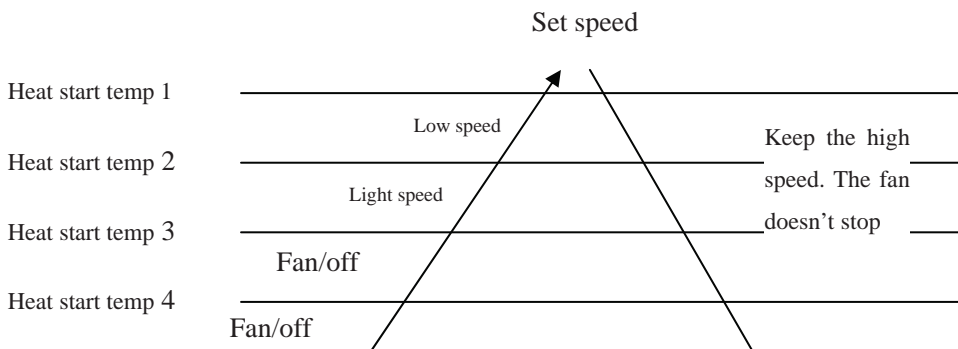
When $T_r > T_s + 2^\circ\text{C}$, low speed.

When the airflow speed has no delay from the high to low switching, the speed should be delayed for 3 minutes (remain at high speed for 3 minutes.) before the next switch.

*Airgate location control: the location for the airgate can be set according to your needs.

Coldair proof operation

1. The indoor operation within 4 minutes after the start up is as the following diagram, the air speed can be raised only after the speed has reached a certain level.



2. 4 minutes after the start up of the indoor fan, the light airflow and the low airflow will be turned to the set speed airflow.

3. In the cold air proof operation, the fan won't stop after the start up.

4. During the cold air proof operation, the indoor system will continuously send 'indoor high speed' signals to the outdoor system.

* Residue heat sending. The indoor fan will send the residue heat at a low speed for 12 seconds.

If other conditions are satisfied, when the compressor stops, the indoor system will operate at a light speed. The indoor fan will stop when the coil temperature is below the 'heat start temp 4'.

* Defrosting. When the system receives the defrosting signal from outdoors, the indoor fan will stop and the indoor temperature display won't change. At the time, any indoor coil malfunctions will be neglected. When the outdoor defrosting finishes, the coil malfunction will still be neglected until the compressor has been started up for 30 seconds. The indoor temperature display will not change and the system operates at the cold air proof mode.

* Automatic heating temperature compensation: when the system enters the heating mode, the temperature compensation (4) will be added. When the status is switched off, the compensation will be erased.

7.1.5 strength operation

a. the system enters the mode after receiving the 'strength signal'.

Send strength operation signal to the outdoor system.

The mode change finishes the strength operation.

Entering 'mute', you can have normal operation or signal control such as timing to finish the strength operation.

When the system is at the automatic option with the strength/ mute function, if the system enters the cooling mode, the cooling strength/ mute function will be offered; if the system enters the heating mode, then the heating strength/ mute function will be offered; if the system enters the airflow mode, there will be no strength/ mute function.

7.1.6 Mute operation

the system enters the mode after receiving the 'mute signal'.

- a. Mute heating: the airflow speed is slight, the system sends the mute signal to the outdoor system.
- b. mute cooling: the airflow speed is slight, the system sends the mute signal to the outdoor system.

When the compressor operates, the airflow speed is mute speed. EEPROM is adaptable.

Mute operation can not work under the dehumidifying and airflow-sending operation.

7.1.7 Air refreshing

After receiving the signal from the remote control,(HV series: the background light of the 'health' logo is green. HS series: the 'health' indicator will be lighted). If the fan operates, the negative ion generator operates to realize the negative sending function.

If the indoor fan stops, the negative ion generator is turned off.

When the negative ion generator is turned off, if the air refreshing system is turned on, the negative ion generator will be turned on when the fan operates.

7.1.8 Timing.

You can set 24 hours' on/off timing accordingly. After the setting, the timing indicator will be lightened. Also, the light will be turning off after the timing is finished. The followings are several timing methods.

1. system /on timing: The timing indicator will be lightened and the indoor system is under the waiting mode. The light will be turned off when the timing is finished and the rest of the system will operate under a normal condition. The timing starts since the last reception of the timing signal. You can have the dormancy setting under the timing mode, the order of your settings will be operated according to the timing settings.

2. system /off timing: When the system is turned on, the timing indicator is lightened, the rest of the system will operate under a normal condition. When set time comes, the indicator light will be turned off and the system will be turned off. If you have set the dormant functions, the order of your settings will be operated according to the timing settings.

3 . system /on and off timing: The settings will be completed according to the orders.

7.1.9 Dormant operation

The dormant timing is an eight hours unadaptable one. The timing signs are shown on the V series board. (RC series show the dormant signal, the timing light is lighted on the 6 lights board).

2.1 Under the cooling/ dehumidifying operation, after the setting of the dormant operation, the set temperature will be raised for 1 centigrade after 1 hour's operation and will be raised for 1 centigrade 1 hour later. The system will keep this status for 6 hours and then close.

2.2 Under the heating mode, after the setting of the dormant operation, the set temperature will fall 2 centigrades after 1 hour's operation and will fall 2 centigrades 1 hours later. 3 hours after the preceding operations, the set temperature will be raised for 1 centigrade and the system will keep this status for 3 hours and then close down.

2.3 During the dormant time, except the change of the system mode or a new press on the dormant setting keys, the timing of the 8 hours dormancy will take the first timing as the start time, any presses on other keys will not affect the original timing.

2.4 Indoor fan control under the dormant operation.

If the indoor fan is at the high speed before the dormant operation setting, the speed will be turned to medium after the setting. If the fan is at the medium speed before the dormant setting, the speed will be turned to low after the setting. If the fan is at the low speed before the dormant setting, the speed will not change.

7.1.10 Urgent on/off input

Press the urgency button the buzzer will ring. The system will enter the automatic mode if you don't press the button for more than 5 seconds.

Under the system off mode, if you press the urgency key for 5 to 10 seconds, the system will start the test operation.

Under the system off mode, If you press the urgency key for 10 to 15 seconds, the display screen will show the resume of the last malfunction.

If the system is under operation, the press on the urgency key will stop it.

Under the system off mode, the display screen will show automatic running sign.

Under the system off mode, the system will not receive the remote control signal if the press on the urgency key doesn't last for 15 seconds or if the key is loosened.

Urgency operation: If you press the urgency key for less than 5 seconds, the buzzer will ring when you press the on/off key. The system will enter the urgency operation when the urgency key is loosened.

The urgency operation is fully automatic.

Test operation.

The inlet temperature sensor doesn't work, the indoor fan and the indoor air direction board motor works synchronically. High speed airflow, cooling, outdoor system on, etc, will send the ambient temperature 30 centigrade and coil temperature 16 centigrade information to the outdoor system.

Test operation

The defrost protection of the evaporator doesn't work.

The temperature control doesn't work.

The test operation will be finished in 30 minutes.

The test operation can be stopped by the relative commands from the remote control.

7.1.11 Low load protection control

In order to prevent the frosting of the indoor heat interaction device, the outdoor system will be stopped if the indoor heat interaction temperature is below zero centigrade for 5 minutes, but the fan will continue to operate. The outdoor system will be started again when the heat interaction temperature is above 7 centigrade and the system has been stopped for 3 minutes. The malfunction will be stored in the malfunction resume and will not be revealed.

7.1.12 High load protection control

The outdoor system will be stopped if the coil temperature is above 65°C for 2 minutes. The indoor fan will be controlled by the thermostat. The outdoor system can be restarted when the coil temperature is below 42°C and the system has been stopped for 3 minutes. The malfunction will be stored in the malfunction resume and will not be revealed.

7.1.13 abnormal operation of indoor system

When the outdoor system operates, if the indoor system operation differs from the outdoor system, the abnormal operation malfunction will be reported. 10s after the report, the indoor system will be closed.

Outdoor system mode	Indoor system mode	conflicts
cooling	heating	yes
cooling	cooling	no
cooling	airflow	no
heating	heating	no
heating	airflow	yes
heating	cooling	yes

7.1.14 Malfunction list resume.

Nothing is presented if there is no code list.

The malfunction display will automatically finish in 10 seconds.

The remote control only receives the signals for stop. According to the signals, the malfunction resume presentation finishes.

The resume restores after the power supply restores.

7.1.15 abnormality confirmation approaches.

1. indoor temperature sensor abnormality:

under the operation, the normal temperature ranges from 120 degree to -30 degree. When the temperature goes beyond this range, the abnormality can be confirmed. If the temperature goes back into the range, the system will automatically resume.

2 .indoor heat interaction sensor abnormality:

under the operation, the normal temperature ranges from 120 degree to -30 degree. When the temperature goes beyond this range, the abnormality can be confirmed. If the temperature goes back into the range, the system will automatically resume.

3 .indoor malfunction:

Out door malfunction: When the indoor system receives the outdoor malfunction codes, it will store the code into E2 for the malfunction list resume. The indoor system will continue to operate according to the original status, the malfunction code will not be revealed or processed.

4.transmission abnormality:

If the indoor system can't receive the outdoor system for 8 minutes, the communication abnormality can be confirmed and reported and the outdoor system will be stopped.

7.1.16 Single indoor system operation

* Enter condition: First, set the high speed airflow and 30 centigrade set temperature, then press the dormant keys for 6 times within 7 seconds, the system will feedback with 6 rings.

* After the system enters the separate indoor system operation mode, the indoor system will operate according to the set mode and neglect the communication signals of the outdoor system. However, it has to send signals to the outdoor system.

* Quitting condition: This mode can be quitted after receiving the quitting signal from the remote control or urgency system. The indoor system thus can quit the single operation mode.

7.1.17 Power cut compensation.

* Entering condition: Press dormant button 10 times within 7 second, the buzzer will ring 4 times and the present system status will be stored into the EEPROM of the indoor system.

* After entering the power cut compensation mode, the processing of the indoor system should be as the followings:

Remote control urgency signal: operate according to the remote control and the urgent conditions, the present status will be stored into the EEPROM of the indoor system.

* Quitting conditions: Press dormant button 10 times within 7 seconds and the buzzer will ring twice.

7.1.18 Fixed frequency operation.

1. Fixed cooling: a. under G code condition: high speed cooling, set 16°C, press temperature '-' key and the set key at the same time. The system will enter the fixed frequency operation after the buzzer rings twice.

b. The proceeding programs are as the follows:

Entering the fixed frequency operation, you can set the fixed strength location 1 and send the cooling signal to the outdoor system. Meanwhile, you can fix the indoor system at high speed mode, the location of the airflow direction board can be switched to the maximal position.

c. Quitting condition: The fixed frequency cooling can be quitted after receiving the remote signal, and the system will enter the remote setting status.

2. Fixed heating: a. under G code condition: high speed heating, set 30°C, press temperature '+' key and the set key at the same time. The system will enter the fixed frequency operation after the buzzer rings twice.

b. The proceeding programs are as the follows:

Entering the fixed frequency operation, you can set the fixed strength location 1 and send the heating signal to the outdoor system. Meanwhile, you can fix the indoor system at high speed mode, the location of the airflow direction board can be switched to the maximal position.

c. Quitting condition: The fixed frequency heating can be quitted after receiving the remote signal, and

the system will enter the remote setting status.

7.1.19 Test program

First, connect the test program terminal on the mainboard, then connect the system to the power circuit. The test program will operate as follows.

HV series display: The buzzer rings for one time—the signal will be sent to outdoor system for 0.5 second—the violet is sent for 0.5-- the background light turns to white—the back ground light turns to white—the background light turns to white—the background light is fully lighted for 0.5 second—LED screen lights for 0.5 second—the step-in motor fully output for 0.5 second—then the motor doesn't output for 0.5 second—the motor fully output again for 0.5 second. The test program finishes.

7.1.20 Time cutting function:

connect the test program terminal on the mainboard after connecting the system to the power circuit. The CPU of the main control will be 60 times faster.

7.2 The control system of outdoor unit

7.2.1: The operation frequency of outdoor unit and its control

7.2.1.1: The operation frequency control of compressor

The operation frequency scope of compressor:

Mode	Minimun operation frequency	Maximun operation frequency
Heating	34Hz	96Hz
Refrigeration	34Hz	72Hz

7.2.1.2: The starting of compressor

When the compressor is started for the first time, it must be kept under the conditions of 58Hz,88Hz for one minute (the overheating protection of the outdoor unit air-blowing temperature, immediately decrease the frequency when the compressor is overflowing and releasing the pressure), then it can be operated towards the target frequency. When the machine runs normally, there's no such process. After starting the compressor for operation, the compressor should run according to the calculated frequency, and every determined frequency for protection should be prior to the calculated frequency.

7.2.1.3: The speeds of increasing or decreasing the frequency of the compressor

The speed of increasing or decreasing the frequency rapidly 1 -----1HZ/second

The speed of increasing or decreasing the frequency slowly 2 -----1HZ/10seconds

7.2.1.4: The calculation of the compressor's frequency

1)、The minimum/maximum frequency limitation

A. While refrigerating: $F - M A X - r$ is the maximum operation frequency of the compressor;

7.2 Value of thermistor

Room sensor and Pipe Sensor

R25°C=10KΩ ±3%

B25°C/50°C=3700K ±3%

Temp.((°C))	Max.(KΩ)	Normal(KΩ)	Min.(KΩ)	Tolerance(°C)	
-30	165.2170	147.9497	132.3678	-1.94	1.75
-29	155.5754	139.5600	125.0806	-1.93	1.74
-28	146.5609	131.7022	118.2434	-1.91	1.73
-27	138.1285	124.3392	111.8256	-1.89	1.71
-26	130.2371	117.4366	105.7989	-1.87	1.70
-25	122.8484	110.9627	100.1367	-1.85	1.69
-24	115.9272	104.8882	94.8149	-1.83	1.67
-23	109.4410	99.1858	89.8106	-1.81	1.66
-22	103.3598	93.8305	85.1031	-1.80	1.64
-21	97.6556	88.7989	80.6728	-1.78	1.63
-20	92.3028	84.0695	76.5017	-1.76	1.62
-19	87.2775	79.6222	72.5729	-1.74	1.60
-18	82.5577	75.4384	68.8710	-1.72	1.59
-17	78.1230	71.5010	65.3815	-1.70	1.57
-16	73.9543	67.7939	62.0907	-1.68	1.55
-15	70.0342	64.3023	58.9863	-1.66	1.54
-14	66.3463	61.0123	56.0565	-1.64	1.52
-13	62.8755	57.9110	53.2905	-1.62	1.51
-12	59.6076	54.9866	50.6781	-1.60	1.49
-11	56.5296	52.2278	48.2099	-1.58	1.47
-10	53.6294	49.6244	45.8771	-1.56	1.46
-9	50.8956	47.1666	43.6714	-1.54	1.44
-8	48.3178	44.8454	41.5851	-1.51	1.42
-7	45.8860	42.6525	39.6112	-1.49	1.40
-6	43.5912	40.5800	37.7429	-1.47	1.39
-5	41.4249	38.6207	35.9739	-1.45	1.37
-4	39.3792	36.7676	34.2983	-1.43	1.35
-3	37.4465	35.0144	32.7108	-1.41	1.33
-2	35.6202	33.3552	31.2062	-1.38	1.31
-1	33.8936	31.7844	29.7796	-1.36	1.29
0	32.2608	30.2968	28.4267	-1.34	1.28
1	30.7162	28.8875	27.1431	-1.32	1.26
2	29.2545	27.5519	25.9250	-1.29	1.24
3	27.8708	26.2858	24.7686	-1.27	1.22
4	26.5605	25.0851	23.6704	-1.25	1.20
5	25.3193	23.9462	22.6273	-1.23	1.18
6	24.1432	22.8656	21.6361	-1.20	1.16
7	23.0284	21.8398	20.6939	-1.18	1.14

8	21.9714	20.8659	19.7982	-1.15	1.12
9	20.9688	19.9409	18.9463	-1.13	1.09
10	20.0176	19.0621	18.1358	-1.11	1.07
11	19.1149	18.2270	17.3646	-1.08	1.05
12	18.2580	17.4331	16.6305	-1.06	1.03
13	17.4442	16.6782	15.9315	-1.03	1.01
14	16.6711	15.9601	15.2657	-1.01	0.99
15	15.9366	15.2770	14.6315	-0.98	0.96
16	15.2385	14.6268	14.0271	-0.96	0.94
17	14.5748	14.0079	13.4510	-0.93	0.92
18	13.9436	13.4185	12.9017	-0.91	0.90
19	13.3431	12.8572	12.3778	-0.88	0.87
20	12.7718	12.3223	11.8780	-0.86	0.85
21	12.2280	11.8126	11.4011	-0.83	0.83
22	11.7102	11.3267	10.9459	-0.81	0.80
23	11.2172	10.8634	10.5114	-0.78	0.78
24	10.7475	10.4216	10.0964	-0.75	0.75
25	10.3000	10.0000	9.7000	-0.75	0.75
26	9.8975	9.5974	9.2980	-0.76	0.76
27	9.5129	9.2132	8.9148	-0.80	0.80
28	9.1454	8.8465	8.5496	-0.84	0.83
29	8.7942	8.4964	8.2013	-0.87	0.86
30	8.4583	8.1621	7.8691	-0.91	0.90
31	8.1371	7.8428	7.5522	-0.95	0.93
32	7.8299	7.5377	7.2498	-0.98	0.97
33	7.5359	7.2461	6.9611	-1.02	1.00
34	7.2546	6.9673	6.6854	-1.06	1.04
35	6.9852	6.7008	6.4222	-1.10	1.07
36	6.7273	6.4459	6.1707	-1.13	1.11
37	6.4803	6.2021	5.9304	-1.17	1.14
38	6.2437	5.9687	5.7007	-1.21	1.18
39	6.0170	5.7454	5.4812	-1.25	1.22
40	5.7997	5.5316	5.2712	-1.29	1.25
41	5.5914	5.3269	5.0704	-1.33	1.29
42	5.3916	5.1308	4.8783	-1.37	1.33
43	5.2001	4.9430	4.6944	-1.41	1.36
44	5.0163	4.7630	4.5185	-1.45	1.40
45	4.8400	4.5905	4.3500	-1.49	1.44
46	4.6708	4.4252	4.1887	-1.53	1.47
47	4.5083	4.2666	4.0342	-1.57	1.51
48	4.3524	4.1145	3.8862	-1.61	1.55
49	4.2026	3.9686	3.7443	-1.65	1.59
50	4.0588	3.8287	3.6084	-1.70	1.62
51	3.9206	3.6943	3.4780	-1.74	1.66

52	3.7878	3.5654	3.3531	-1.78	1.70
53	3.6601	3.4416	3.2332	-1.82	1.74
54	3.5374	3.3227	3.1183	-1.87	1.78
55	3.4195	3.2085	3.0079	-1.91	1.82
56	3.3060	3.0989	2.9021	-1.95	1.85
57	3.1969	2.9935	2.8005	-2.00	1.89
58	3.0919	2.8922	2.7029	-2.04	1.93
59	2.9909	2.7948	2.6092	-2.08	1.97
60	2.8936	2.7012	2.5193	-2.13	2.01
61	2.8000	2.6112	2.4328	-2.17	2.05
62	2.7099	2.5246	2.3498	-2.22	2.09
63	2.6232	2.4413	2.2700	-2.26	2.13
64	2.5396	2.3611	2.1932	-2.31	2.17
65	2.4591	2.2840	2.1195	-2.36	2.21
66	2.3815	2.2098	2.0486	-2.40	2.25
67	2.3068	2.1383	1.9803	-2.45	2.29
68	2.2347	2.0695	1.9147	-2.49	2.34
69	2.1652	2.0032	1.8516	-2.54	2.38
70	2.0983	1.9393	1.7908	-2.59	2.42
71	2.0337	1.8778	1.7324	-2.63	2.46
72	1.9714	1.8186	1.6761	-2.68	2.50
73	1.9113	1.7614	1.6219	-2.73	2.54
74	1.8533	1.7064	1.5697	-2.78	2.58
75	1.7974	1.6533	1.5194	-2.83	2.63
76	1.7434	1.6021	1.4710	-2.88	2.67
77	1.6913	1.5528	1.4243	-2.92	2.71
78	1.6409	1.5051	1.3794	-2.97	2.75
79	1.5923	1.4592	1.3360	-3.02	2.80
80	1.5454	1.4149	1.2942	-3.07	2.84
81	1.5000	1.3721	1.2540	-3.12	2.88
82	1.4562	1.3308	1.2151	-3.17	2.93
83	1.4139	1.2910	1.1776	-3.22	2.97
84	1.3730	1.2525	1.1415	-3.27	3.01
85	1.3335	1.2153	1.1066	-3.32	3.06
86	1.2953	1.1794	1.0730	-3.38	3.10
87	1.2583	1.1448	1.0405	-3.43	3.15
88	1.2226	1.1113	1.0092	-3.48	3.19
89	1.1880	1.0789	0.9789	-3.53	3.24
90	1.1546	1.0476	0.9497	-3.58	3.28
91	1.1223	1.0174	0.9215	-3.64	3.33
92	1.0910	0.9882	0.8942	-3.69	3.37
93	1.0607	0.9599	0.8679	-3.74	3.42
94	1.0314	0.9326	0.8424	-3.80	3.46
95	1.0030	0.9061	0.8179	-3.85	3.51

96	0.9756	0.8806	0.7941	-3.90	3.55
97	0.9490	0.8558	0.7711	-3.96	3.60
98	0.9232	0.8319	0.7489	-4.01	3.64
99	0.8983	0.8088	0.7275	-4.07	3.69
100	0.8741	0.7863	0.7067	-4.12	3.74
101	0.8507	0.7646	0.6867	-4.18	3.78
102	0.8281	0.7436	0.6672	-4.23	3.83
103	0.8061	0.7233	0.6484	-4.29	3.88
104	0.7848	0.7036	0.6303	-4.34	3.92
105	0.7641	0.6845	0.6127	-4.40	3.97
106	0.7441	0.6661	0.5957	-4.46	4.02
107	0.7247	0.6482	0.5792	-4.51	4.07
108	0.7059	0.6308	0.5632	-4.57	4.12
109	0.6877	0.6140	0.5478	-4.63	4.16
110	0.6700	0.5977	0.5328	-4.69	4.21
111	0.6528	0.5820	0.5183	-4.74	4.26
112	0.6361	0.5667	0.5043	-4.80	4.31
113	0.6200	0.5518	0.4907	-4.86	4.36
114	0.6043	0.5374	0.4775	-4.92	4.41
115	0.5891	0.5235	0.4648	-4.98	4.45
116	0.5743	0.5100	0.4524	-5.04	4.50
117	0.5600	0.4968	0.4404	-5.10	4.55
118	0.5460	0.4841	0.4288	-5.16	4.60
119	0.5325	0.4717	0.4175	-5.22	4.65
120	0.5194	0.4597	0.4066	-5.28	4.70

8 System configuration

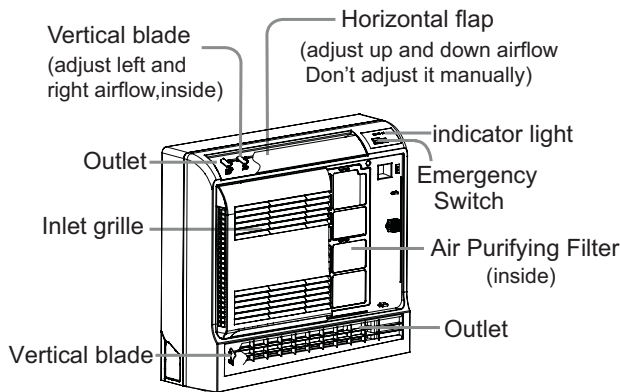
8.1 System configuration

After the installation and test operation of the room air conditioner have been completed, it should be operated and handled as described below. Every user would like to know the correct method of operation of the room air conditioner, to check if it is capable of cooling(or heating) well, and to know a clever method of using it. In order to meet this expectation of the users, giving sufficient explanations taking enough time can be said to reduce about 80% of the requests for servicing. However good the installation work is and however good the functions are, the customer may blame either the room air conditioner or its installation work because of improper handling. The installation work and handing over of the unit can only be considered to have been completed when its handling has been explained to the user without using technical terms but giving full knowledge of the equipment.

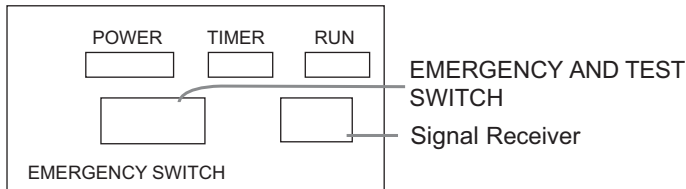
8.2 Instruction

Parts and Functions

Indoor Unit

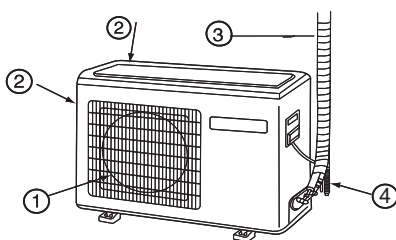


Please be subject to the actual produce purchased the above picture is just from your reference



- EMERGENCY SWITCH**
- ON/OFF button
 - Push once to start operation, push once again to stop it.
 - Operation is set to AUTO, air flow is set to AUTO fan.
 - Use when remote controller is not available.
- Signal Receiver**
- Upon receiving a signal, there is a receiving sound.

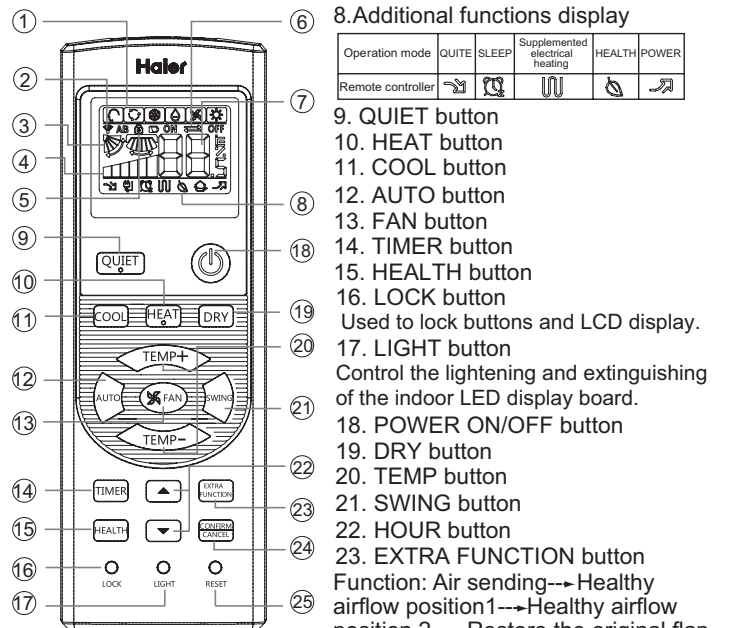
Outdoor Unit



- ① OUTLET
- ② INLET
- ③ CONNECTING PIPING AND ELECTRICAL WIRING
- ④ DRAIN HOSE

Please be subject to the actual produce purchased the above picture is just from your reference

Remote controller



1. Mode display
2. Signal sending display
3. SWING display
4. FAN SPEED display
5. LOCK display
6. TIMER OFF display
7. TEMP display
8. Additional functions display
9. QUIET button
10. HEAT button
11. COOL button
12. AUTO button
13. FAN button
14. TIMER button
15. HEALTH button
16. LOCK button
17. LIGHT button
18. POWER ON/OFF button
19. DRY button
20. TEMP button
21. SWING button
22. HOUR button
23. EXTRA FUNCTION button
24. CANCEL/CONFIRM button
25. RESET button

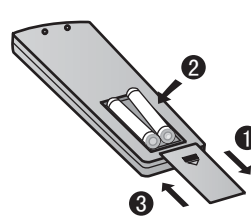
Operation mode	AUTO	COOL	DRY	HEAT	FAN
Remote controller:					

Operation mode	QUIET	SLEEP	Supplemented electrical heating	HEALTH	POWER
Remote controller:					

Display circulated	LO	MED	HI	AUTO
Display circulated				

Healthy function is not available for some units.

Loading of the battery



- 1 Remove the battery cover;
- 2 Load the batteries as illustrated. 2 R-03 batteries, resetting key (cylinder);
- 3 Be sure that the loading is in line with the "+" and "-";
- 4 Load the battery, then put on the cover again.

Note:

- The distance between the signal transmission head and the receiver hole should be within 7m without any obstacle as well.
- When electronic-started type fluorescent lamp or change-over type fluorescent lamp or wireless telephone is installed in the room, the receiver is apt to be disturbed in receiving the signals, so the distance to the indoor unit should be shorter.
- Full display or unclear display during operation indicates the batteries have been used up. Please change batteries.
- If the remote controller can't run normally during operation, please remove the batteries and reload several minutes later.

Hint:

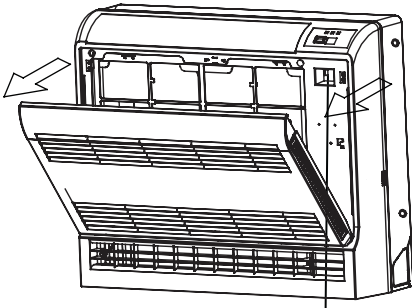
Remove the batteries in case won't be in use for a long period. If there is any display after taking-out, just press reset key.

Parts and Functions

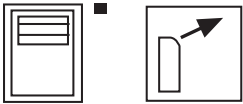
Operation

CAUTION

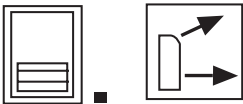
Before opening the front grille, be sure to stop the operation and turn the breaker OFF.
Do not touch the metal parts on the inside of the indoor unit, as it may result in injury.



Air outlet selection switch



- Regardless of the operating mode or situation, air blows from the upper air outlet.
- Use this switch when you do not want air coming out of the lower air outlet. (While sleeping etc..)

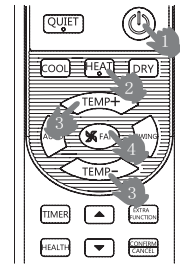


- Air conditioner automatically decides the appropriate blowing pattern depending on the operating mode and situation.
- During Dry and Fan mode, so that cold air does not come into direct contact with people, air is blown upper air outlet.

Operating mode	Situation	Blowing pattern
Cool mode	When the room has become fully cool.	So that air does not come into direct contact with people, air is blown upper air outlet, room temperature is equalised
	At start of operation or other times when the room is not fully cooled.	Air is blown from the upper and lower air outlets for high speed cooling during Cool mode, and for filling the room with warm air during Heat mode.
Heat mode	At times other than below. (Normal time.)	Air is blown from the upper and lower air outlets for high speed cooling during Cool mode, and for filling the room with warm air during Heat mode.
	At start or when air temperature is low.	So that air does not come into direct contact with people. Air is blown upper air outlet.

Base Operation

Remote controller



- Unit start**
Press ON/OFF on the remote controller, unit starts.
- Select operation mode**
COOL button: Cooling mode
HEAT button: Heating mode
DRY button: Dehumidify mode
- Select temp. setting**
Press TEMP+ / TEMP- button
TEMP+ Every time the button is pressed, temp. setting increase 1°C, if kept depressed, it will increase rapidly
TEMP- Every time the button is pressed, temp. setting decrease 1°C, if kept depressed, it will decrease rapidly
Select a desired temperature.
- Fan speed selection**
Press FAN button. For each press, fan speed changes as follows:
Remote controller:



Air conditioner is running under displayed fan speed. When FAN is set to AUTO, the air conditioner automatically adjusts the fan speed according to room temperature.

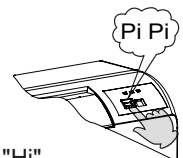
Operation Mode	Remote Controller	Note
AUTO		Under the mode of auto operation, air conditioner will automatically select Cool or Heat operation according to room temperature. When FAN is set to AUTO the air conditioner automatically adjusts the fan speed according to room temperature.
COOL		
DRY		In DRY mode, when room temperature becomes lower than temp. setting + 2°C, unit will run intermittently at LOW speed regardless of FAN setting.
FAN		In FAN operation mode, the unit will not operate in COOL or HEAT mode but only in FAN mode, AUTO is not available in FAN mode. And temp. setting is disabled. In FAN mode, sleep operation is not available.
HEAT		In HEAT mode, warm air will blow out after a short period of the time due to cold-draft prevention function. When FAN is set to AUTO, the air conditioner automatically adjusts the fan speed according to room temperature.

Emergency operation and test operation

Test operation:

Test operation switch is the same as emergency switch.

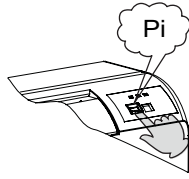
- Use this switch in the test operation when the room temperature is below 16°C, do not use it in the normal operation.
- Continue to press the test operation switch for more than 5 seconds. After you hear the "Pi" sound twice, release your finger from the switch: the cooling operation starts with the air flow speed "Hi".



Operation

Emergency Operation:

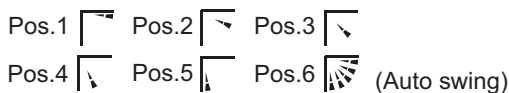
- Use this operation only when the remote controller is defective or lost.
- When the emergency operation switch is pressed, the "Pi" sound is heard once, which means the start of this operation.
- In this operation, the system automatically selects the operation modes, cooling or fan or heat, according to the room temperature.
- When machine is running in emergency, the set value of temperature and wind speed couldn't be altered; meanwhile, it can't operate for dehumidifying or under timing mode.



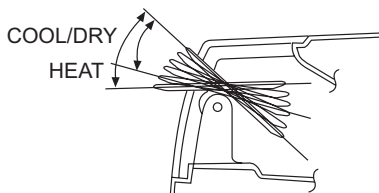
Air Flow Direction Adjustment

1. Adjusting the flap

Status display of air flow:



- When SWING is selected, the flap swinging range depends on the operation mode. (See the figure.)



2. Left and right air flow adjustment (manual)

Move the vertical blade by a knob on air conditioner to adjust left and right direction.

Cautions:

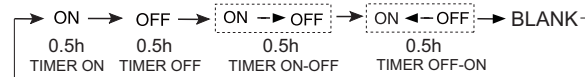
- Do not try to adjust the flap by hand. When adjusting by hand, the mechanism may not operate properly or condensation may drip from air outlets. When adjusting the flap by hand, turn off the unit, and use the remote controller to restart the unit.
- When adjusting the flap by hand, turn off the unit.
- When humidity is high, condensate water might occur at air outlet if all vertical louvers are adjusted to left or right.
- It is advisable not to keep horizontal flap at downward position for a long time in COOL or DRY mode, otherwise, condensate water might occur.

Note:

When restart after remote turning off, the remote controller will automatically memorize the previous set swing position.

Timer On/Off On-Off Operation

1. After unit starts, select your desired operation mode.
2. Press TIMER button to change TIMER mode. Every time the button is pressed, display changes as follows:
Remote controller:



Then select your desired TIMER mode (TIMER ON or TIMER OFF or TIMER ON-OFF). "ON" or "OFF" will flash.

3. Press ▼ / ▲ button to set time.

- ▲ Press the button for each time, setting time in the first 12 hours increased by 0.5 hour every time, after 12 hours, increased by 1 hour every time.
- ▼ Press the button for each time, setting time in the first 12 hours decreased by 0.5 hour every time, after 12 hours, decreased by 1 hour every time. It can be adjusted within 24 hours.

4. Confirm timer setting

After adjust the time, press button and confirm the time ON or OFF button will not flash any more.

5. Cancel timer setting

Press the timer button by times until the time display eliminated.

Hints:

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

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

TIMER On/Off Operation

- Confirming your setting





After setting correct time, press button to confirm "ON" or "OFF" on the remote controller stops flashing.
Time displayed: Unit starts or stops at x hour.

Hints:

After replacing batteries or a power failure happens, time setting should be reset. Remote controller possesses memory function, when use TIMER mode next time, just press button after mode selecting if time setting is the same as previous one.

Operation

Sleep Operation

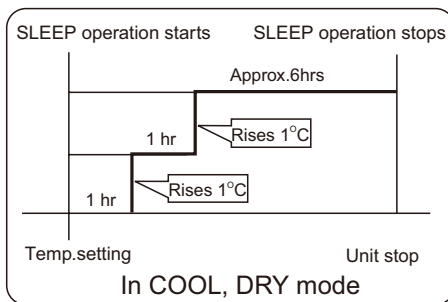
Press  button to enter additional options, when cycle display to  ,  will flash. And then press , enter to sleep function.



Operation Mode

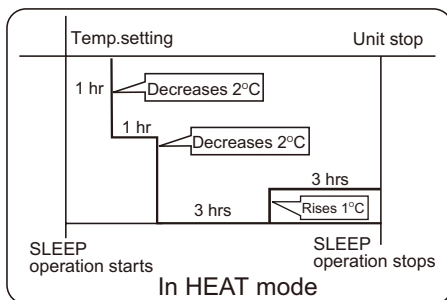
1. In COOL, DRY mode

1 hours after SLEEP mode starts, temp. will become 1°C higher than temp. setting. After another 1 hours, temp. rises by 1°C further. The unit will run for further 6 hours then stops. Temp. is higher than temp. setting so that room temperature won't be too low for your sleep.



2. In HEAT mode

1 hours after SLEEP mode starts, temp will become 2°C lower than temp. setting. After another 1 hours, temp decrease by 2°C further. After more another 3 hours, temp. rises by 1°C further. The unit will run for further 3 hours then stops. Temp. is lower than temp. setting so that room temperature won't be too high for your sleep.



3. In AUTO mode

The unit operates in corresponding sleep mode adapted to the automatically selected operation mode.

4. In FAN mode

It has no SLEEP function.

5. Set the wind speed change when sleeping





If the wind speed is high or middle before setting for the sleep, set for lowering the wind speed after sleeping. If it is low wind, no change.

Note


When TIMER function is set, the sleeping function can't be set up. After the sleeping function is set up, if user resets TIMER function, the sleeping function will be cancelled; the machine will be in the state of timing-on.

POWER/QUIET Operation

(1) POWER Operation

When you need rapid heating or cooling, you can use this function. Press  button to enter additional options, when cycle display to  ,  will flash, and then press , enter to power function. When cancel the function, please enter additional options again and to cancel power function.

(2) QUIET Operation

You can use this function when silence is needed for rest or reading. Press QUIET button, the remote controller will show  , and then achieve to the quiet function. Press again this QUIET button, the quiet function will be cancelled.

Note :

During POWER operation, in rapid HEAT or COOL mode, the room will show inhomogeneous temperature distribution. Long period QUIET operation will cause effect of not too cool or not too warm.

EUROPEAN REGULATIONS CONFORMITY FOR THE MODELS

CE

All the products are in conformity with the following European provision:

- Low Voltage Directive 73/23/EEC
 - Low Voltage Directive 2006/95/EC
 - Electromagnetic Compatibility 89/336/EEC
 - Electromagnetic Compatibility 2004/108/EC
- ROHS

The products are fulfilled with the requirements in the directive 2002/95/EEC of the European parliament and of council on the Restriction of the use of Certain Hazardous Substances in Electrical and Electronic Equipment (EU RoHS Directive)

WEEE

In accordance with the directive 2002/96/CE of the European parliament, herewith we inform the consumer about the disposal requirements of the electrical and electronic products.

DISPOSAL REQUIREMENTS:



Your air conditioning product is marked with this symbol. This means that electrical and electronic products shall not be mixed with unsorted household waste. Do not try to dismantle the system yourself: the dismantling of the air

conditioning system, treatment of the refrigerant, of oil and of other part must be done by a qualified installer in accordance with relevant local and national legislation. Air conditioners must be treated at a specialized treatment facility for reuse, recycling and recovery. By ensuring this product is disposed of correctly, you will help to prevent potential negative consequences for the environment and human health. Please contact the installer or local authority for more information. Battery must be removed from the remote controller and disposed of separately in accordance with relevant local and national legislation.

Indoor Unit Installation

Necessary Tools for Installation

- Driver
- Nipper
- Hacksaw
- Hole core drill
- Spanner(17,19 and 26mm)
- Gas leakage detector or soap-and-water solution
- Torque wrench (17mm,22mm,26mm)
- Pipe cutter
- Flaring tool
- Knife
- Measuring tape
- Reamer





Selection of Installation Place

- Place, robust not causing vibration, where the body can be supported sufficiently.
- Place, not affected by heat or steam generated in the vicinity, where inlet and outlet of the unit are not disturbed.
- Place, possible to drain easily, where piping can be connected with the outdoor unit.
- Place, where cold air can be spread in a room entirely.
- Place, nearby a power receptacle, with enough space around.
- Place where the distance of more than 1m from televisions, radios, wireless apparatuses and fluorescent lamps can be left.
- In the case of fixing the remote controller on a wall, place where the indoor unit can receive signals when the fluorescent lamps in the room are lightened.

Power Source

- Before inserting power into receptacle, check the voltage without fail.
- The power supply is the same as the corresponding nameplate.
- Install an exclusive branch circuit of the power.
- A receptacle shall be set up in a distance where the power cable can be reached. Do not extend the cable by cutting it.

Accessory Parts

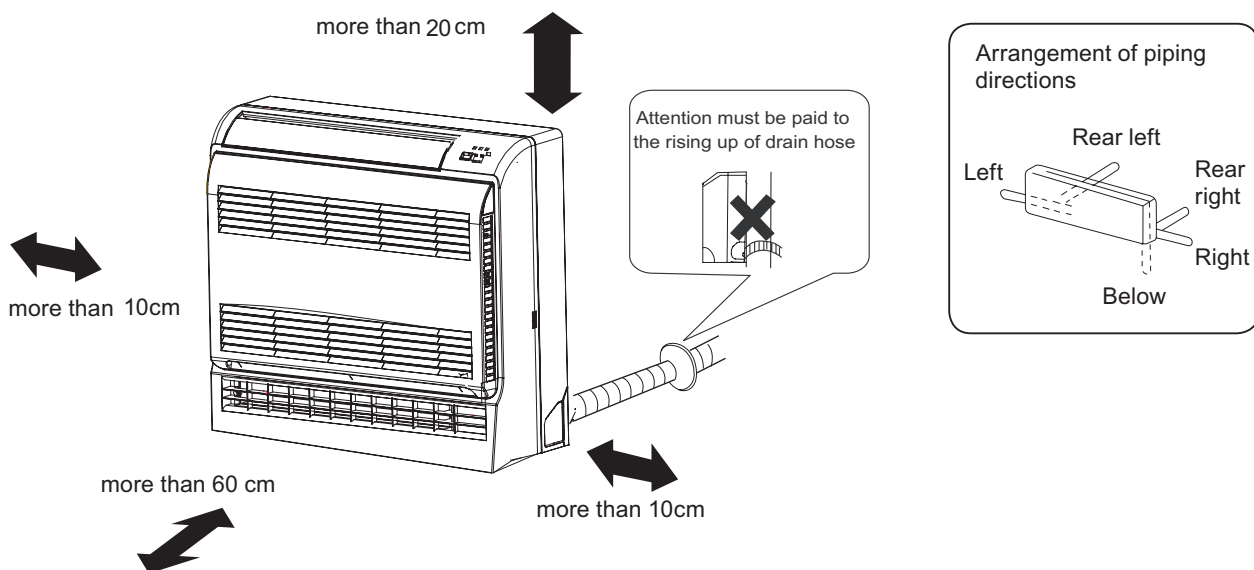
Remote controller (1)	Drain hose (1) 
R-03 dry battery (2) 	Plastic cap (4)  Ø4X25 Screw (4) 
Mounting plate (1)	Air purifying filter(Optional) (1)

Selection of Pipe

FOR 09K 12K	Liquid pipe	Φ 6.35x0.8mm
	Gas pipe	Φ 9.52x0.8mm
FOR 18K	Liquid pipe	Φ 6.35x0.8mm
	Gas pipe	Φ 12.7x0.8mm

Drawing for the installation of indoor units

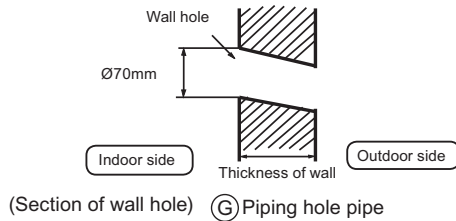
The models adopt HFC free refrigerant R410A



Indoor Unit Installation

1 Making a Hole on the Wall and Fitting the Piping Hole Cover

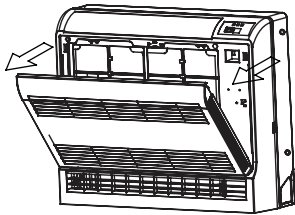
- Make a hole of 70 mm in diameter, slightly descending to outside the wall
- Install piping hole cover and seal it off with putty after installation



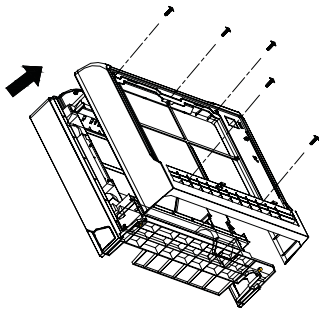
2 Installation of the Indoor Unit

Removal of Front Grille

- Hold the front panel by the tabs on the both sides and lift it until it stops with a click.



- Loosen the marked five screws and open the grille



Drawing of pipe

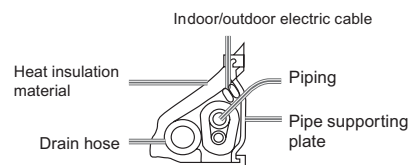
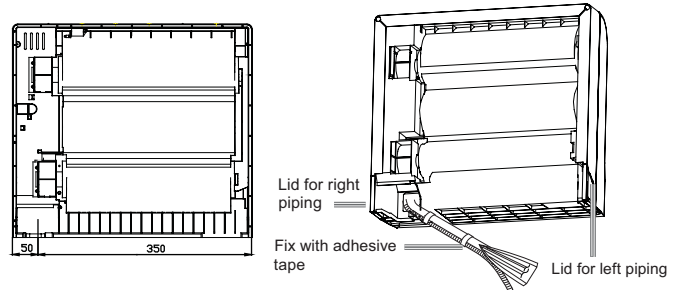
[Rear piping]

- Draw pipes and the drain hose, then fasten them with the adhesive tape

[Left · Left-rear piping]

- In case of left side piping, cut away, with a nipper, the lid for left piping.
 - In case of left-rear piping, bend the pipes according to the piping direction to the mark of hole for left-rear piping which is marked on heat insulation materials.
1. Insert the drain hose into the dent of heat insulation materials of indoor unit.
 2. Insert the indoor/outdoor electric cable from backside of indoor unit, and pull it out on the front side, then connect them.

3. Coat the flaring seal face with refrigerant oil and connect pipes. Cover the connection part with heat insulation materials closely, and make sure fixing with adhesive tape



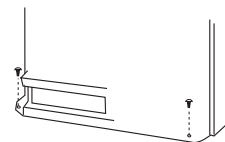
- Indoor/outdoor electric cable and drain hose must be bound with refrigerant piping by protecting tape.

[Other direction piping]

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

Fixing the indoor unit body

- Remove the front panel, then use two fastening screws to fix the unit on the floor. As the figure shown.
- Once refrigerant piping and drain piping connections are complete, fill the gap of the through hole with putty. Attach the front panel and front grille in their original positions once all connections are complete.



3 Connecting the indoor/outdoor Electric Cable

Removing the wiring cover

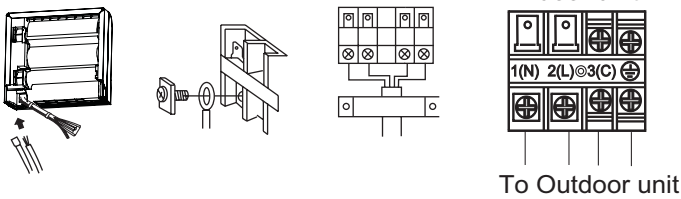
- Remove terminal cover at top right corner of indoor unit, and then take off wiring cover by removing its screws.

When connecting the cable after installing the indoor unit

1. Insert from outside the room cable into left side of the wall hole, in which the pipe has already existed.
2. Pull out the cable on the front side, and connect the cable making a loop.

When connecting the cable before installing the indoor unit

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



Note:

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

Model	AF09AS1ERA AF12AS1ERA	AF18AS1ERA
Connecting wiring	≥ 4G0.75mm ²	≥ 4G0.75mm ²

1. If the supply cord is damaged, it must be replaced by the manufacturer or its service agent or a similar qualified person. The type of connecting wire is H05RN-F or H07RN-F.
2. If the fuse on PC board is broken please change it with the type of T.3.15A/250VAC (Indoor).
3. The wiring method should be in line with the local wiring standard.
4. After installation, the power plug should be easily reached.
5. A breaker should be incorporated into fixed wiring. The breaker should be all-pole switch and the distance between its two contacts should be not less than 3mm.

4 Power Source Installation

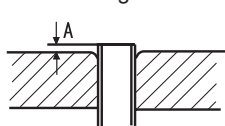
- The power source must be exclusively used for air conditioner.
- In the case of installing an air conditioner in a moist place, please install an earth leakage breaker.
- For installation in other places, use a circuit breaker as far as possible.

5 Cutting and Flaring Work of Piping

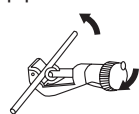
- Pipe cutting is carried out with a pipe cutter and burs must be removed.
- After inserting the flare nut, flaring work is carried out.

	Flare tool for R410A	Conventional flare tool	
	Clutch-type	clutch-type(Rigid-type)	Wing-nut type (Imperial-type)
A	0~0.5mm	1.0~1.5mm	1.5~2.0mm

Flare tooling die



1. Cut pipe



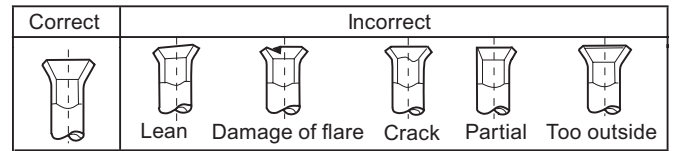
3. Insert the flare nut



2. Remove burs

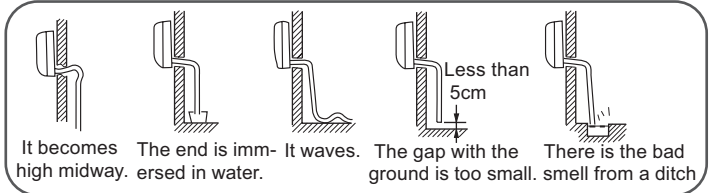


4. Flare pipe



6 On Drainage

- Please install the drain hose so as to be downward slope without fail.
- Please don't do the drainage as shown below.



- Please pour water in the drain pan of the indoor unit, and confirm that drainage is carried out surely to outdoor.
- In case that the attached drain hose is in a room, please apply heat insulation to it without fail.

7 On Drainage

Code indication	Trouble description	Analyze and diagnose
E1	Room temperature sensor failure	Faulty connector connection; Faulty thermistor; Faulty PCB;
E2	Heat-exchange sensor failure	
E4	Indoor EEPROM error	Faulty EEPROM data; Faulty EEPROM; Faulty PCB;
E7	Communication fault between indoor and outdoor units	Indoor unit- outdoor unit signal transmission error due to wiring error; Faulty PCB;
E14	Indoor fan motor malfunction	Operation halt due to breaking of wire inside the fan motor; Operation halt due to breaking of the fan motor lead wires; Detection error due to faulty indoor unit PCB;

8 Check for Installation and Test Run

- Please kindly explain to our customers how to operate through the instruction manual.

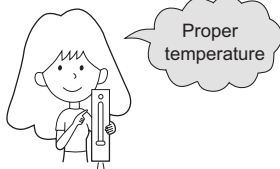
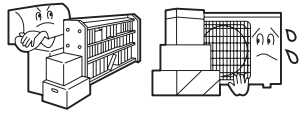


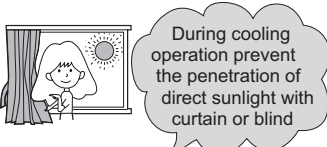
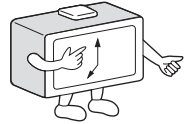

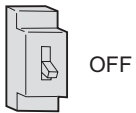

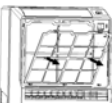

Check Items for Test Run

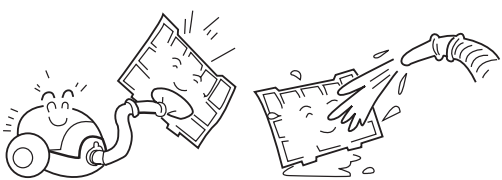

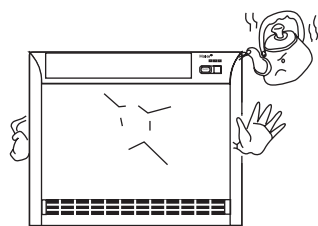
Put check mark ✓ in boxes

- Gas leak from pipe connecting?
- Heat insulation of pipe connecting?
- Are the connecting wirings of indoor and outdoor firmly inserted to the terminal block?
- Is the connecting wiring of indoor and outdoor firmly fixed?
- Is drainage securely carried out?
- Is the earth line securely connected?
- Is the indoor unit securely fixed?
- Is power source voltage abided by the code?
- Is there any noise?
- Is the lamp normally lighting?
- Are cooling and heating (when in heat pump) performed normally?
- Is the operation of room temperature regulator normal?

Maintenance

For Smart Use of The Air Conditioner

<p>Setting of proper room temperature</p> 	<p>Do not block the air inlet or outlet</p> 	<p>Remote Controller</p>  <p>Do not use water, wipe the controller with a dry cloth. Do not use glass cleaner or chemical cloth.</p>	<p>Indoor Body</p>  <p>wipe the air conditioner by using a soft and dry cloth. For serious stains, use a neutral detergent diluted with water. Wring the water out of the cloth before wiping, then wipe off the detergent completely.</p>
<p>Close doors and windows during operation</p> 	<p>Use the timer effectively</p> 	<p>Do not use the following for cleaning</p>  <p>Gasoline, benzine, thinner or cleanser may damage the coating of the unit. Hot water over 40°C(104°F) may cause discoloring or deformation.</p>	
<p>If the unit is not to be used for a long time, turn off the power supply main switch.</p> 	<p>Use the louvers effectively</p> 	<p>Air Filter cleaning</p>  <ol style="list-style-type: none"> 1 Open the inlet grille by pulling it upward. 2 Remove the filter. Push up the filter's center tab slightly until it is released from the stopper, and remove the filter downward. 3 Clean the filter. Use a vacuum cleaner to remove dust, or wash the filter with water. After washing, dry the filter completely in the shade. 4 Attach the filter. Attach the filter correctly so that the "FRONT" indication is facing to the front. Make sure that the filter is completely fixed behind the stopper. If the right and left filters are not attached correctly, that may cause defects. 5 Close the inlet grille. 	

<p>Clean the filter</p> <p>Use water or vacuum cleaner to remove dust. If it is too dirt, clean with detergent or neutral soap water. Rinsing with fresh water, dry the filter and re-assemble.</p>	
<p>Caution</p> <p>Do not wash filter in hot water above 40 °C, which will damage the filter. Do carefully wipe the filter.</p>	
<p>Clean the indoor(outdoor) unit</p> <p>Clean with warm cloth or neutral detergent, then wipe away moisture with dry cloth. Do not use too hot water(above 40 °C), which will cause discoloration or deformation. Do not use pesticide or other chemical detergents.</p>	

Cautions

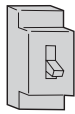
⚠ WARNING

Please call Sales/Service Shop for the Installation.

Do not attempt to install the air conditioner by yourself because improper works may cause electric shock, fire, water leakage.

⚠ WARNING

When abnormality such as burnt-smell found, immediately stop the operation button and contact sales shop.

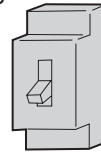


OFF



⚠
STRICT
ENFORCEMENT

Use an exclusive power source with a circuit breaker



Check proper installation of the drainage securely

⚠
STRICT
ENFORCEMENT

Connect power supply cord to the outlet completely



⚠
STRICT
ENFORCEMENT

Use the proper voltage

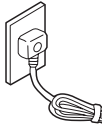


⚠
STRICT
ENFORCEMENT

1. Do not use power supply cord extended or connected in halfway
2. Do not install in the place where there is any possibility of inflammable gas leakage around the unit.
3. Do not get the unit exposed to vapor or oil steam.

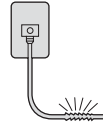
⊘
PROHIBITION

Do not use power supply cord in a bundle.



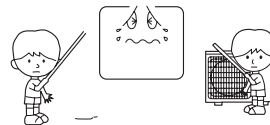
⊘
PROHIBITION

Take care not to damage the power supply cord.



⊘
PROHIBITION

Do not insert objects into the air inlet or outlet.



⊘
PROHIBITION

Do not start or stop the operation by disconnecting the power supply cord and so on.



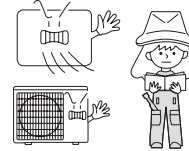
⊘
PROHIBITION

Do not channel the air flow directly at people, especially at infants or the aged.

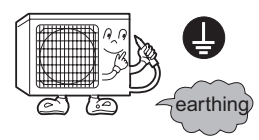


⊘
PROHIBITION

Do not try to repair or reconstruct by yourself.



Connect the earth cable.



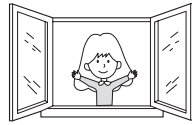
⚠ CAUTION

Do not use for the purpose of storage of food, art work, precise equipment, breeding, or cultivation.



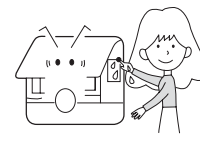
⊘
PROHIBITION

Take fresh air occasionally especially when gas appliance is running at the same time.



⚠
STRICT
ENFORCEMENT

Do not operate the switch with wet hand.



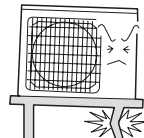
⊘
PROHIBITION

Do not install the unit near a fireplace or other heating apparatus.



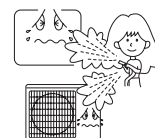
⊘
PROHIBITION

Check good condition of the installation stand



⊘
PROHIBITION

Do not pour water onto the unit for cleaning



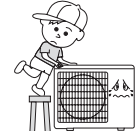
⊘
PROHIBITION

Do not place animals or plants in the direct path of the air flow



⊘
PROHIBITION

Do not place any objects on or climb on the unit.



⊘
PROHIBITION

Do not place flower vase or water containers on the top of the unit.








⊘
PROHIBITION

Trouble shooting

Cautions

Before asking for service, check the following first.

	Phenomenon	Cause or check points
Normal Performance inspection	The system does not restart immediately. 	<ul style="list-style-type: none"> When unit is stopped, it won't restart immediately until 3 minutes have elapsed to protect the system. When the electric plug is pulled out and reinserted, the protection circuit will work for 3 minutes to protect the air conditioner.
	Noise is heard 	<ul style="list-style-type: none"> During unit operation or at stop, a swishing or gurgling noise may be heard. At first 2-3 minutes after unit start, this noise is more noticeable. (This noise is generated by refrigerant flowing in the system.) During unit operation, a cracking noise may be heard. This noise is generated by the casing expanding or shrinking because of temperature changes. Should there be a big noise from air flow in unit operation, air filter may be too dirty.
	Smells are generated.	<ul style="list-style-type: none"> This is because the system circulates smells from the interior air such as the smell of furniture, paint, cigarettes.
	Mist or steam are blown out. 	<ul style="list-style-type: none"> During COOL or DRY operation, indoor unit may blow out mist. This is due to the sudden cooling of indoor air.
	In dry mode, fan speed can't be changed.	<ul style="list-style-type: none"> In DRY mode, when room temperature becomes lower than temp. setting+2 °C, unit will run intermittently at LOW speed regardless of FAN setting.
Multiple check		<ul style="list-style-type: none"> Is power plug inserted? Is there a power failure? Is fuse blownout?
	Poor cooling 	<ul style="list-style-type: none"> Is the air filter dirty? Normally it should be cleaned every 15 days. Are there any obstacles before inlet and outlet? Is temperature set correctly? Are there some doors or windows left open? Is there any direct sunlight through the window during the cooling operation?(Use curtain) Are there too much heat sources or too many people in the room during cooling operation?

- 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.

This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of appliance by person responsible for their safety. Children should be supervised to ensure that they do not play with the appliance.

Specifications

- The refrigerating circuit is leak-proof.

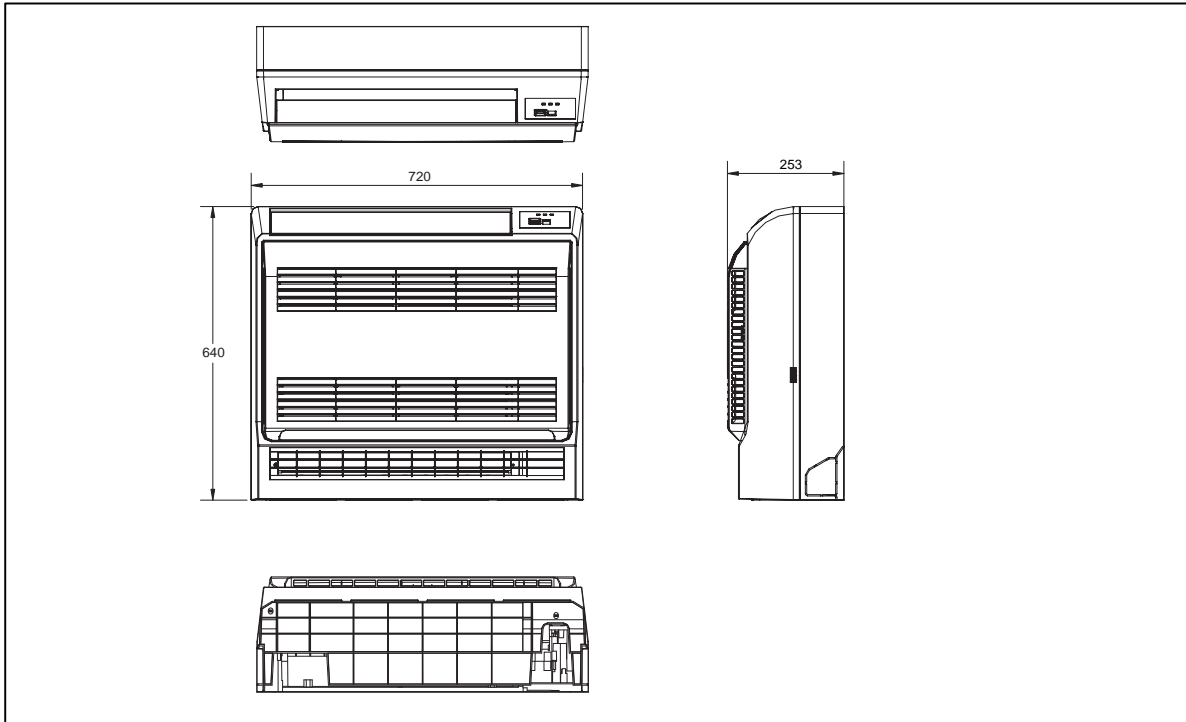
The machine is adaptive in following situation

1. Applicable ambient temperature range:

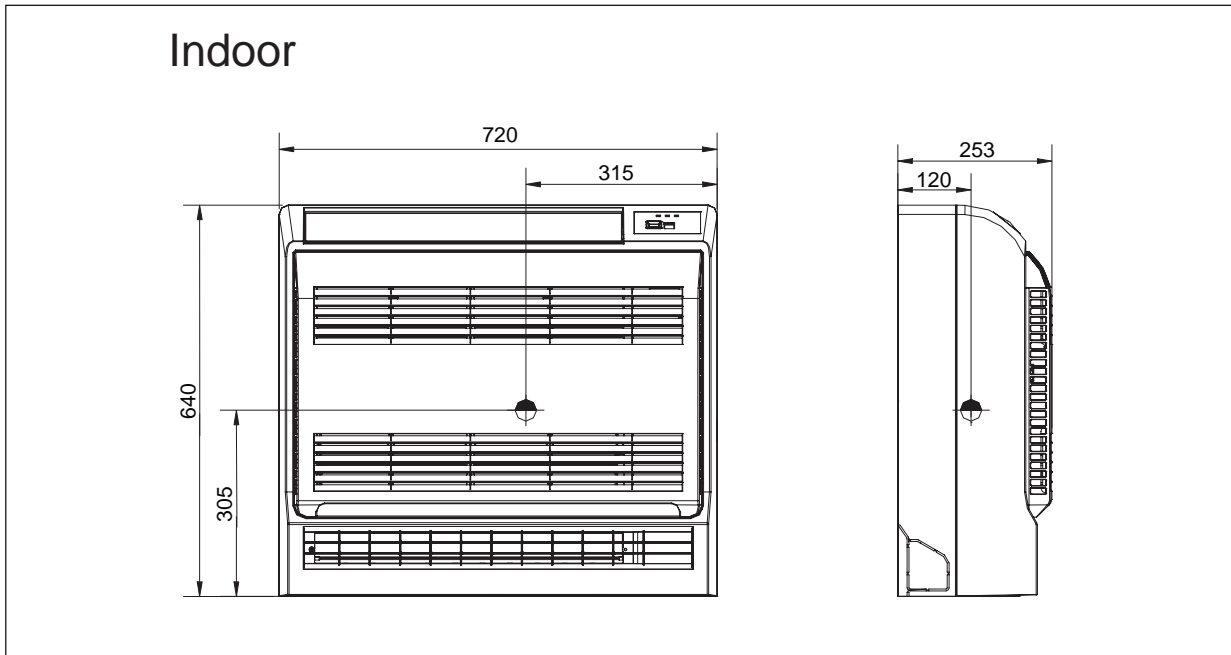
Cooling	Indoor	Maximum:D.B/W.B 32°C/23°C Minimum:D.B/W.B 21°C/15°C
	Outdoor	Maximum:D.B/W.B 43°C/26°C Minimum: D.B 18°C
Heating	Indoor	Maximum:D.B 27°C Minimum: D.B 0°C
	Outdoor	Maximum:D.B/W.B 24°C/18°C Minimum:D.B/W.B -7°C/-8°C
	Outdoor (INVERTER)	Maximum:D.B/W.B 24°C/18°C Minimum:D.B -15°C

- If the power supply cord is damaged, it must be replaced by the manufacturer or its service agent or a similar qualified person.
- If the fuse of indoor unit on PC board is broken, please change it with the type of T. 3.15A/ 250V. If the fuse of outdoor unit is broken, change it with the type of T.25A/250V
- The wiring method should be in line with the local wiring standard.
- After installation, the power plug should be easily reached.
- The waste battery should be disposed properly.
- The appliance is not intended for use by young children or infirm persons without supervision.
- Young children should be supervised to ensure that they do not play with the appliance.
- Please employ the proper power plug, which fit into the power supply cord.
- A breaker should be incorporated into fixed wiring. The breaker should be all-pole switch and the distance between its two contacts should be not less than 3mm.
- The power plug and connecting cable must have acquired the local attestation.
- In order to protect the units, please turn off the A/C first, and at least 30 seconds later, cutting off the power.

9. Dimensional drawings



10. Center of gravity



11 Service Diagnosis

11.1 Caution for Diagnosis

The operation lamp flashes when any of the following errors is detected.

1. When a protection device of the indoor or outdoor unit is activated or when the thermistor malfunctions, disabling equipment operation.
2. When a signal transmission error occurs between the indoor and outdoor units. In either case, conduct the diagnostic procedure described in the following pages.

11.2 Parameter of primary electronic appliance

NO	Name	Parameter	Picture
1	Fan motor (match cross flow fan 0010201184 ----φ97*510*7)	Rated voltage:220-230V Rated current:0.25A Rated frequency:50Hz Rated power:11W	
2	Fan motor (match cross flow fan 0010201175 ----φ97*490*7)	Rated voltage:220-230V Rated current:0.4A Rated frequency:50Hz Rated power:20W	

11.3 Problem Symptoms and Measures

Symptom	Check Item	Details of Measure
None of the units operates	Check the power supply.	Check to make sure that the rated voltage is supplied.
	Check the indoor PCB	Check to make sure that the indoor PCB is broken
Operation sometimes stops.	Check the power supply.	A power failure of 2 to 10 cycles can stop air conditioner operation.
Equipment operates but does not cool, or does not heat (only for heat pump)	Check for faulty operation of the electronic expansion valve.	Set the units to cooling operation, and compare the temperatures of the liquid side connection pipes of the connection section among rooms to check the opening and closing operation of the electronic expansion valves of the individual units.
	Diagnosis by service port pressure and operating current.	Check for insufficient gas.
Large operating noise and vibrations	Check the installation condition.	Check to make sure that the required spaces for installation (specified in the Technical Guide, etc.) are provided.

11.4 Error codes and description

	Code indication		fault description	Reference Page
	Indoor displaying panel code indication	Outdoor (LED1 flash times)		
Indoor and Outdoor	E7	15	Communication fault between indoor and outdoor units	Page49.
Indoor Malfunction	E1	--	Room temperature sensor failure	Page39.
	E2	--	Heat-exchange sensor failure	Page39.
	E4	--	Indoor EEPROM error	Page40.
	E14	--	Indoor fan motor malfunction	Page41.
Outdoor Malfunction	F12	1	Outdoor EEPROM error	Page40.
	F1	2	The protection of IPM	Page44.
	F22	3	Overcurrent protection of AC electricity for the outdoor model	Page45.
	F3	4	Communication fault between the IPM and outdoor PCB	Page46.
	F19	6	Power voltage is too high or low	Page47.
	F27	7	Compressor is lock-rotor or stopped momentary	Page51.
	F4	8	Overheat protection for Discharge temperature	Page48.
	F8	9	Outdoor DC fan motor fault	Page42.
	F21	10	Defrost temperature sensor failure	Page39 .
	F7	11	Suction temperature sensor failure	Page39.
	F6	12	Ambient temperature sensor failure	Page39.
	F25	13	Discharge temperature sensor failure	Page39.
	F13	16	Short of refrigerant	Page44.
	F11	18	deviate from the normal for the compressor	Page51.
	F28	19	Loop of the station detect error	Page51.
	/	21	Over load protection of indoor system	Page47 .
	F2	24	Overcurrent of the compressor	Page45.
	F23	25	Overcurrent protection for single-phase of the compressor	Page45.
E9	21	High work-intense protection	Page52.	

11.4.1 Thermistor or Related Abnormality

Indoor display	E1: Room temperature sensor failure E2: Heat-exchange sensor failure
	LED1 flash 10 times: Defrost temperature sensor failure
Outdoor display	LED1 flash 11 times: Suction temperature sensor failure LED1 flash 12 times: Ambient temperature sensor failure LED1 flash 13 times: Discharge temperature sensor failure

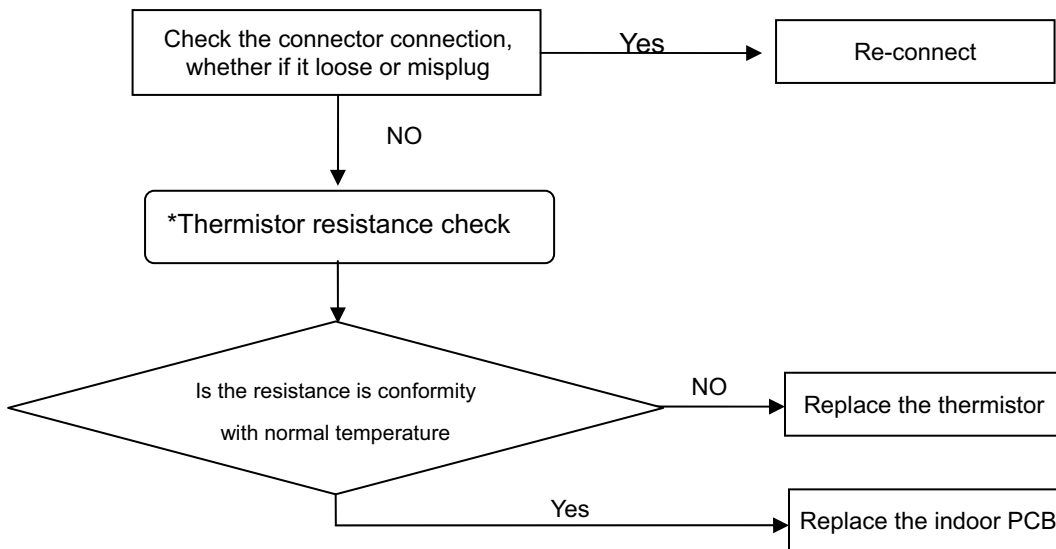
Method of malfunction detection The temperatures detected by the thermistors are used to determine thermistor errors

Malfunction detection conditions when the thermistor input is more than 4.92V or less than 0.08V during compressor operation.

- Note: The values vary slightly in some models

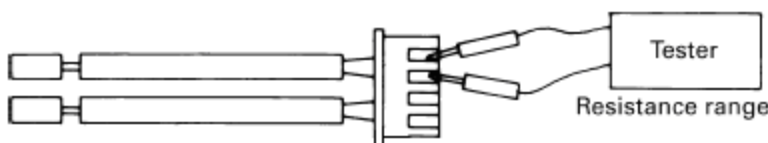
- Supposed causes**
- Faulty connector connection
 - Faulty thermistor
 - Faulty PCB

Troubleshooting * Caution Be sure to turn off power switch before connect or disconnect connector, or else parts damage may be occurred.



Thermistor resistance check method:

Remove the connector of the thermistor on the PCB, and measure the resistance of thermistor using tester. The relationship between normal temperature and resistance is shown in the value of indoor thermistor.



11.4.2 EEPROM abnormal

Indoor Display E4: indoor EEPROM error
 outdoor display F12: Outdoor EEPROM error; Outdoor LED1 flash 1 times

Method of malfunction detection

The Data detected by the EEPROM are used to determine MCU

Malfunction detection conditions

when the data of EEPROM is error or the EEPROM is damaged

Supposed causes

- Faulty EEPROM data
- Faulty EEPROM
- Faulty PCB

Troubleshooting

* Caution Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.

Replace the indoor or outdoor mainboard

11.4.3 Indoor AC fan motor malfunction

Indoor Display

E14

Method of malfunction detection

The fan speed detected by the Hall IC during fan motor running which is used to determine the fan motor operating

Malfunction detection conditions

When there is no fan speed feedback signal within 2 minutes

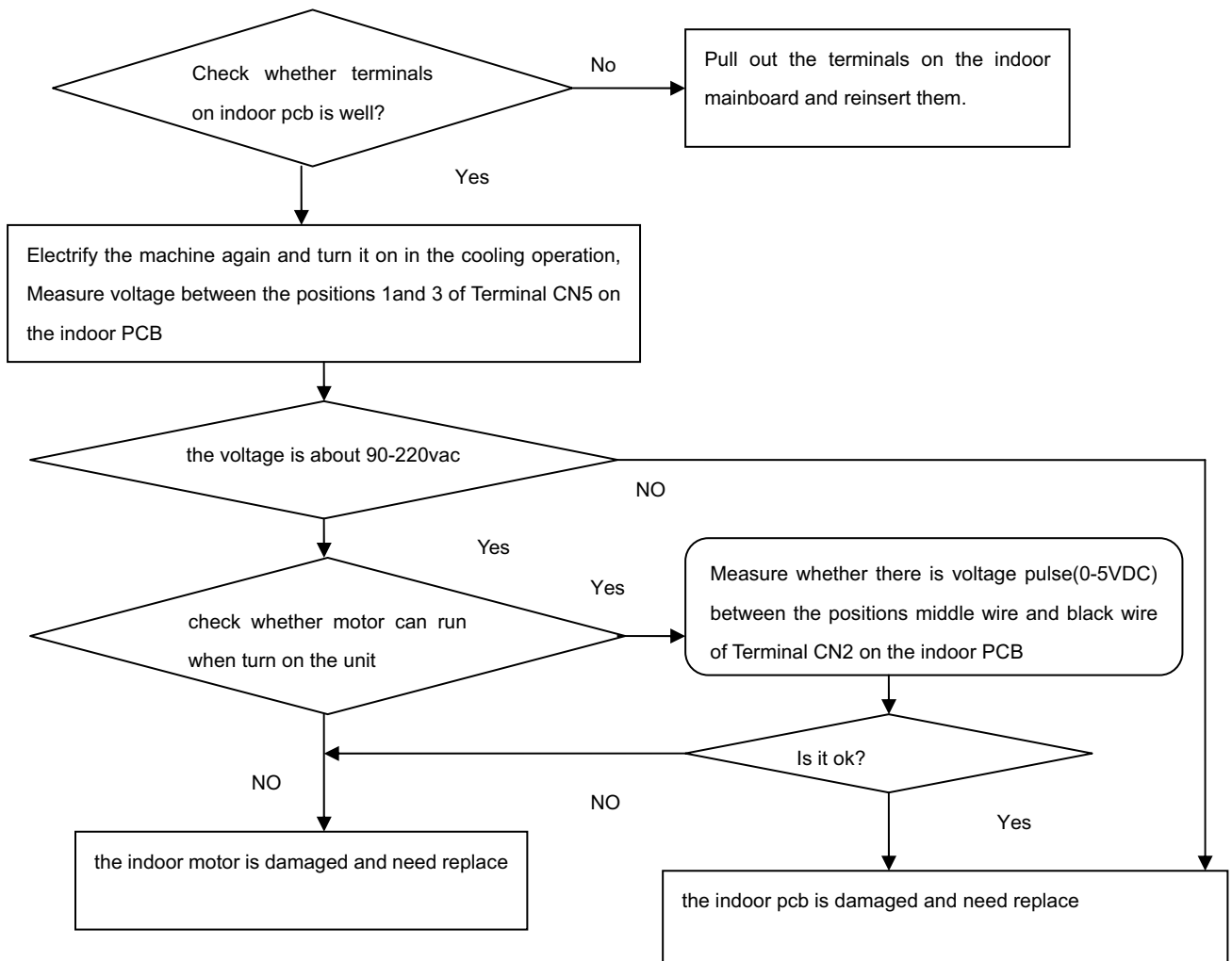
Supposed causes

- Operation halt due to breaking of wire inside the fan motor.
- Fan motor overheat protection
- Operation halt due to breaking of the fan motor lead wires
- Detection error due to faulty indoor unit PCB

Troubleshooting

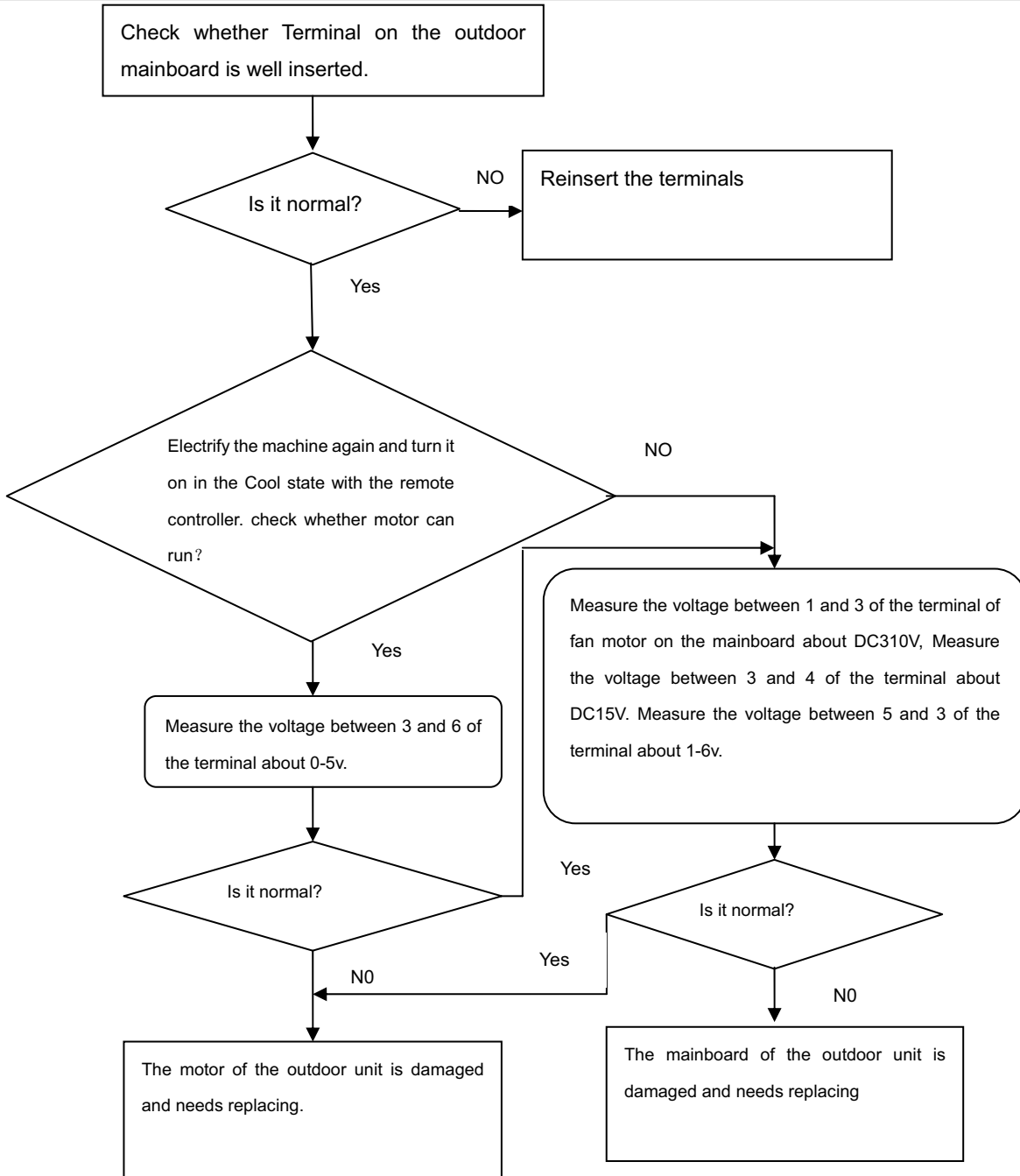
*** Caution**

Be sure to turn off power switch before connect or disconnect connector, or else parts damage may be caused



11.4.4 Outdoor DC fan motor fault

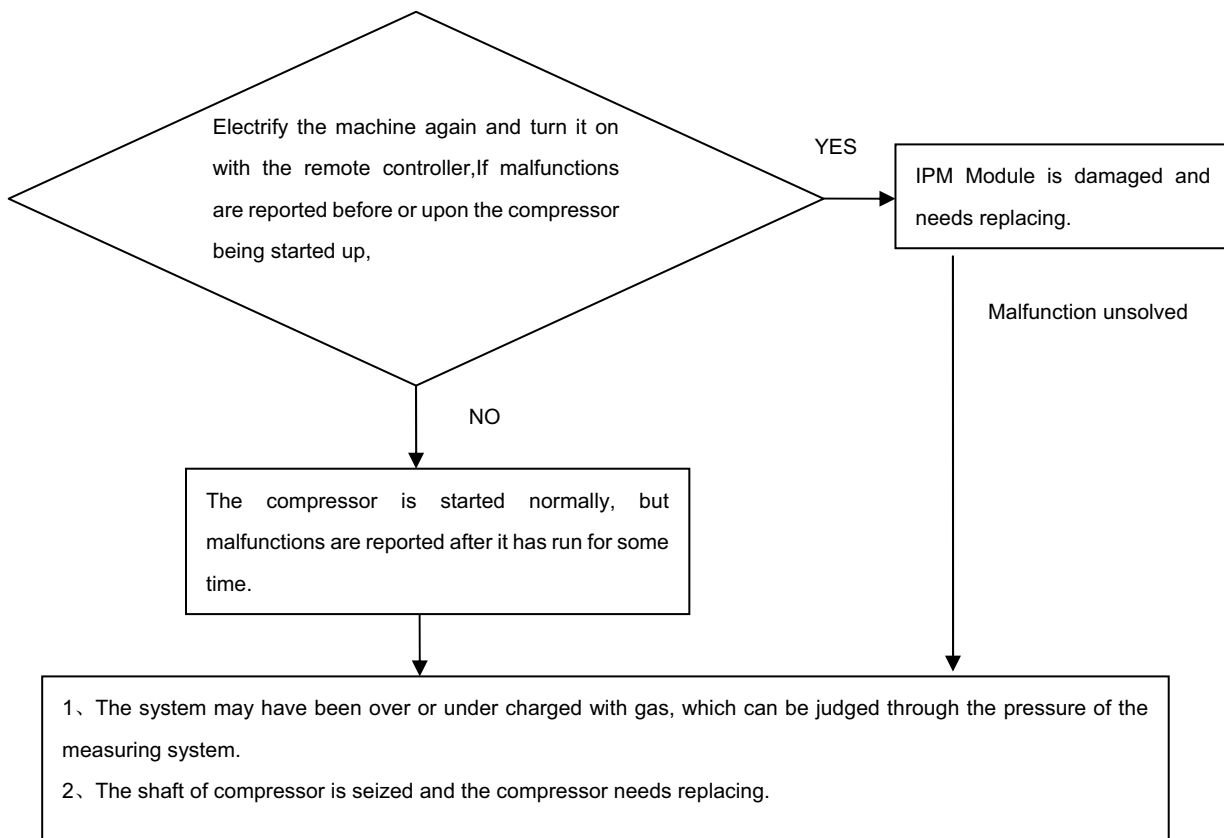
Outdoor display	LED1 flash 9 times
Method of malfunction detection	DC fan motor is detected by checking the fan running condition and so on
Malfunction detection conditions	when the data of EEPROM is error or the EEPROM is damaged
Supposed causes	<ul style="list-style-type: none"> ■DC fan motor protection dues to the DC fan motor faulty ■DC fan motor protection dues to faulty PCB
Troubleshooting	<p>* Caution</p> <p>Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.</p>



11.4.5 IPM protection

Outdoor display LED1 flash 2 times

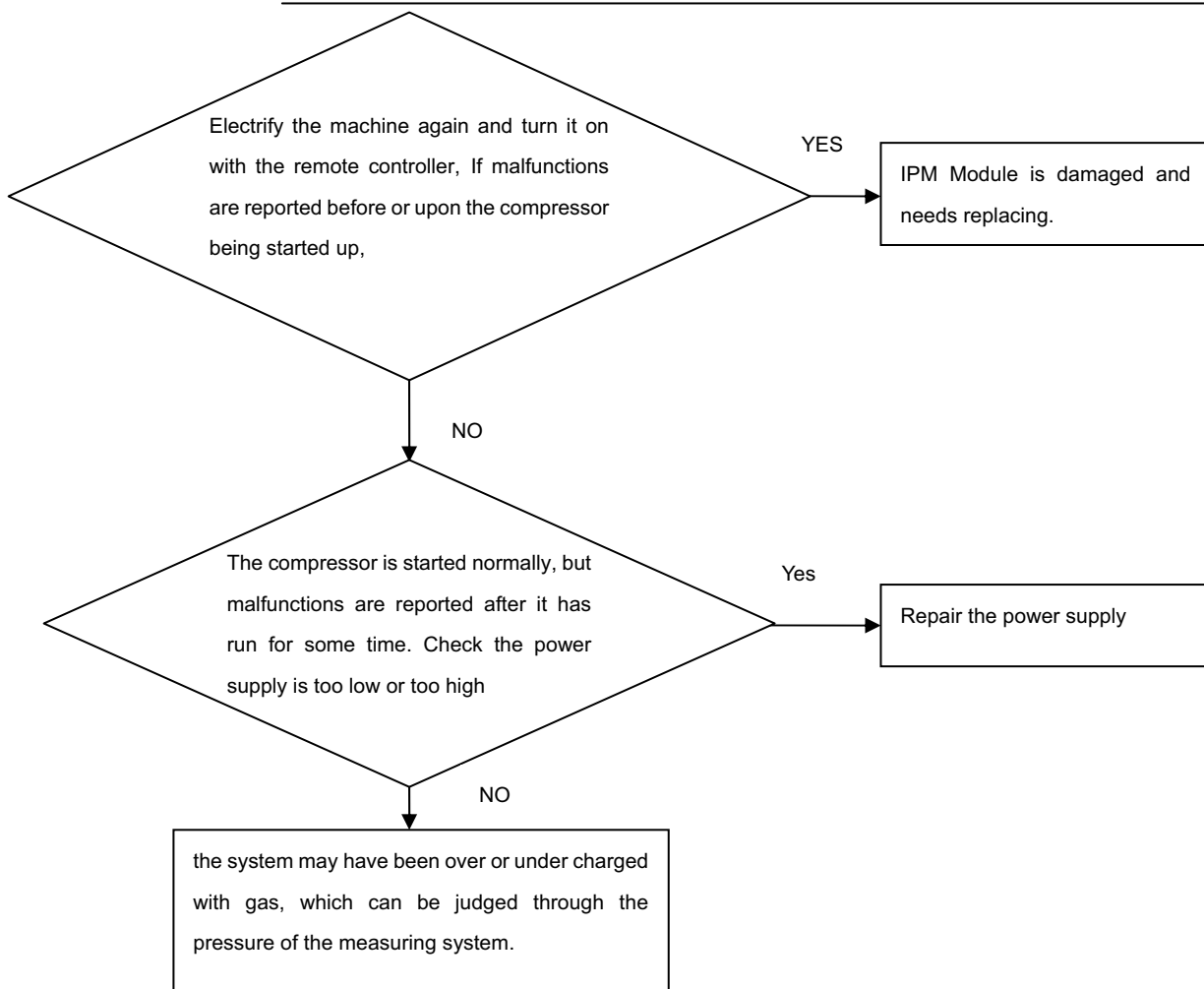
Method of malfunction detection	IPM protection is detected by checking the compressor running condition and so on
Malfunction detection conditions	<ul style="list-style-type: none"> ■The system leads to IPM protection due to over current ■The compressor faulty leads to IPM protection ■circuit component of IPM is broken and led to IPM protection
Supposed causes	<ul style="list-style-type: none"> ■IPM protection dues to the compressor faulty ■IPM protection dues to faulty PCB of IPM module ■Compressor wiring disconnected
Troubleshooting	<p>* Caution</p> <p>Be sure to turn off power switch before connect or disconnect connector, or else parts damage may be occurred..</p>



11.4.6 Over-current of the compressor

Outdoor display LED1 flash 3 or 24 or 25 times

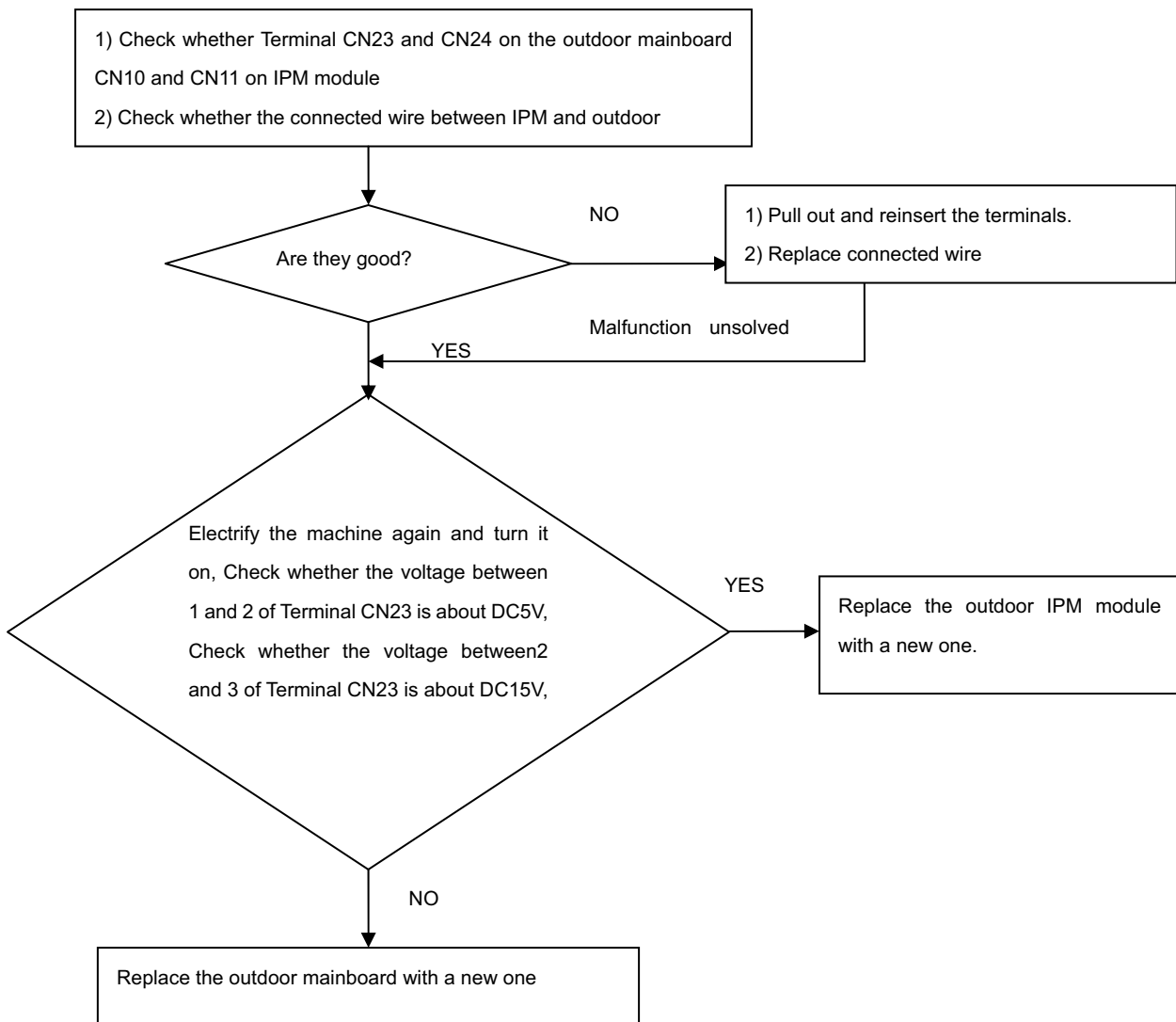
Method of malfunction detection	the current of the compressor is too high
Malfunction detection conditions	when the IPM Module is damaged or the compressor is damaged. power supply voltage is too low or too high
Supposed causes	<ul style="list-style-type: none"> ■ Faulty IPM Module ■ Faulty compressor ■ Faulty power supply
Troubleshooting	<p>* Caution</p> <p>Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred...</p>



11.4.7 The communication fault between IPM and outdoor PCB

Outdoor display LED1 flash 4 times

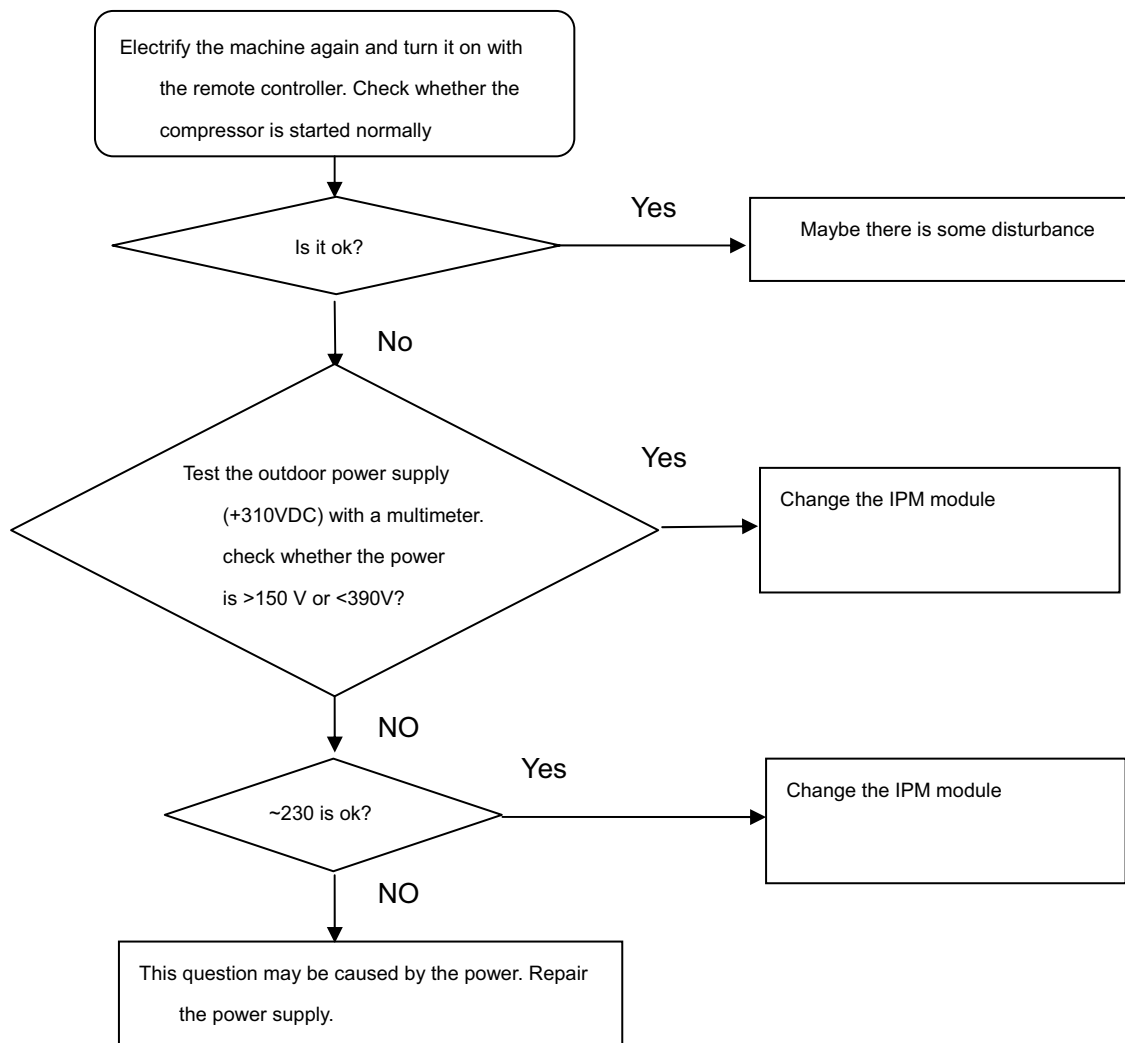
Method of malfunction detection	Communication is detected by checking the IPM module and the outdoor PCB
Malfunction detection conditions	<ul style="list-style-type: none"> ■The outdoor PCB broken leads to communication fault ■The IPM module broken leads to communication fault
Supposed causes	<ul style="list-style-type: none"> ■The outdoor PCB is broken ■The IPM module is broken ■Communication wiring disconnected
Troubleshooting	<p>* Caution</p> <p>Be sure to turn off power switch before connect or disconnect connector, or else parts damage may be occurred</p>



11.4.8 Power Supply Over or under voltage fault

Outdoor display LED1 flash 21 times The power supply is over voltage

Method of malfunction detection	An abnormal voltage rise or fall is detected by checking the specified voltage detection
Malfunction detection conditions	An voltage signal is fed from the voltage detection circuit to the microcomputer
Supposed causes	<ul style="list-style-type: none"> ■Supply voltage not as specified. ■The IPM module is broken. ■The outdoor PCB is broken.
Troubleshooting	<p>* Caution</p> <p>Be sure to turn off power switch before connect or disconnect connector, or else parts damage may be occurred.</p>

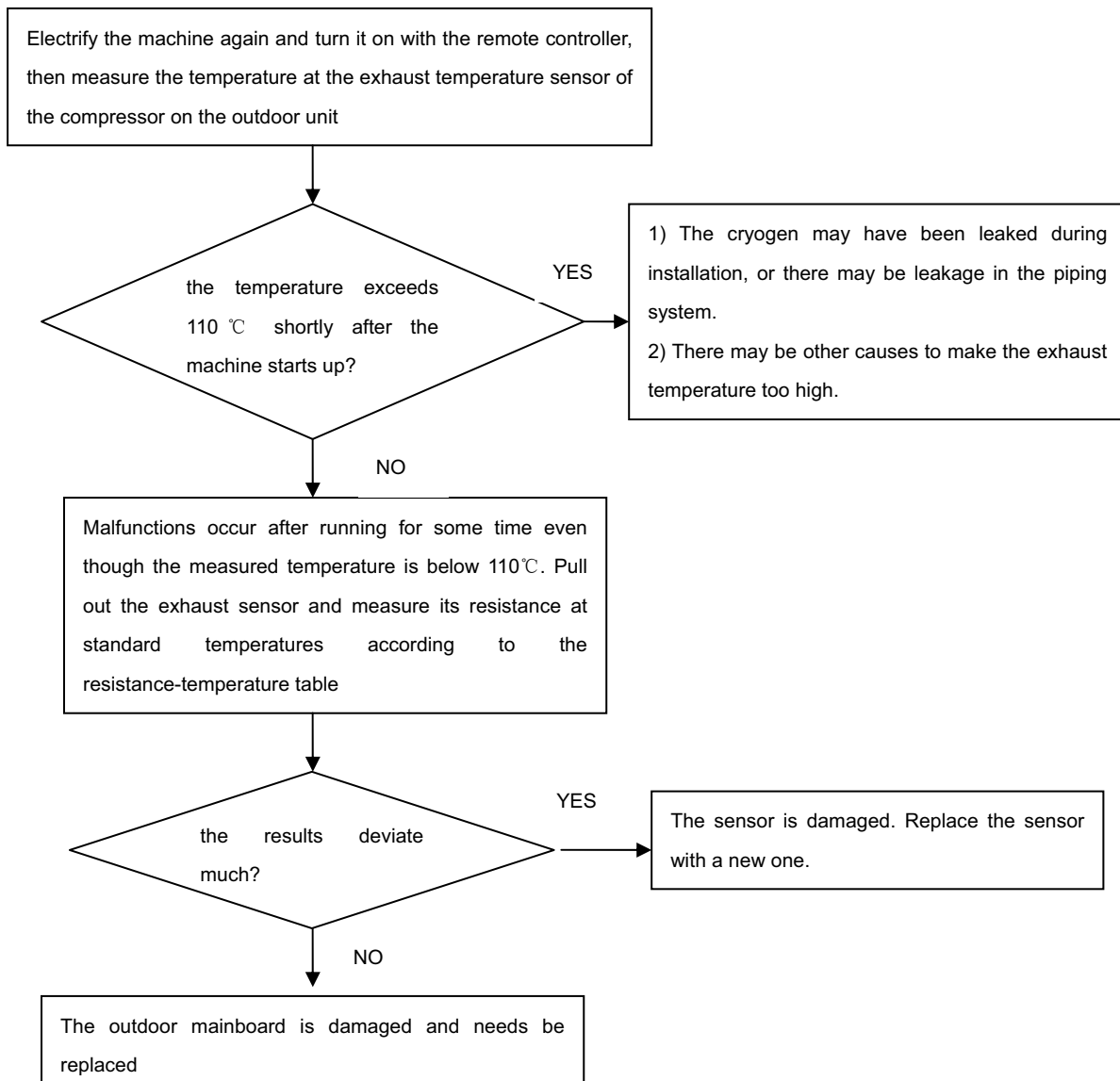


11.4.9 Overheat Protection For Discharge Temperature

Outdoor display

LED1 flash 8 times

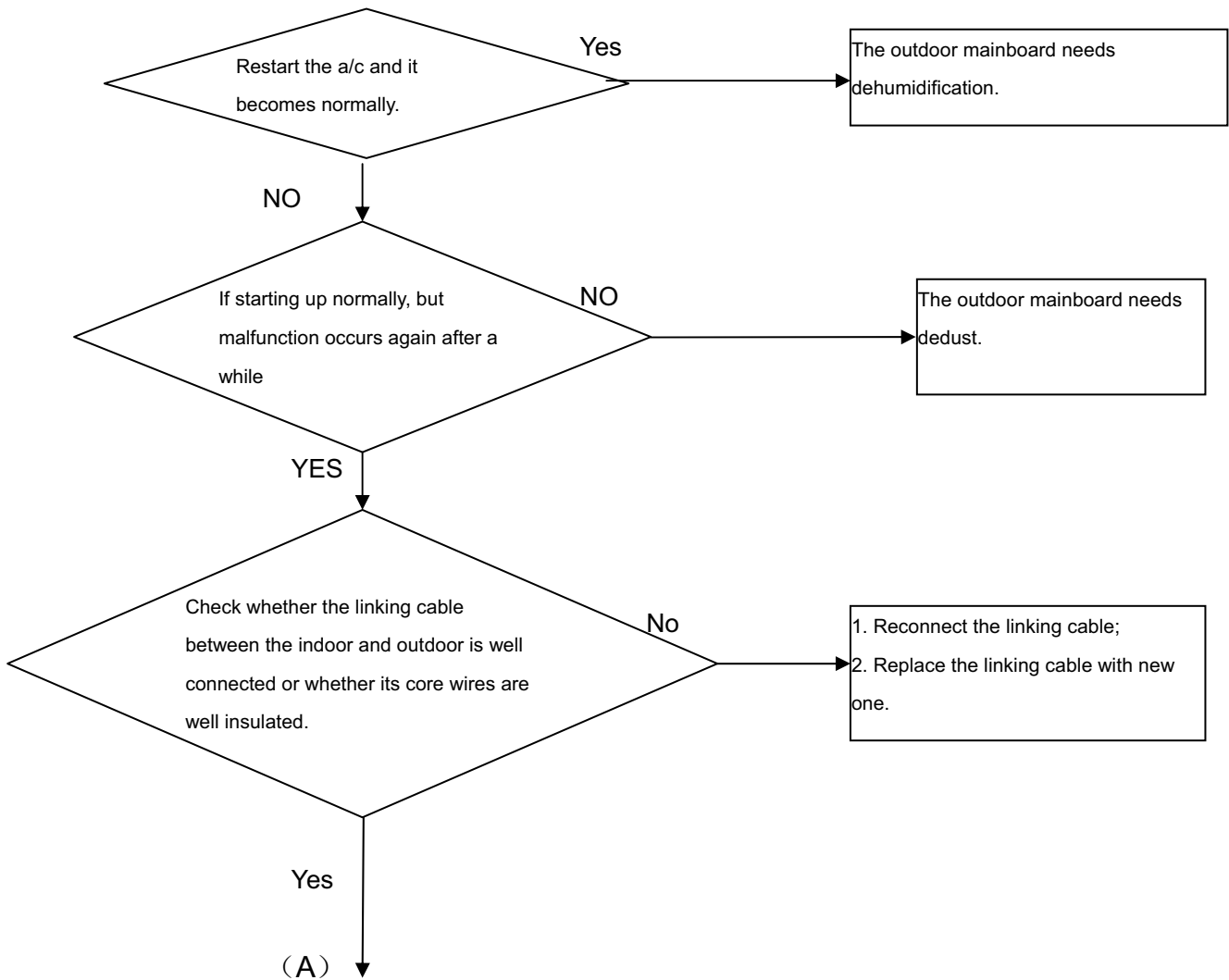
Method of malfunction detection	The Discharge temperature control is checked with the temperature being detected by the Discharge pipe thermistor
Malfunction detection conditions	when the compressor discharge temperature is above 110°C
Supposed causes	<ul style="list-style-type: none"> ■Electronic expansion valve defective ■Faulty thermistor ■Faulty PCB
Troubleshooting	<p>* Caution</p> <p>Be sure to turn off power switch before connect or disconnect connector, or else parts damage may be occurred.</p>

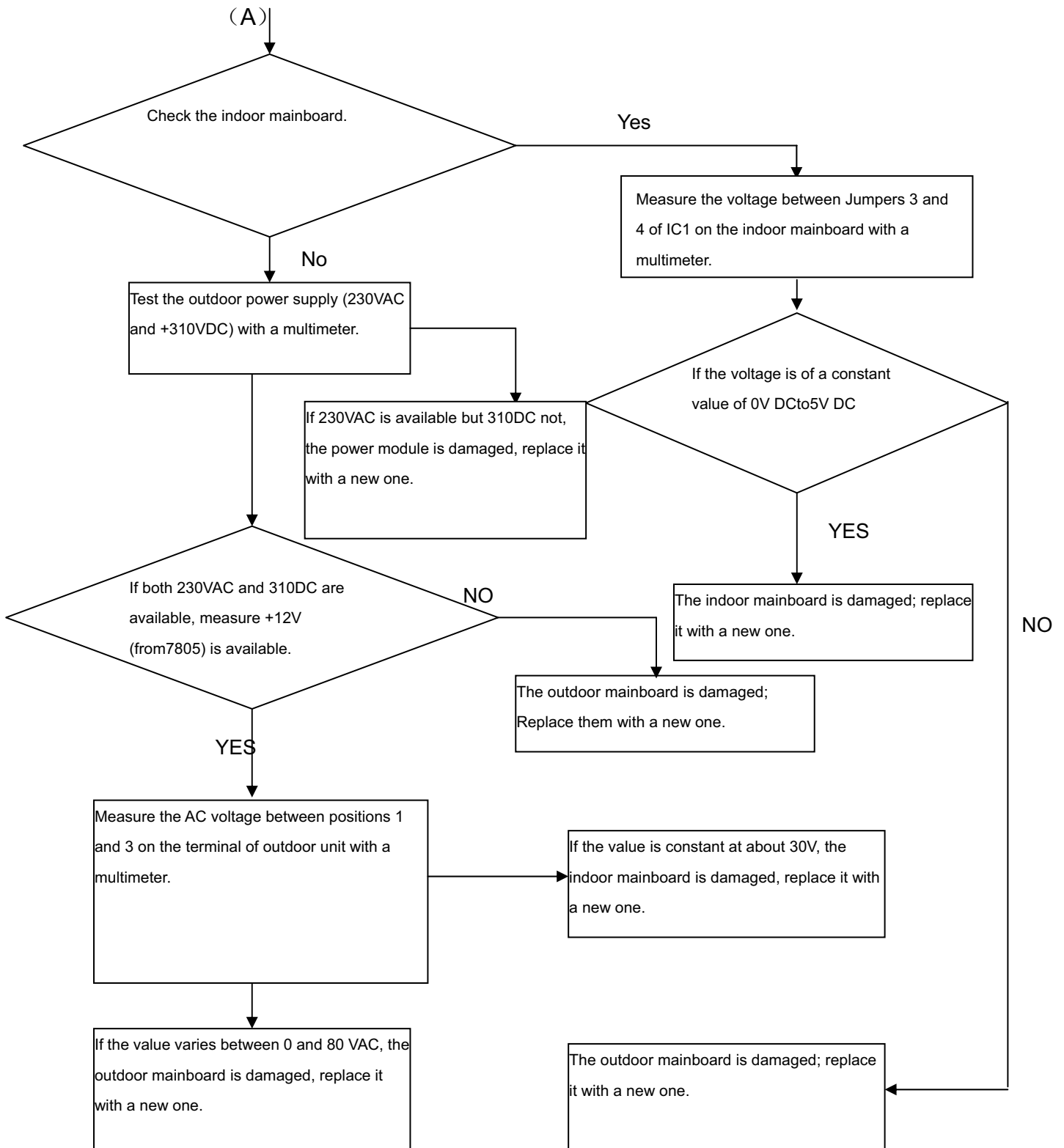


11.4.10 The communication fault between indoor and outdoor

indoor display E7
 Outdoor display LED1 flash 15 times

Method of malfunction detection	Communication is detected by checking the indoor PCB and the outdoor PCB
Malfunction detection conditions	<ul style="list-style-type: none"> ■The outdoor PCB broken leads to communication fault ■The indoor PCB broken leads to communication fault
Supposed causes	<ul style="list-style-type: none"> ■Communication wiring disconnected ■The indoor PCB is broken ■The outdoor PCB is broken ■The module PCB is broken
Troubleshooting	<p>* Caution</p> <p>Be sure to turn off power switch before connect or disconnect connector, or else parts damage may be occurred.</p>



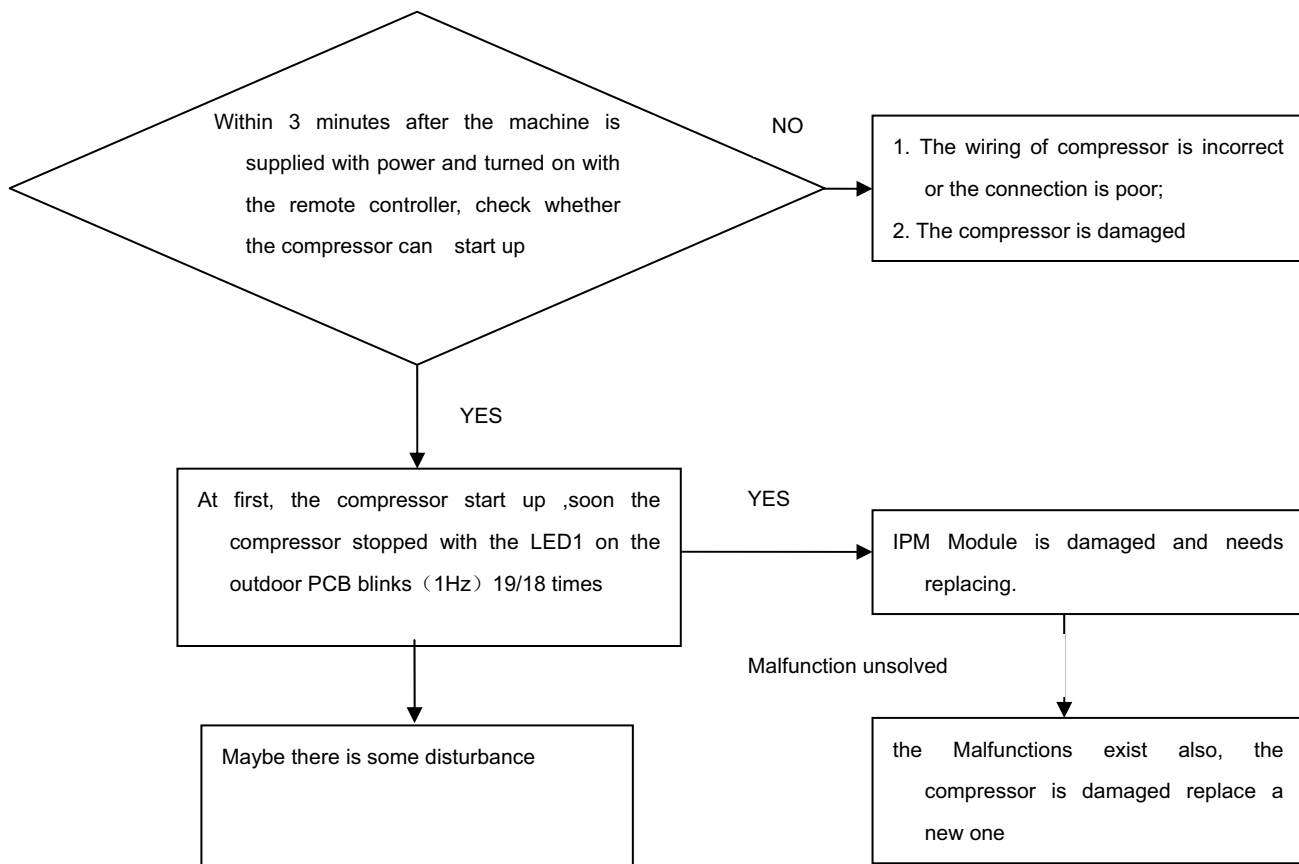


11.4.11 Loss of synchronism detection

Inverter side current detection is abnormal

Outdoor display LED1 flash 18 times
 LED1 flash 19 times

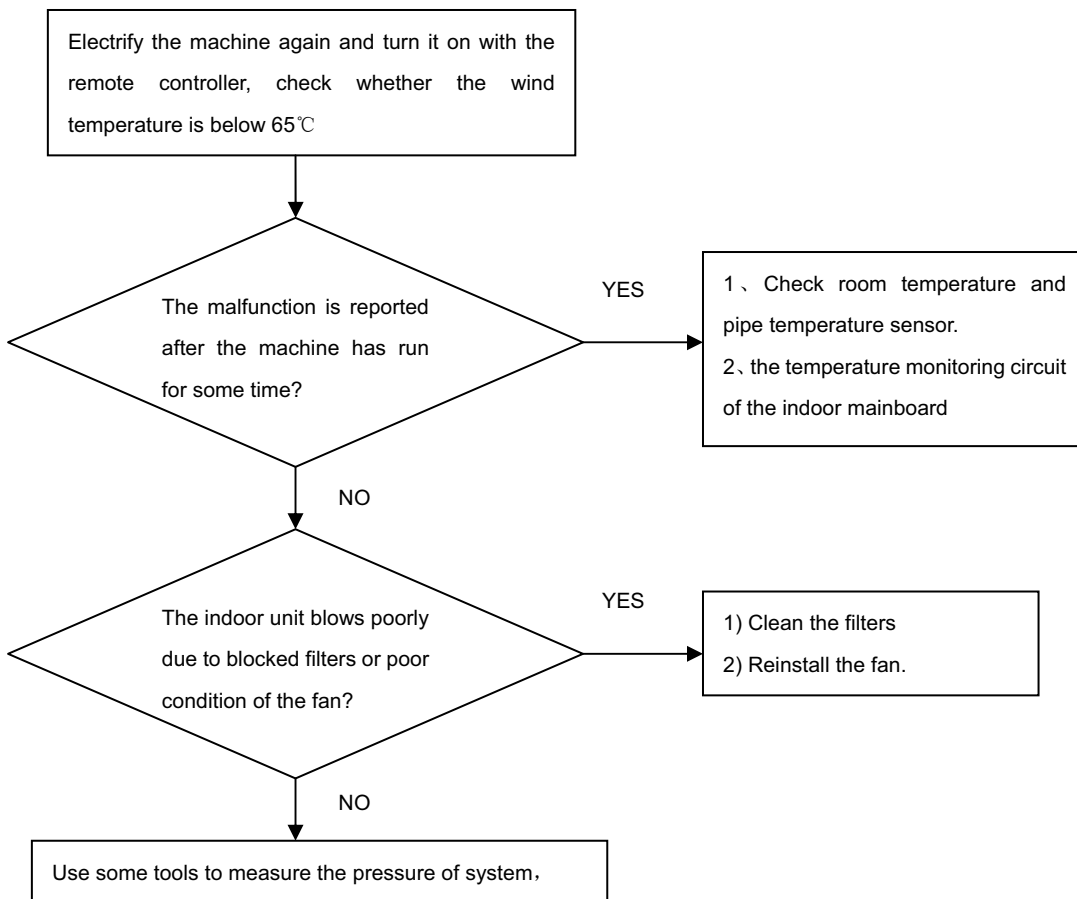
Method of malfunction detection	The position of the compressor rotor can not detected normally
Malfunction detection conditions	when the wiring of compressor is wrong or the connection is poor; or the compressor is damaged
Supposed causes	<ul style="list-style-type: none"> ■Faulty The wiring of compressor ■Faulty compressor ■Faulty PCB
Troubleshooting	<p>* Caution</p> <p>Be sure to turn off power switch before connect or disconnect connector, or else parts damage may be occurred.</p>



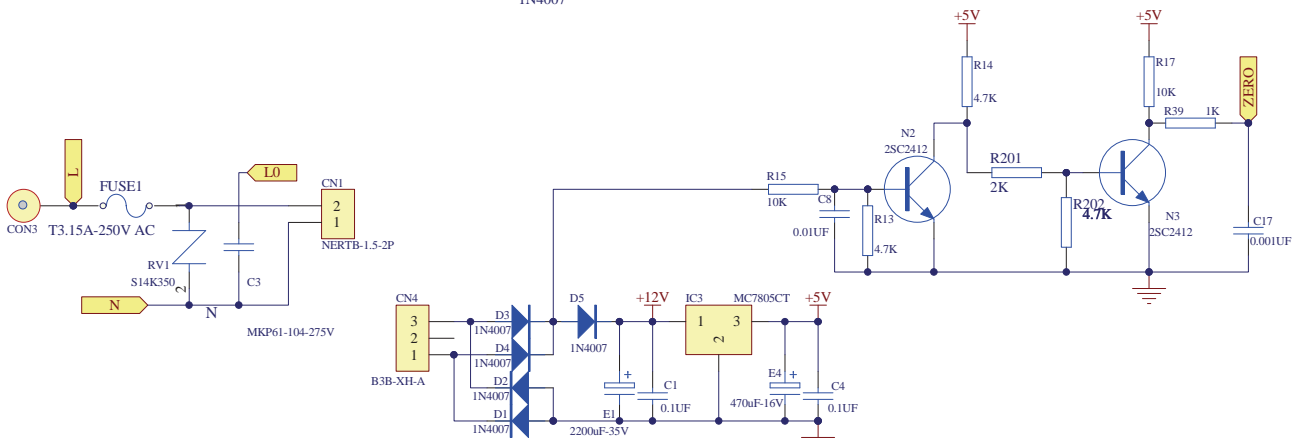
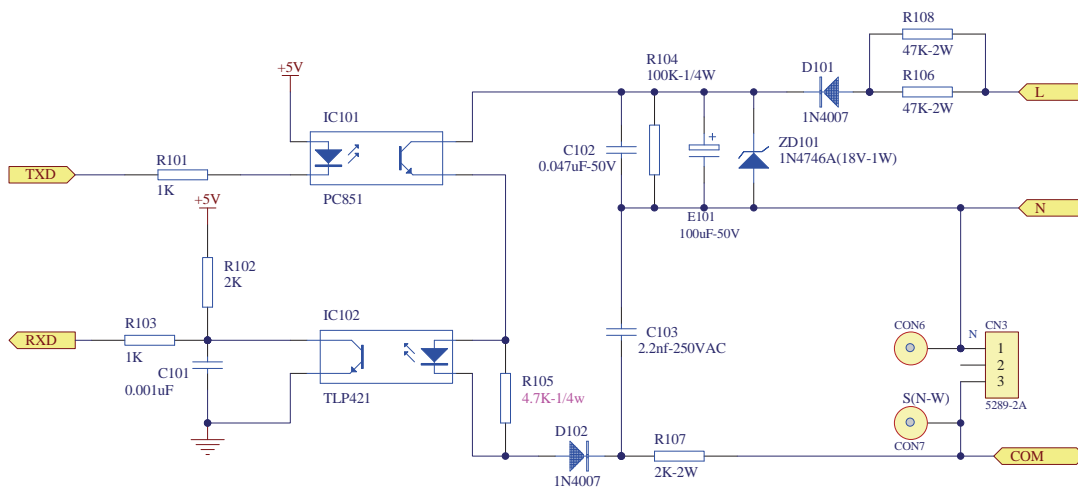
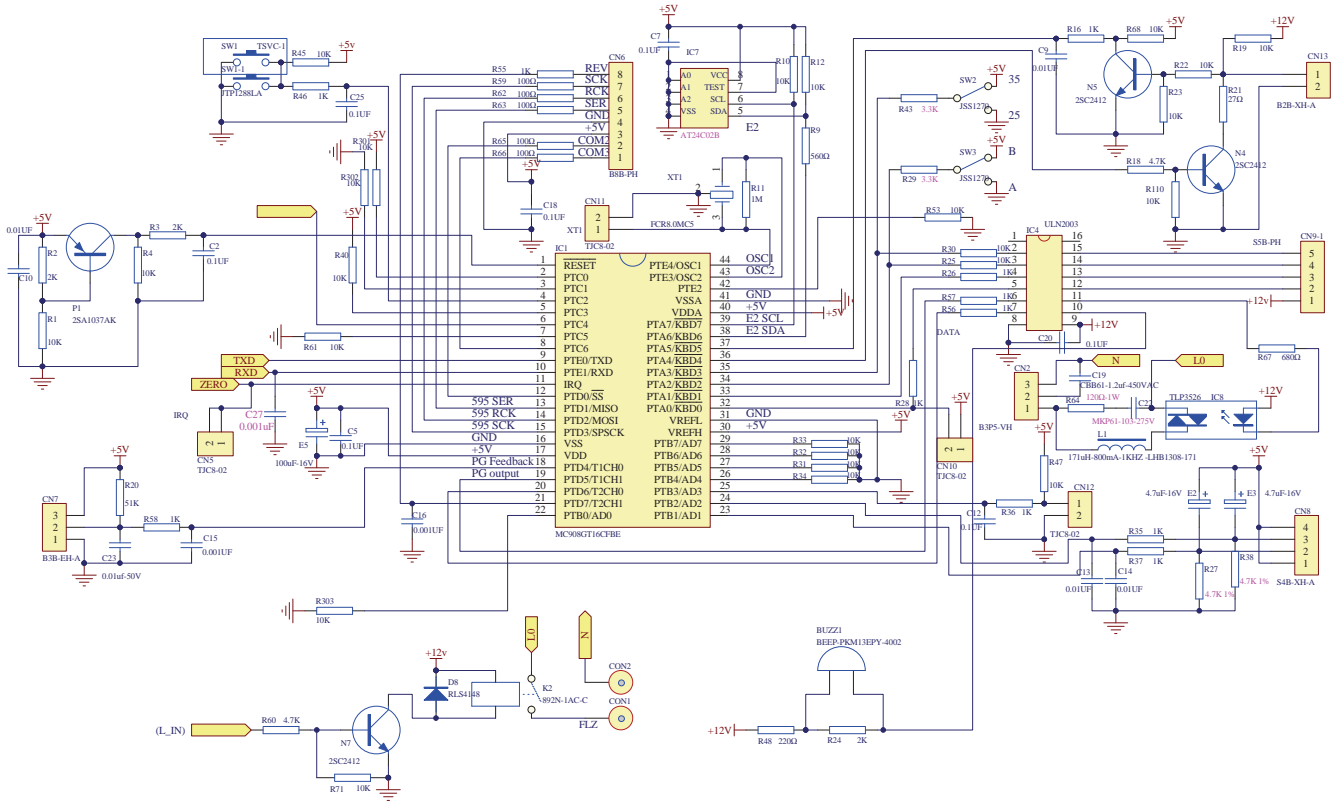
11.4.12 High work-intense protection

Outdoor display LED1 flash 21 times

Method of malfunction detection	High work-intense control is activated in the heating mode if the temperature being sensed by the heat exchanger thermistor exceeds the limit.
Malfunction detection conditions	Activated when the temperature being sensed by the heat exchanger rises above 65°C twice in 30 minutes.
Supposed causes	<ul style="list-style-type: none"> ■ Faulty electronic expansion valve ■ Dirty heat exchanger ■ Faulty heat-exchange sensor ■ Insufficient gas
Troubleshooting	<p>* Caution</p> <p>Be sure to turn off power switch before connect or disconnect connector, or else parts damage may be occurred.</p>



12. Circuit diagrams



Haier SERVICE MANUAL

Wall Mounted Type DC Inverter SUPER MATCH Model No. AF12AB1HRA AF12AS1ERA



WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or Repair the product or products dealt with in this service information by anyone else could result in serious injury or death

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Haier Group

Version: V1

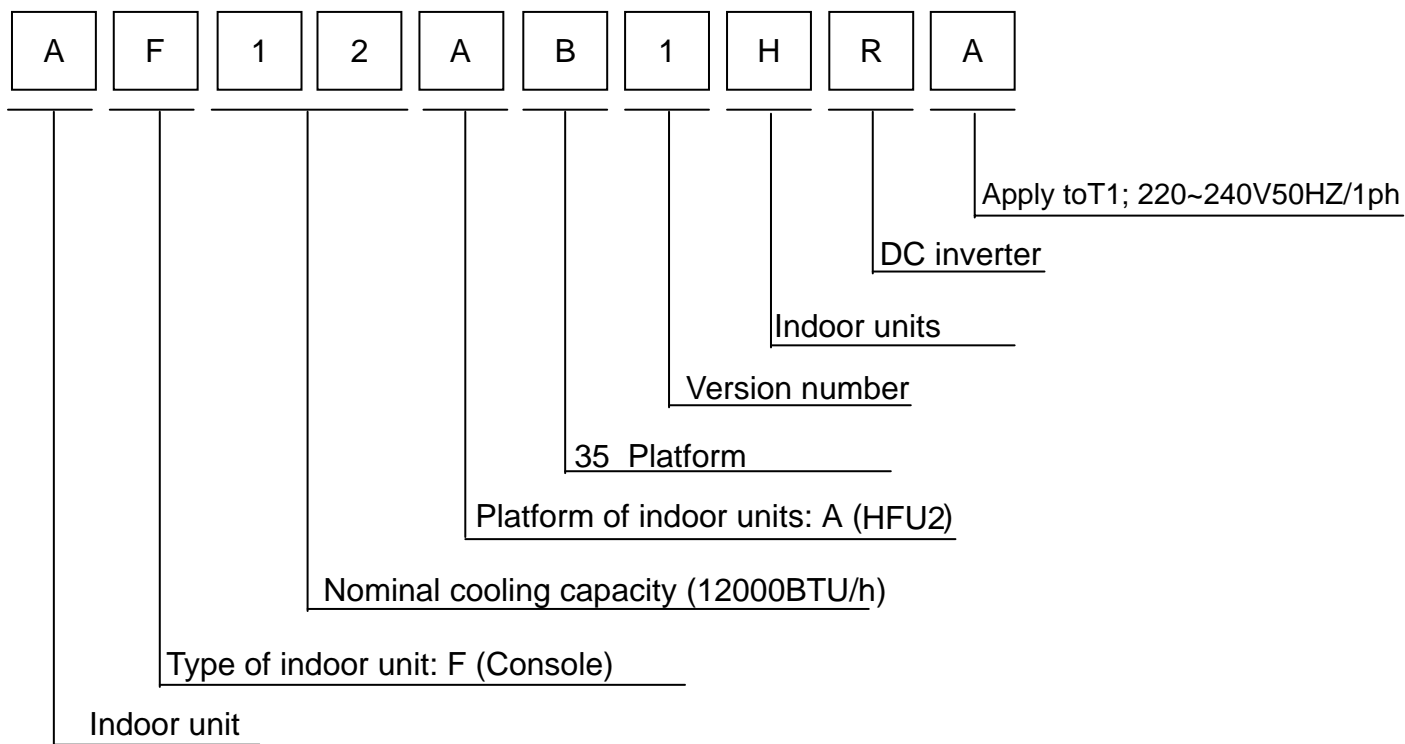
Date: 2013-11-25

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1 Introduction

1.1 Model name explanation



1.2 Safety Cautions

Be sure to read the following safety cautions before conducting repair work.






The caution items are classified into “Warning” and “Caution”. The “Warning” items are especially important since they can lead to death or serious injury if they are not followed closely. The “Caution” items can also lead to serious accidents under some conditions if they are not followed. Therefore, be sure to observe all the safety caution items described below.







About the pictograms

- △ This symbol indicates an item for which caution must be exercised.
The pictogram shows the item to which attention must be paid.
- This symbol indicates a prohibited action.
The prohibited item or action is shown inside or near the symbol.
- This symbol indicates an action that must be taken, or an instruction.
The instruction is shown inside or near the symbol.

After the repair work is complete, be sure to conduct a test operation to ensure that the equipment operates Normally, and explain the cautions for operating the product to the customer.



1.2.1 Caution in Repair


Warning	
<p>Be sure to disconnect the power cable plug from the plug socket before disassembling the equipment for a repair.</p> <p>Working on the equipment that is connected to a power supply can cause an electrical shock.</p> <p>If it is necessary to supply power to the equipment to conduct the repair or inspecting the circuits, do not touch any electrically charged sections of the equipment.</p>	
<p>If the refrigerant gas discharges during the repair work, do not touch the discharging refrigerant gas. The refrigerant gas can cause frostbite.</p>	
<p>When disconnecting the suction or discharge pipe of the compressor at the welded section, release the refrigerant gas completely at a well-ventilated place first.</p> <p>If there is a gas remaining inside the compressor, the refrigerant gas or refrigerating machine oil discharges when the pipe is disconnected, and it can cause injury.</p>	
<p>If the refrigerant gas leaks during the repair work, ventilate the area. The refrigerant gas can generate toxic gases when it contacts flames.</p>	
<p>The step-up capacitor supplies high-voltage electricity to the electrical components of the outdoor unit. Be sure to discharge the capacitor completely before conducting repair work. A charged capacitor can cause an electrical shock.</p>	
<p>Do not start or stop the air conditioner operation by plugging or unplugging the power cable plug. Plugging or unplugging the power cable plug to operate the equipment can cause an electrical shock or fire.</p>	

Warning	
Do not repair the electrical components with wet hands . Working on the equipment with wet hands can cause an electrical shock	
Do not clean the air conditioner by splashing water. Washing the unit with water can cause an electrical shock.	
Be sure to provide the grounding when repairing the equipment in a humid or wet place, to avoid electrical shock.	
Be sure to turn off the power switch and unplug the power cable when cleaning the equipment. The internal fan rotates at a high speed, and cause injury.	
Do not tilt the unit when removing it. The water inside the unit can spill and wet the furniture and floor.	
Be sure to check that the refrigerating cycle section has cooled down sufficiently before conducting repair work. Working on the unit when the refrigerating cycle section is hot can cause burns.	
Use the welder in a well-ventilated place. Using the welder in an enclosed room can cause oxygen deficiency.	



1.2.2 Cautions Regarding Products after Repair


Warning	
Be sure to use parts listed in the service parts list of the applicable model and appropriate tools to conduct repair work. Never attempt to modify the equipment. The use of inappropriate parts or tools can cause an electrical shock, excessive heat generation or fire.	
When relocating the equipment, make sure that the new installation site has sufficient strength to withstand the weight of the equipment. If the installation site does not have sufficient strength and if the installation work is not conducted securely, the equipment can fall and cause injury.	
Be sure to install the product correctly by using the provided standard installation frame. Incorrect use of the installation frame and improper installation can cause the equipment to fall, resulting in injury.	For integral units only
Be sure to install the product securely in the installation frame mounted on a window frame. If the unit is not securely mounted, it can fall and cause injury.	For integral units only


Warning	
<p>Be sure to use an exclusive power circuit for the equipment, and follow the technical standards related to the electrical equipment, the internal wiring regulations and the instruction manual for installation when conducting electrical work.</p> <p>Insufficient power circuit capacity and improper electrical work can cause an electrical shock or fire.</p>	
<p>Be sure to use the specified cable to connect between the indoor and outdoor units. Make the connections securely and route the cable properly so that there is no force pulling the cable at the connection terminals.</p> <p>Improper connections can cause excessive heat generation or fire.</p>	
<p>When connecting the cable between the indoor and outdoor units, make sure that the terminal cover does not lift off or dismount because of the cable.</p> <p>If the cover is not mounted properly, the terminal connection section can cause an electrical shock, excessive heat generation or fire.</p>	
<p>Do not damage or modify the power cable.</p> <p>Damaged or modified power cable can cause an electrical shock or fire. Placing heavy items on the power cable, and heating or pulling the power cable can damage the cable.</p>	
<p>Do not mix air or gas other than the specified refrigerant (R-410A / R22) in the refrigerant system.</p> <p>If air enters the refrigerating system, an excessively high pressure results, causing equipment damage and injury.</p>	
<p>If the refrigerant gas leaks, be sure to locate the leak and repair it before charging the refrigerant. After charging refrigerant, make sure that there is no refrigerant leak.</p> <p>If the leak cannot be located and the repair work must be stopped, be sure to perform pump-down and close the service valve, to prevent the refrigerant gas from leaking into the room. The refrigerant gas itself is harmless, but it can generate toxic gases when it contacts flames, such as fan and other heaters, stoves and ranges.</p>	
<p>When replacing the coin battery in the remote controller, be sure to disposed of the old battery to prevent children from swallowing it.</p> <p>If a child swallows the coin battery, see a doctor immediately.</p>	

Caution	
Installation of a leakage breaker is necessary in some cases depending on the conditions of the installation site, to prevent electrical shocks.	
Do not install the equipment in a place where there is a possibility of combustible gas leaks. If a combustible gas leaks and remains around the unit, it can cause a fire.	
Be sure to install the packing and seal on the installation frame properly. If the packing and seal are not installed properly, water can enter the room and wet the furniture and floor.	

1.2.3 Inspection after Repair

Warning	
Check to make sure that the power cable plug is not dirty or loose, then insert the plug into a power outlet all the way. If the plug has dust or loose connection, it can cause an electrical shock or fire.	
If the power cable and lead wires have scratches or deteriorated, be sure to replace them. Damaged cable and wires can cause an electrical shock, excessive heat generation or fire.	





Warning	
Do not use a joined power cable or extension cable, or share the same power outlet with other electrical appliances since it can cause an electrical shock, excessive heat generation or fire.	

Caution	
Check to see if the parts and wires are mounted and connected properly, and if the connections at the soldered or crimped terminals are secure. Improper installation and connections can cause excessive heat generation, fire or an electrical shock.	
If the installation platform or frame has corroded, replace it. Corroded installation platform or frame can cause the unit to fall, resulting in injury.	
Check the grounding, and repair it if the equipment is not properly grounded. Improper grounding can cause an electrical shock.	
Be sure to measure the insulation resistance after the repair, and make sure that the resistance is 1 M ohm or higher. Faulty insulation can cause an electrical shock.	
Be sure to check the drainage of the indoor unit after the repair. Faulty drainage can cause the water to enter the room and wet the furniture and floor.	












1.2.4 Using Icons

Icons are used to attract the attention of the reader to specific information. The meaning of each icon is described in the table below:

1.2.5 Using Icons List

Icon	Type of Information	Description
 Note	Note	A “note” provides information that is not indispensable, but may nevertheless be valuable to the reader, such as tips and tricks.
 Caution	Caution	A “caution” is used when there is danger that the reader, through incorrect manipulation, may damage equipment, lose data, get an unexpected result or has to restart (part of) a procedure.
 Warning	Warning	A “warning” is used when there is danger of personal injury.
	Reference	A “reference” guides the reader to other places in this binder or in this manual, where he/she will find additional information on a specific topic.

2.Features

-  DRY function: Make dehumidifying in the room when the unit is working in the "DRY" mode
-  24 Hour timer: Use the timer function to set on,or off,or from on to off,or from off to on
-  Auto restart: The function permits automatic return to previous peration conditions
-  Easy clean design: The panel is easy to wash and the airflow vents can be detached without any special tools for quick cleaning of the inside of the air conditioner
-  Anti-mold filter: Catches most small particles and remove unpleasant odors effectively
-  Sleep mode: The setting temprature and the indoor noise can be adjusted to a more comfortable level when you set the "sleep mode"during night sleep
-  4 Fan setting: Slect the fan speed LO,MED,HI,AUTO
-  Semi auto mode: adjust the operation automatically according to surrounding temperature
-  Child lock: Avoid the child's wrong operation on the remote controller
-  Power mode: Quick cooling or heating
-  Soft mode: Lower noise operation condition

3 Specifications

NOMINAL DISTRIBUTION SYSTEM VOLTAGE		
Phase	/	1
Frequency	Hz	50
Voltage	V	230

NOMINAL CAPACITY and NOMINAL INPUT			
		cooling	heating
Capacity rated	KW	3.5	3.8
	Btu/h	11949	12973
Power Consumption(Rated)	KW	1.01	1.06
SEER/SCOP	W/W	5.1	3.8
Annual energy consumption	KWh	284	
Moisture Removal	m ³ /h	1.6*10 ⁻³	

TECHNICAL SPECIFICATIONS			
Dimensions	H*W*D	mm	640*720*253
Packaged Dimensions	H*W*D	mm	719*784*305
Weight	/	KG	17.5
Gross weight	/	KG	20
Color	/	/	White
Sound level	Sound pressure(high/medium/low)	dB	40/36/32
	Sound power(high/medium/low)	dB	54

TECHNICAL SPECIFICATIONS-PARTS				
			cooling	heating
Fan	Type		Cross flow fan	
	Motor output	W	16	16
	Air flow rate(high)	m ³ /h	500	500
	Speed(super/high/low)	rpm	1000/925/850	950/875/800
Heat exchanger	Type		ML fin- φ 7HI-HX tube	
	Segment *stage*fitch		2*20*1.4	
Air direction control			Right,Left,Horizontal,Downward	
Air filter			Removable/Washable/Mildew Proof	
Temperature control			Microcomputer Control	
Remote controller model			YR-HD01	

Note: the data are based on the conditions shown in the table below

cooling	heating	Piping length
Indoor: 27°CDB/19°CWB Outdoor: 35°CDB/24°CWB	Indoor:20°CDB Outdoor: 7°CDB/6°CWB	5m

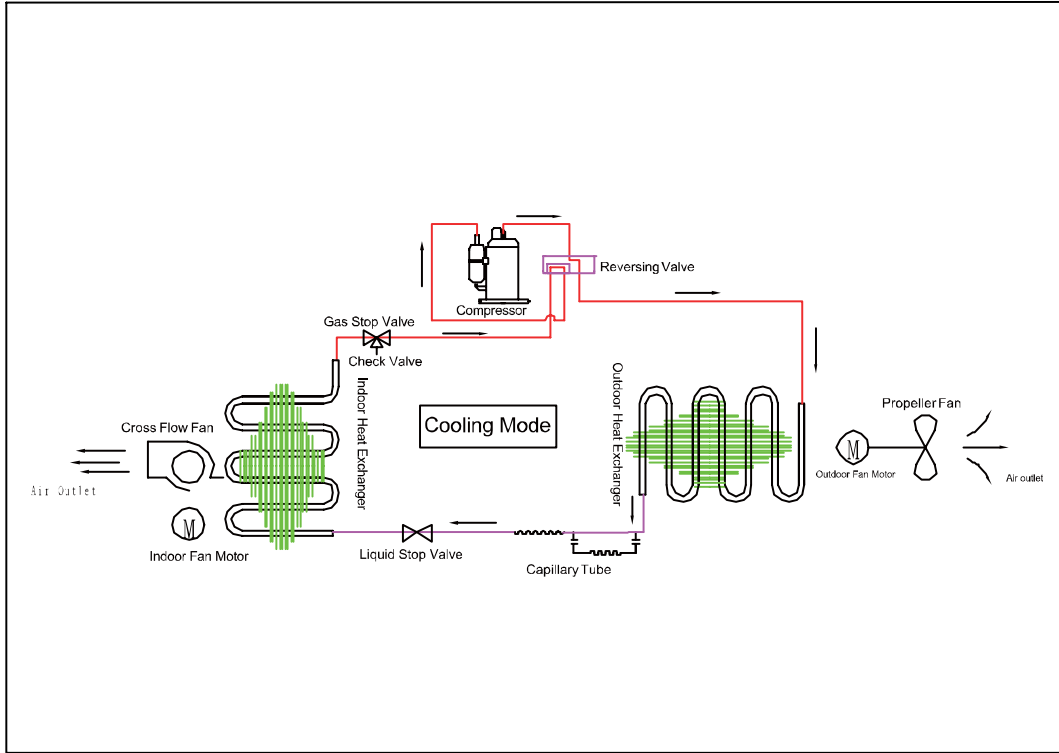
Conversion formulae
Kcal/h= KW×860
Btu/h= KW×3414
cfm=m ³ /min×35.3

4. Sensors list

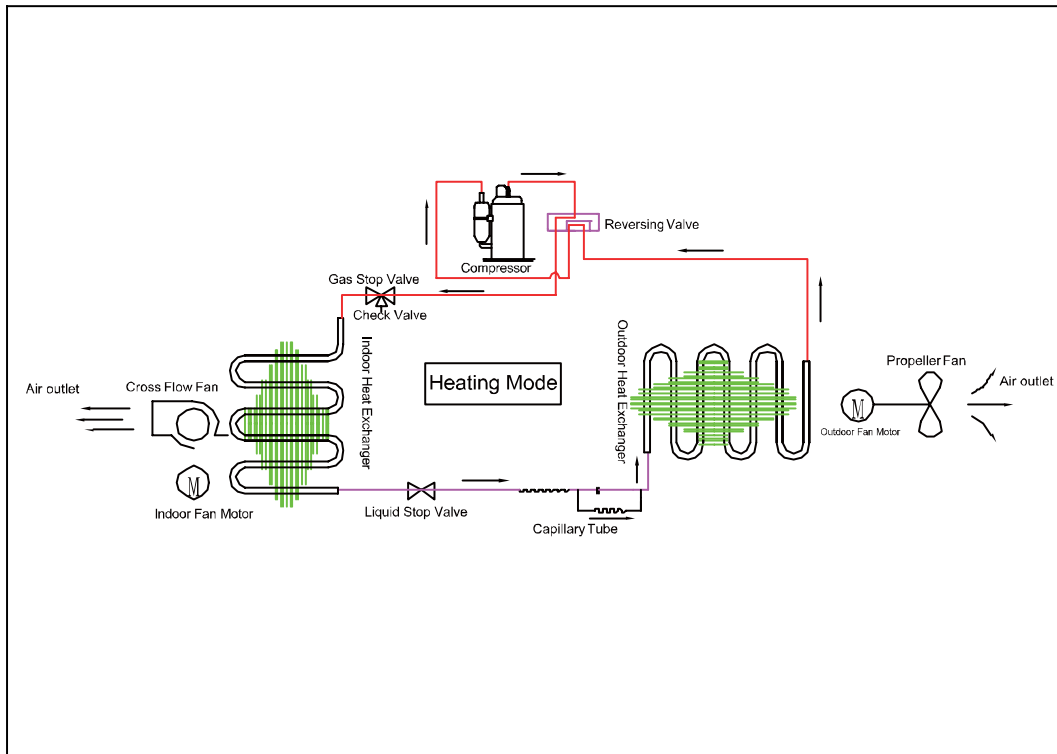
type	Description	Qty
Room sensor	Its used for detecting room temperature	1
Pipe sensor	Its used for detecting temperature of evaporator	1

5. Piping diagrams

Cooling mode



Heating mode



6. Printed Circuit Board Connector Wiring Diagram

Connectors

series	PCB connector	Connect with load
1	CON9	Connector for UP fan motor
2	CON9'	
3	CN6	Connector for heat exchanger thermistor and Room temperature thermistor
4	CON10	Connector for DOWN fan motor
5	CON10'	
6	CON6	Connector for UP&DOWN STEP motor
7	CON7	Connector for DOWN STEP motor
8	CN21	Connector for power N wire
9	CN22	Connector for power L
10	CN7	Connector for display board
11	CON2	C0N3 Connector for ions generator
12	CN23	Connector for communicate between the indoor board and the outdoor board
13	CN36	Connector for long-range control
14	CN51	Connector for room card

Note: Other designations

PCB(1) (INdoor Control PCB)

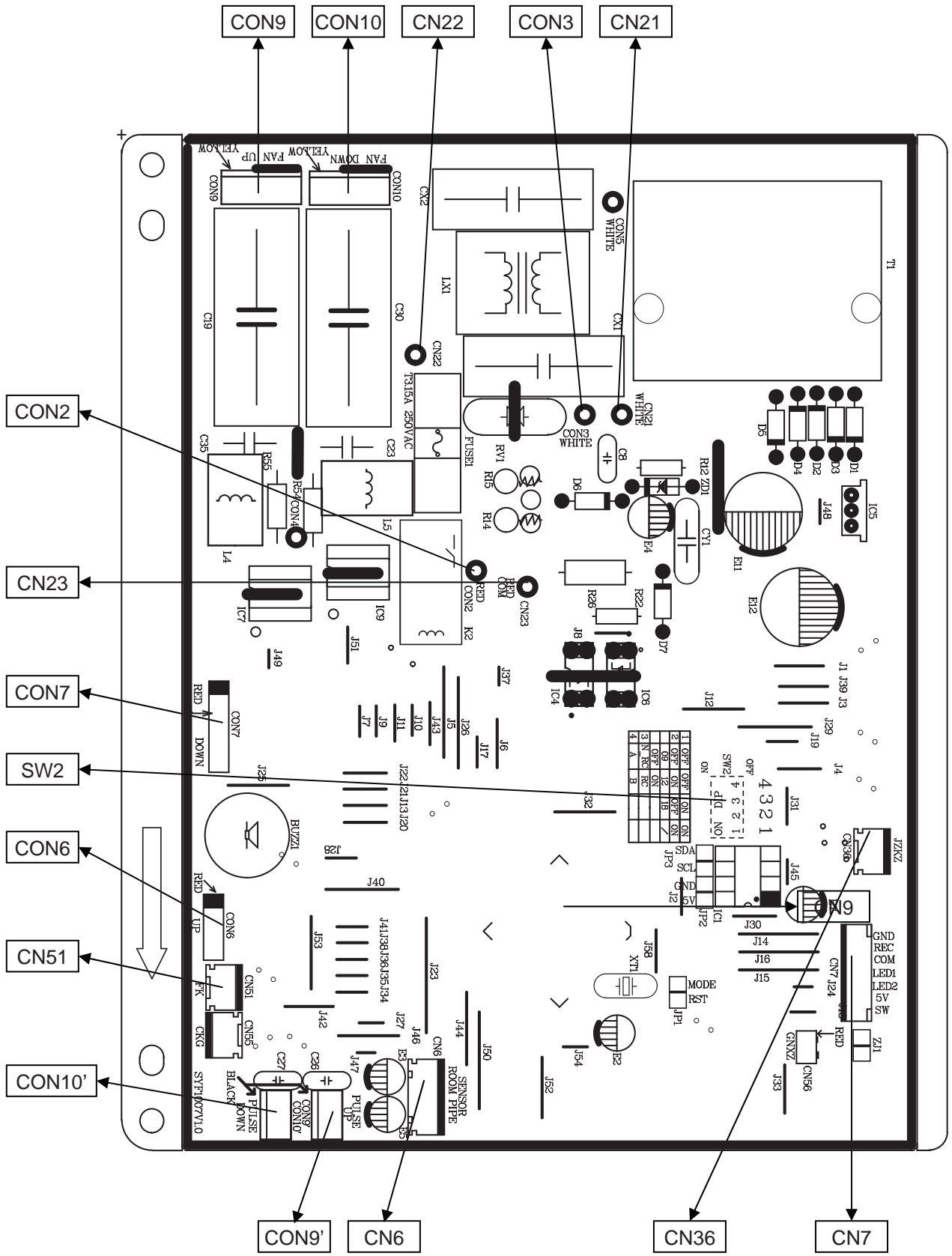
1) SW2 4 Select remote code A or B, 3 Select room card able or disable 1and 2 Select for capability

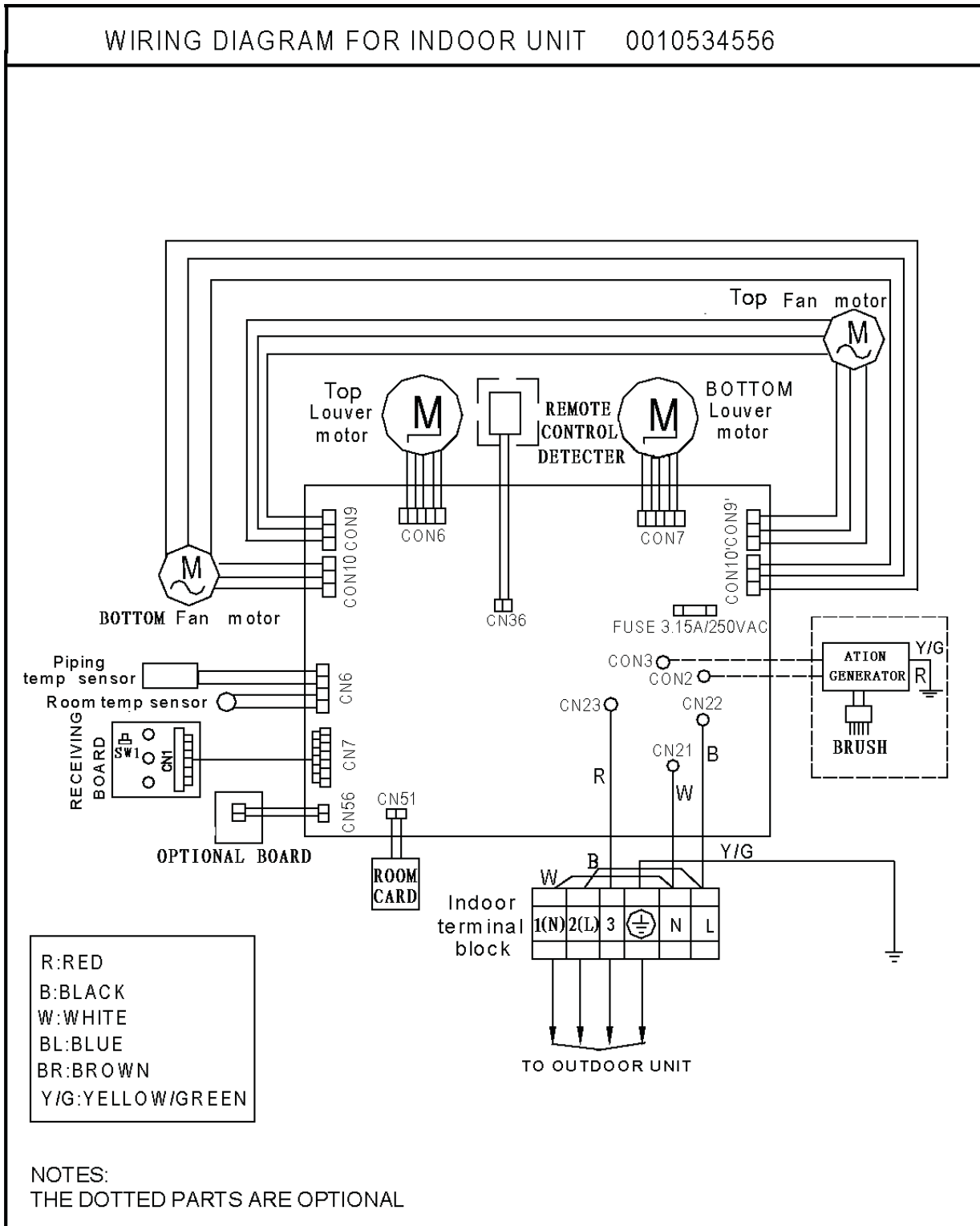
as this:

SW2-1	OFF	OFF	ON	ON
SW2-2	OFF	ON	OFF	ON
Capability	09K	12K	18K	

2) RV1 Varistor

3) FUSE1 Fuse 3.15A/250VAC





7. Functions and Control

7.1 Main functions and control specification of indoor unit

7.1.1 Automatic operation

When the running mode is turned to automation after starting the system, the system will first determine the running mode according to the current room temperature and then will run according to the determined mode. Tr in the following selection conditions means room temperature, Ts means setting temperature, Tp means temperature of indoor coil pipe

Tr \geq 23 $^{\circ}$ C Choose Cooling Mode

Tr $<$ 23 $^{\circ}$ C Choose Heating Mode

After turning to the automation mode, the running mode can be switched between cooling mode, fan mode and heating mode according to the change of the indoor ambient temperature. But the automatic conversion between cooling mode and heating mode must be conducted after 15 minutes.

7.1.2 Cooling operation mode

Temperature control range: 16 $^{\circ}$ C---30 $^{\circ}$ C

Temperature difference: \pm 1 $^{\circ}$ C

* Control features: When Tr (input airflow) $>$ Ts (set temperature) $^{\circ}$ C, the compressor will be opened, the indoor fan will operate at the set speed and the mode signal will be sent to the outdoor system. When Tr (input airflow) $<$ Ts (set temperature) $^{\circ}$ C, the compressor will be opened, the indoor fan will operate at the set speed and the mode signal will be sent to the outdoor system. The system will keep the original status if Tr= Ts.

Airflow speed control: (temperature difference 1 $^{\circ}$ C)

Automatic: When Tr \leq Ts+3 $^{\circ}$ C, high speed.

When Ts+1 $^{\circ}$ C \leq Tr $<$ Ts+3 $^{\circ}$ C, medium speed

When Tr $<$ Ts+1 $^{\circ}$ C, low speed

When the sensor is off, low speed

When the airflow speed has no delay from the high to low switching, the speed should be delayed for 3 minutes (remain at high speed for 3 minutes.) before the next switch.

Manus: When the system is operating, you can set the high, medium or low speed manually. (When the sensor is on or off, the system will change the speed 2 seconds after receiving the signal.)

* Airgate location control: the location for the airgate can be set according to your needs.

* Defrosting function: preventing the frosting on the indoor heat exchanger (when cooling or dehumidifying). When the compressor works continuously for 1/6 minutes (adaptable in EEPROM) and the temperature of the indoor coils has been below zero centigrade for 10 seconds, the compressor will be stopped and the malfunction will be recorded in the malfunction list. The indoor system will continue to run. When the temperature of the indoor coil is raised to 7 $^{\circ}$ C, the compressor will be restarted again (the requirement of 3 minutes' delay should be satisfied.)

* timing system on/off function.

* Dormant control function.

7.1.3 Dehumidifying mode.

* temperature control range: 16---30°C

* temperature difference: $\pm 1^\circ\text{C}$

Control feature: send the dehumidifying signal to the outdoor system.

When $T_r > T_s + 2^\circ\text{C}$, the compressor will be turned on, the indoor fan will operate at the set speed.

When T_r is between the T_s and $T_s + 2^\circ\text{C}$, the outdoor system will operate at the high dehumidifying frequency for 10 minutes and then at the low dehumidifying mode for six minutes. The indoor fan will operate at low speed.

When $T_r < T_s$, the outdoor system will be stopped, the indoor fan will be stopped for 3 minutes and then turned to the low speed option.

All the frequency converses have a $\pm 1^\circ\text{C}$ difference.

* Wind speed control: Automatic:

When $T_r \geq T_s + 5^\circ\text{C}$, high speed.

When $T_s + 3^\circ\text{C} \leq T_r < T_s + 5^\circ\text{C}$, medium speed.

When $T_s + 2^\circ\text{C} \leq T_r < T_s + 3^\circ\text{C}$, low speed.

When $T_r < T_s + 2^\circ\text{C}$, light speed.

If the outdoor fan stopped, the indoor fan will be paused for 3 minutes.

If the outdoor fan stopped for more than 3 minutes and the outdoor system still operates, the system will be changed into light speed mode.

When the airflow speed has no delay from the high to low switching, the speed should be delayed for 3 minutes (remain at high speed for 3 minutes.) before the next switch.

Manual: When the sensor is off or $T_r < T_s + 3^\circ\text{C}$, the manual operation can not be made. (obligatory automatic operation.)

* Airgate location control: the location for the airgate can be set according to your needs.

* Defrosting function: preventing the frosting on the indoor heat exchanger (when cooling or dehumidifying). When the compressor works continuously for 1/6 minutes (adaptable in EEPROM) and the temperature of the indoor coils has been below zero centigrade for 10 seconds, the compressor will be stopped and the malfunction will be recorded in the malfunction list. The indoor system will continue to run. When the temperature of the indoor coil is raised to 7°C , the compressor will be restarted again (the requirement of 3 minutes' delay should be satisfied.)

* coil protection (synchronic overheating protection) are installed for the four directions latch malfunctions when dehumidifying.

* timing system on/off function.

* Dormant control function.

7.1.4 Heating operation mode.

* temperature control range: 16---30°C

* temperature difference: $\pm 1^\circ\text{C}$

* control feature: the temperature compensation is automatically added and the system will send the heating signals to the outdoor system.

If $T_r \leq T_s$, the outdoor compressor is turned on, the indoor fan will be at the cold air proof mode.

If $T_r > T_s + 3^\circ\text{C}$, the outdoor system is turned off, the indoor fan will be at the heat residue sending mode.

If $T_r < T_s + 3^\circ\text{C}$, the outdoor system will be turned on again, the indoor fan will be at the cold air proof mode.

*Indoor fan control

manual control: You can choose high, medium, low and automatic speed control.

Automatic: When $T_r < T_s$, high speed.

When $T_s \leq T_r \leq T_s + 2^\circ\text{C}$, medium speed.

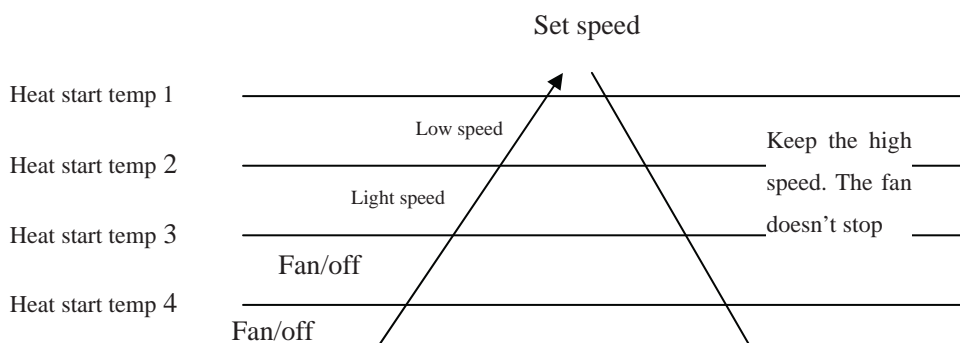
When $T_r > T_s + 2^\circ\text{C}$, low speed.

When the airflow speed has no delay from the high to low switching, the speed should be delayed for 3 minutes (remain at high speed for 3 minutes.) before the next switch.

*Airgate location control: the location for the airgate can be set according to your needs.

Coldair proof operation

1. The indoor operation within 4 minutes after the start up is as the following diagram, the air speed can be raised only after the speed has reached a certain level.



2. 4 minutes after the start up of the indoor fan, the light airflow and the low airflow will be turned to the set speed airflow.

3. In the cold air proof operation, the fan won't stop after the start up.

4. During the cold air proof operation, the indoor system will continuously send 'indoor high speed' signals to the outdoor system.

* Residue heat sending. The indoor fan will send the residue heat at a low speed for 12 seconds.

If other conditions are satisfied, when the compressor stops, the indoor system will operate at a light speed. The indoor fan will stop when the coil temperature is below the 'heat start temp 4'.

* Defrosting. When the system receives the defrosting signal from outdoors, the indoor fan will stop and the indoor temperature display won't change. At the time, any indoor coil malfunctions will be neglected. When the outdoor defrosting finishes, the coil malfunction will still be neglected until the compressor has been started up for 30 seconds. The indoor temperature display will not change and the system operates at the cold air proof mode.

* Automatic heating temperature compensation: when the system enters the heating mode, the temperature compensation (4) will be added. When the status is switched off, the compensation will be erased.

7.1.5 strength operation

a. the system enters the mode after receiving the 'strength signal'.

Send strength operation signal to the outdoor system.

The mode change finishes the strength operation.

Entering 'mute', you can have normal operation or signal control such as timing to finish the strength operation.

When the system is at the automatic option with the strength/ mute function, if the system enters the cooling mode, the cooling strength/ mute function will be offered; if the system enters the heating mode, then the heating strength/ mute function will be offered; if the system enters the airflow mode, there will be no strength/ mute function.

7.1.6 Mute operation

the system enters the mode after receiving the 'mute signal'.

- a. Mute heating: the airflow speed is slight, the system sends the mute signal to the outdoor system.
- b. mute cooling: the airflow speed is slight, the system sends the mute signal to the outdoor system.

When the compressor operates, the airflow speed is mute speed. EEPROM is adaptable.

Mute operation can not work under the dehumidifying and airflow-sending operation.

7.1.7 Air refreshing

After receiving the signal from the remote control,(HV series: the background light of the 'health' logo is green. HS series: the 'health' indicator will be lighted). If the fan operates, the negative ion generator operates to realize the negative sending function.

If the indoor fan stops, the negative ion generator is turned off.

When the negative ion generator is turned off, if the air refreshing system is turned on, the negative ion generator will be turned on when the fan operates.

7.1.8 Timing.

You can set 24 hours' on/off timing accordingly. After the setting, the timing indicator will be lightened. Also, the light will be turning off after the timing is finished. The followings are several timing methods.

1. system /on timing: The timing indicator will be lightened and the indoor system is under the waiting mode. The light will be turned off when the timing is finished and the rest of the system will operate under a normal condition. The timing starts since the last reception of the timing signal. You can have the dormancy setting under the timing mode, the order of your settings will be operated according to the timing settings.

2. system /off timing: When the system is turned on, the timing indicator is lightened, the rest of the system will operate under a normal condition. When set time comes, the indicator light will be turned off and the system will be turned off. If you have set the dormant functions, the order of your settings will be operated according to the timing settings.

3 . system /on and off timing: The settings will be completed according to the orders.

7.1.9 Dormant operation

The dormant timing is an eight hours unadaptable one. The timing signs are shown on the V series board. (RC series show the dormant signal, the timing light is lighted on the 6 lights board).

2.1 Under the cooling/ dehumidifying operation, after the setting of the dormant operation, the set temperature will be raised for 1 centigrade after 1 hour's operation and will be raised for 1 centigrade 1 hour later. The system will keep this status for 6 hours and then close.

2.2 Under the heating mode, after the setting of the dormant operation, the set temperature will fall 2 centigrades after 1 hour's operation and will fall 2 centigrades 1 hours later. 3 hours after the preceding operations, the set temperature will be raised for 1 centigrade and the system will keep this status for 3 hours and then close down.

2.3 During the dormant time, except the change of the system mode or a new press on the dormant setting keys, the timing of the 8 hours dormancy will take the first timing as the start time, any presses on other keys will not affect the original timing.

2.4 Indoor fan control under the dormant operation.

If the indoor fan is at the high speed before the dormant operation setting, the speed will be turned to medium after the setting. If the fan is at the medium speed before the dormant setting, the speed will be turned to low after the setting. If the fan is at the low speed before the dormant setting, the speed will not change.

7.1.10 Urgent on/off input

Press the urgency button the buzzer will ring. The system will enter the automatic mode if you don't press the button for more than 5 seconds.

Under the system off mode, if you press the urgency key for 5 to 10 seconds, the system will start the test operation.

Under the system off mode, If you press the urgency key for 10 to 15 seconds, the display screen will show the resume of the last malfunction.

If the system is under operation, the press on the urgency key will stop it.

Under the system off mode, the display screen will show automatic running sign.

Under the system off mode, the system will not receive the remote control signal if the press on the urgency key doesn't last for 15 seconds or if the key is loosened.

Urgency operation: If you press the urgency key for less than 5 seconds, the buzzer will ring when you press the on/off key. The system will enter the urgency operation when the urgency key is loosened.

The urgency operation is fully automatic.

Test operation.

The inlet temperature sensor doesn't work, the indoor fan and the indoor air direction board motor works synchronically. High speed airflow, cooling, outdoor system on, etc, will send the ambient temperature 30 centigrade and coil temperature 16 centigrade information to the outdoor system.

Test operation

The defrost protection of the evaporator doesn't work.

The temperature control doesn't work.

The test operation will be finished in 30 minutes.

The test operation can be stopped by the relative commands from the remote control.

7.1.11 Low load protection control

In order to prevent the frosting of the indoor heat interaction device, the outdoor system will be stopped if the indoor heat interaction temperature is below zero centigrade for 5 minutes, but the fan will continue to operate. The outdoor system will be started again when the heat interaction temperature is above 7 centigrade and the system has been stopped for 3 minutes. The malfunction will be stored in the malfunction resume and will not be revealed.

7.1.12 High load protection control

The outdoor system will be stopped if the coil temperature is above 65°C for 2 minutes. The indoor fan will be controlled by the thermostat. The outdoor system can be restarted when the coil temperature is below 42°C and the system has been stopped for 3 minutes. The malfunction will be stored in the malfunction resume and will not be revealed.

7.1.13 abnormal operation of indoor system

When the outdoor system operates, if the indoor system operation differs from the outdoor system, the abnormal operation malfunction will be reported. 10s after the report, the indoor system will be closed.

Outdoor system mode	Indoor system mode	conflicts
cooling	heating	yes
cooling	cooling	no
cooling	airflow	no
heating	heating	no
heating	airflow	yes
heating	cooling	yes

7.1.14 Malfunction list resume.

Nothing is presented if there is no code list.

The malfunction display will automatically finish in 10 seconds.

The remote control only receives the signals for stop. According to the signals, the malfunction resume presentation finishes.

The resume restores after the power supply restores.

7.1.15 abnormality confirmation approaches.

1. indoor temperature sensor abnormality:

under the operation, the normal temperature ranges from 120 degree to -30 degree. When the temperature goes beyond this range, the abnormality can be confirmed. If the temperature goes back into the range, the system will automatically resume.

2 .indoor heat interaction sensor abnormality:

under the operation, the normal temperature ranges from 120 degree to -30 degree. When the temperature goes beyond this range, the abnormality can be confirmed. If the temperature goes back into the range, the system will automatically resume.

3 .indoor malfunction:

Out door malfunction: When the indoor system receives the outdoor malfunction codes, it will store the code into E2 for the malfunction list resume. The indoor system will continue to operate according to the original status, the malfunction code will not be revealed or processed.

4.transmission abnormality:

If the indoor system can't receive the outdoor system for 8 minutes, the communication abnormality can be confirmed and reported and the outdoor system will be stopped.

7.1.16 Single indoor system operation

* Enter condition: First, set the high speed airflow and 30 centigrade set temperature, then press the dormant keys for 6 times within 7 seconds, the system will feedback with 6 rings.

* After the system enters the separate indoor system operation mode, the indoor system will operate according to the set mode and neglect the communication signals of the outdoor system. However, it has to send signals to the outdoor system.

* Quitting condition: This mode can be quitted after receiving the quitting signal from the remote control or urgency system. The indoor system thus can quit the single operation mode.

7.1.17 Power cut compensation.

* Entering condition: Press dormant button 10 times within 7 second, the buzzer will ring 4 times and the present system status will be stored into the EEPROM of the indoor system.

* After entering the power cut compensation mode, the processing of the indoor system should be as the followings:

Remote control urgency signal: operate according to the remote control and the urgent conditions, the present status will be stored into the EEPROM of the indoor system.

* Quitting conditions: Press dormant button 10 times within 7 seconds and the buzzer will ring twice.

7.1.18 Fixed frequency operation.

1. Fixed cooling: a. under G code condition: high speed cooling, set 16°C, press temperature '-' key and the set key at the same time. The system will enter the fixed frequency operation after the buzzer rings twice.

b. The proceeding programs are as the follows:

Entering the fixed frequency operation, you can set the fixed strength location 1 and send the cooling signal to the outdoor system. Meanwhile, you can fix the indoor system at high speed mode, the location of the airflow direction board can be switched to the maximal position.

c. Quitting condition: The fixed frequency cooling can be quitted after receiving the remote signal, and the system will enter the remote setting status.

2. Fixed heating: a. under G code condition: high speed heating, set 30°C, press temperature '+' key and the set key at the same time. The system will enter the fixed frequency operation after the buzzer rings twice.

b. The proceeding programs are as the follows:

Entering the fixed frequency operation, you can set the fixed strength location 1 and send the heating signal to the outdoor system. Meanwhile, you can fix the indoor system at high speed mode, the location of the airflow direction board can be switched to the maximal position.

c. Quitting condition: The fixed frequency heating can be quitted after receiving the remote signal, and

the system will enter the remote setting status.

7.1.19 Test program

First, connect the test program terminal on the mainboard, then connect the system to the power circuit. The test program will operate as follows.

HV series display: The buzzer rings for one time—the signal will be sent to outdoor system for 0.5 second—the violet is sent for 0.5-- the background light turns to white—the back ground light turns to white—the background light turns to white—the background light is fully lighted for 0.5 second—LED screen lights for 0.5 second—the step-in motor fully output for 0.5 second—then the motor doesn't output for 0.5 second—the motor fully output again for 0.5 second. The test program finishes.

7.1.20 Time cutting function:

connect the test program terminal on the mainboard after connecting the system to the power circuit. The CPU of the main control will be 60 times faster.

7.2 The control system of outdoor unit

7.2.1: The operation frequency of outdoor unit and its control

7.2.1.1: The operation frequency control of compressor

The operation frequency scope of compressor:

Mode	Minimun operation frequency	Maximun operation frequency
Heating	34Hz	96Hz
Refrigeration	34Hz	72Hz

7.2.1.2: The starting of compressor

When the compressor is started for the first time, it must be kept under the conditions of 58Hz,88Hz for one minute (the overheating protection of the outdoor unit air-blowing temperature, immediately decrease the frequency when the compressor is overflowing and releasing the pressure), then it can be operated towards the target frequency. When the machine runs normally, there's no such process. After starting the compressor for operation, the compressor should run according to the calculated frequency, and every determined frequency for protection should be prior to the calculated frequency.

7.2.1.3: The speeds of increasing or decreasing the frequency of the compressor

The speed of increasing or decreasing the frequency rapidly 1 -----1HZ/second

The speed of increasing or decreasing the frequency slowly 2 -----1HZ/10seconds

7.2.1.4: The calculation of the compressor's frequency

1)、The minimum/maximum frequency limitation

A. While refrigerating: $F - M A X - r$ is the maximum operation frequency of the compressor;

7.2 Value of thermistor

Room sensor and Pipe Sensor

$R_{25^{\circ}\text{C}}=10\text{K}\Omega \pm 3\%$

$B_{25^{\circ}\text{C}/50^{\circ}\text{C}}=3700\text{K} \pm 3\%$

Temp.((°C))	Max.(KΩ)	Normal(KΩ)	Min.(KΩ)	Tolerance(°C)	
-30	165.2170	147.9497	132.3678	-1.94	1.75
-29	155.5754	139.5600	125.0806	-1.93	1.74
-28	146.5609	131.7022	118.2434	-1.91	1.73
-27	138.1285	124.3392	111.8256	-1.89	1.71
-26	130.2371	117.4366	105.7989	-1.87	1.70
-25	122.8484	110.9627	100.1367	-1.85	1.69
-24	115.9272	104.8882	94.8149	-1.83	1.67
-23	109.4410	99.1858	89.8106	-1.81	1.66
-22	103.3598	93.8305	85.1031	-1.80	1.64
-21	97.6556	88.7989	80.6728	-1.78	1.63
-20	92.3028	84.0695	76.5017	-1.76	1.62
-19	87.2775	79.6222	72.5729	-1.74	1.60
-18	82.5577	75.4384	68.8710	-1.72	1.59
-17	78.1230	71.5010	65.3815	-1.70	1.57
-16	73.9543	67.7939	62.0907	-1.68	1.55
-15	70.0342	64.3023	58.9863	-1.66	1.54
-14	66.3463	61.0123	56.0565	-1.64	1.52
-13	62.8755	57.9110	53.2905	-1.62	1.51
-12	59.6076	54.9866	50.6781	-1.60	1.49
-11	56.5296	52.2278	48.2099	-1.58	1.47
-10	53.6294	49.6244	45.8771	-1.56	1.46
-9	50.8956	47.1666	43.6714	-1.54	1.44
-8	48.3178	44.8454	41.5851	-1.51	1.42
-7	45.8860	42.6525	39.6112	-1.49	1.40
-6	43.5912	40.5800	37.7429	-1.47	1.39
-5	41.4249	38.6207	35.9739	-1.45	1.37
-4	39.3792	36.7676	34.2983	-1.43	1.35
-3	37.4465	35.0144	32.7108	-1.41	1.33
-2	35.6202	33.3552	31.2062	-1.38	1.31
-1	33.8936	31.7844	29.7796	-1.36	1.29
0	32.2608	30.2968	28.4267	-1.34	1.28
1	30.7162	28.8875	27.1431	-1.32	1.26
2	29.2545	27.5519	25.9250	-1.29	1.24
3	27.8708	26.2858	24.7686	-1.27	1.22
4	26.5605	25.0851	23.6704	-1.25	1.20
5	25.3193	23.9462	22.6273	-1.23	1.18
6	24.1432	22.8656	21.6361	-1.20	1.16
7	23.0284	21.8398	20.6939	-1.18	1.14

8	21.9714	20.8659	19.7982	-1.15	1.12
9	20.9688	19.9409	18.9463	-1.13	1.09
10	20.0176	19.0621	18.1358	-1.11	1.07
11	19.1149	18.2270	17.3646	-1.08	1.05
12	18.2580	17.4331	16.6305	-1.06	1.03
13	17.4442	16.6782	15.9315	-1.03	1.01
14	16.6711	15.9601	15.2657	-1.01	0.99
15	15.9366	15.2770	14.6315	-0.98	0.96
16	15.2385	14.6268	14.0271	-0.96	0.94
17	14.5748	14.0079	13.4510	-0.93	0.92
18	13.9436	13.4185	12.9017	-0.91	0.90
19	13.3431	12.8572	12.3778	-0.88	0.87
20	12.7718	12.3223	11.8780	-0.86	0.85
21	12.2280	11.8126	11.4011	-0.83	0.83
22	11.7102	11.3267	10.9459	-0.81	0.80
23	11.2172	10.8634	10.5114	-0.78	0.78
24	10.7475	10.4216	10.0964	-0.75	0.75
25	10.3000	10.0000	9.7000	-0.75	0.75
26	9.8975	9.5974	9.2980	-0.76	0.76
27	9.5129	9.2132	8.9148	-0.80	0.80
28	9.1454	8.8465	8.5496	-0.84	0.83
29	8.7942	8.4964	8.2013	-0.87	0.86
30	8.4583	8.1621	7.8691	-0.91	0.90
31	8.1371	7.8428	7.5522	-0.95	0.93
32	7.8299	7.5377	7.2498	-0.98	0.97
33	7.5359	7.2461	6.9611	-1.02	1.00
34	7.2546	6.9673	6.6854	-1.06	1.04
35	6.9852	6.7008	6.4222	-1.10	1.07
36	6.7273	6.4459	6.1707	-1.13	1.11
37	6.4803	6.2021	5.9304	-1.17	1.14
38	6.2437	5.9687	5.7007	-1.21	1.18
39	6.0170	5.7454	5.4812	-1.25	1.22
40	5.7997	5.5316	5.2712	-1.29	1.25
41	5.5914	5.3269	5.0704	-1.33	1.29
42	5.3916	5.1308	4.8783	-1.37	1.33
43	5.2001	4.9430	4.6944	-1.41	1.36
44	5.0163	4.7630	4.5185	-1.45	1.40
45	4.8400	4.5905	4.3500	-1.49	1.44
46	4.6708	4.4252	4.1887	-1.53	1.47
47	4.5083	4.2666	4.0342	-1.57	1.51
48	4.3524	4.1145	3.8862	-1.61	1.55
49	4.2026	3.9686	3.7443	-1.65	1.59
50	4.0588	3.8287	3.6084	-1.70	1.62
51	3.9206	3.6943	3.4780	-1.74	1.66

52	3.7878	3.5654	3.3531	-1.78	1.70
53	3.6601	3.4416	3.2332	-1.82	1.74
54	3.5374	3.3227	3.1183	-1.87	1.78
55	3.4195	3.2085	3.0079	-1.91	1.82
56	3.3060	3.0989	2.9021	-1.95	1.85
57	3.1969	2.9935	2.8005	-2.00	1.89
58	3.0919	2.8922	2.7029	-2.04	1.93
59	2.9909	2.7948	2.6092	-2.08	1.97
60	2.8936	2.7012	2.5193	-2.13	2.01
61	2.8000	2.6112	2.4328	-2.17	2.05
62	2.7099	2.5246	2.3498	-2.22	2.09
63	2.6232	2.4413	2.2700	-2.26	2.13
64	2.5396	2.3611	2.1932	-2.31	2.17
65	2.4591	2.2840	2.1195	-2.36	2.21
66	2.3815	2.2098	2.0486	-2.40	2.25
67	2.3068	2.1383	1.9803	-2.45	2.29
68	2.2347	2.0695	1.9147	-2.49	2.34
69	2.1652	2.0032	1.8516	-2.54	2.38
70	2.0983	1.9393	1.7908	-2.59	2.42
71	2.0337	1.8778	1.7324	-2.63	2.46
72	1.9714	1.8186	1.6761	-2.68	2.50
73	1.9113	1.7614	1.6219	-2.73	2.54
74	1.8533	1.7064	1.5697	-2.78	2.58
75	1.7974	1.6533	1.5194	-2.83	2.63
76	1.7434	1.6021	1.4710	-2.88	2.67
77	1.6913	1.5528	1.4243	-2.92	2.71
78	1.6409	1.5051	1.3794	-2.97	2.75
79	1.5923	1.4592	1.3360	-3.02	2.80
80	1.5454	1.4149	1.2942	-3.07	2.84
81	1.5000	1.3721	1.2540	-3.12	2.88
82	1.4562	1.3308	1.2151	-3.17	2.93
83	1.4139	1.2910	1.1776	-3.22	2.97
84	1.3730	1.2525	1.1415	-3.27	3.01
85	1.3335	1.2153	1.1066	-3.32	3.06
86	1.2953	1.1794	1.0730	-3.38	3.10
87	1.2583	1.1448	1.0405	-3.43	3.15
88	1.2226	1.1113	1.0092	-3.48	3.19
89	1.1880	1.0789	0.9789	-3.53	3.24
90	1.1546	1.0476	0.9497	-3.58	3.28
91	1.1223	1.0174	0.9215	-3.64	3.33
92	1.0910	0.9882	0.8942	-3.69	3.37
93	1.0607	0.9599	0.8679	-3.74	3.42
94	1.0314	0.9326	0.8424	-3.80	3.46
95	1.0030	0.9061	0.8179	-3.85	3.51

96	0.9756	0.8806	0.7941	-3.90	3.55
97	0.9490	0.8558	0.7711	-3.96	3.60
98	0.9232	0.8319	0.7489	-4.01	3.64
99	0.8983	0.8088	0.7275	-4.07	3.69
100	0.8741	0.7863	0.7067	-4.12	3.74
101	0.8507	0.7646	0.6867	-4.18	3.78
102	0.8281	0.7436	0.6672	-4.23	3.83
103	0.8061	0.7233	0.6484	-4.29	3.88
104	0.7848	0.7036	0.6303	-4.34	3.92
105	0.7641	0.6845	0.6127	-4.40	3.97
106	0.7441	0.6661	0.5957	-4.46	4.02
107	0.7247	0.6482	0.5792	-4.51	4.07
108	0.7059	0.6308	0.5632	-4.57	4.12
109	0.6877	0.6140	0.5478	-4.63	4.16
110	0.6700	0.5977	0.5328	-4.69	4.21
111	0.6528	0.5820	0.5183	-4.74	4.26
112	0.6361	0.5667	0.5043	-4.80	4.31
113	0.6200	0.5518	0.4907	-4.86	4.36
114	0.6043	0.5374	0.4775	-4.92	4.41
115	0.5891	0.5235	0.4648	-4.98	4.45
116	0.5743	0.5100	0.4524	-5.04	4.50
117	0.5600	0.4968	0.4404	-5.10	4.55
118	0.5460	0.4841	0.4288	-5.16	4.60
119	0.5325	0.4717	0.4175	-5.22	4.65
120	0.5194	0.4597	0.4066	-5.28	4.70

8 System configuration

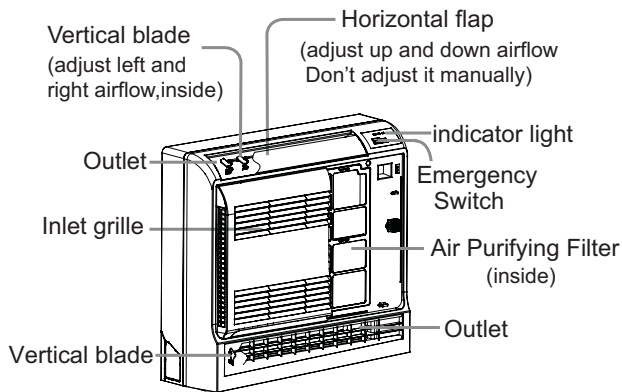
8.1 System configuration

After the installation and test operation of the room air conditioner have been completed, it should be operated and handled as described below. Every user would like to know the correct method of operation of the room air conditioner, to check if it is capable of cooling(or heating) well, and to know a clever method of using it. In order to meet this expectation of the users, giving sufficient explanations taking enough time can be said to reduce about 80% of the requests for servicing. However good the installation work is and however good the functions are, the customer may blame either the room air conditioner or its installation work because of improper handling. The installation work and handing over of the unit can only be considered to have been completed when its handling has been explained to the user without using technical terms but giving full knowledge of the equipment.

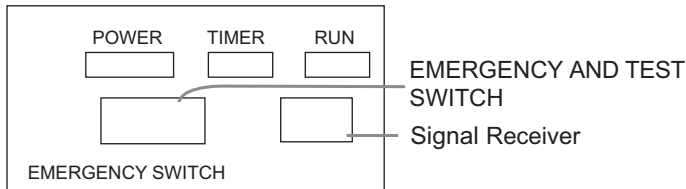
8.2 Instruction

Parts and Functions

Indoor Unit

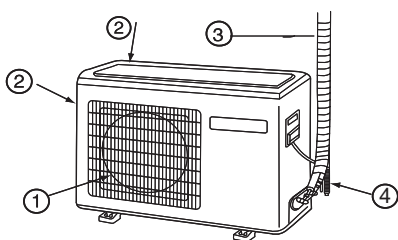


Please be subject to the actual produce purchased the above picture is just from your reference



- EMERGENCY SWITCH**
- ON/OFF button
 - Push once to start operation, push once again to stop it.
 - Operation is set to AUTO, air flow is set to AUTO fan.
 - Use when remote controller is not available.
- Signal Receiver**
- Upon receiving a signal, there is a receiving sound.

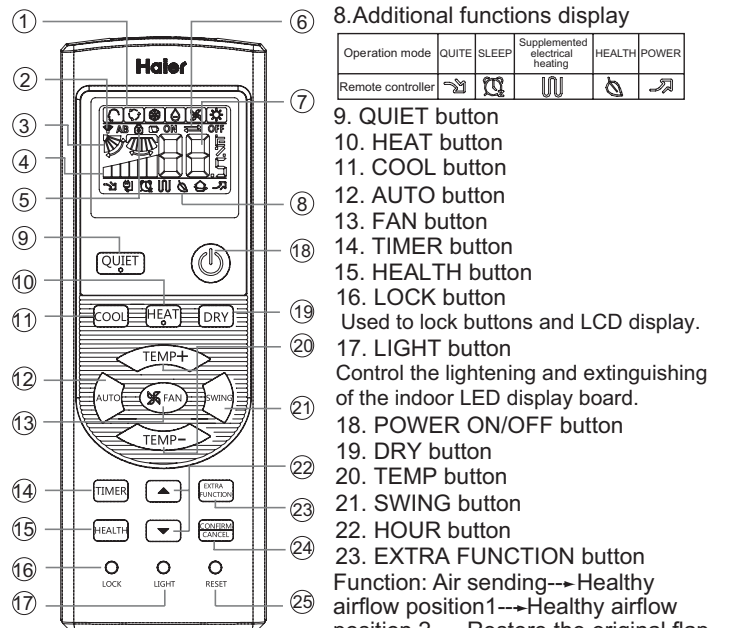
Outdoor Unit



- ① OUTLET
- ② INLET
- ③ CONNECTING PIPING AND ELECTRICAL WIRING
- ④ DRAIN HOSE

Please be subject to the actual produce purchased the above picture is just from your reference

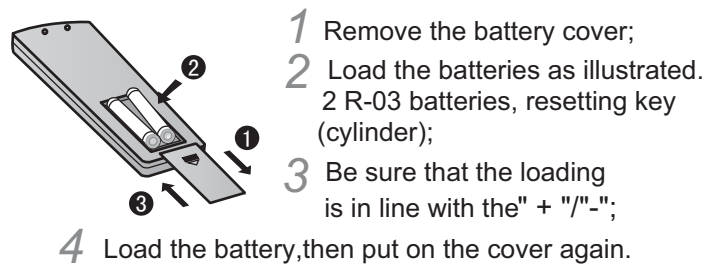
Remote controller



8. Additional functions display
- | | | | | | |
|-------------------|-------|-------|---------------------------------|--------|-------|
| Operation mode | QUIET | SLEEP | Supplemented electrical heating | HEALTH | POWER |
| Remote controller | | | | | |
1. Mode display
 2. Signal sending display
 3. SWING display
 4. FAN SPEED display
 5. LOCK display
 6. TIMER OFF display
 7. TEMP display
 8. Additional functions display
 9. QUIET button
 10. HEAT button
 11. COOL button
 12. AUTO button
 13. FAN button
 14. TIMER button
 15. HEALTH button
 16. LOCK button
 17. LIGHT button
 18. POWER ON/OFF button
 19. DRY button
 20. TEMP button
 21. SWING button
 22. HOUR button
 23. EXTRA FUNCTION button
 24. CANCEL/CONFIRM button
 25. RESET button

Healthy function is not available for some units.

Loading of the battery



- Note:**
- The distance between the signal transmission head and the receiver hole should be within 7m without any obstacle as well.
 - When electronic-started type fluorescent lamp or change-over type fluorescent lamp or wireless telephone is installed in the room, the receiver is apt to be disturbed in receiving the signals, so the distance to the indoor unit should be shorter.
 - Full display or unclear display during operation indicates the batteries have been used up. Please change batteries.
 - If the remote controller can't run normally during operation, please remove the batteries and reload several minutes later.

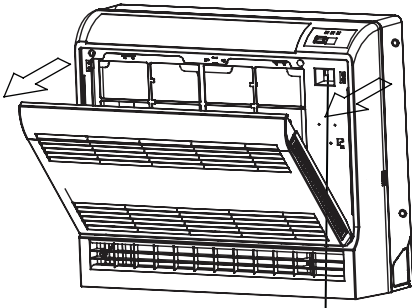
Hint:
Remove the batteries in case won't be in use for a long period. If there is any display after taking-out, just press reset key.

Parts and Functions

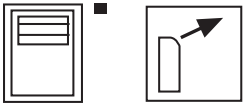
Operation

CAUTION

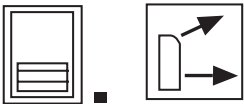
Before opening the front grille, be sure to stop the operation and turn the breaker OFF.
Do not touch the metal parts on the inside of the indoor unit, as it may result in injury.



Air outlet selection switch



- Regardless of the operating mode or situation, air blows from the upper air outlet.
- Use this switch when you do not want air coming out of the lower air outlet. (While sleeping etc..)

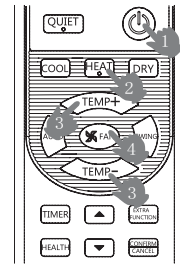


- Air conditioner automatically decides the appropriate blowing pattern depending on the operating mode and situation.
- During Dry and Fan mode, so that cold air does not come into direct contact with people, air is blown upper air outlet.

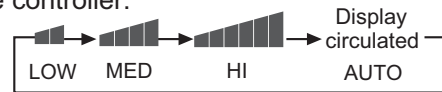
Operating mode	Situation	Blowing pattern
Cool mode	When the room has become fully cool.	So that air does not come into direct contact with people, air is blown upper air outlet, room temperature is equalised
	At start of operation or other times when the room is not fully cooled.	Air is blown from the upper and lower air outlets for high speed cooling during Cool mode, and for filling the room with warm air during Heat mode.
Heat mode	At times other than below. (Normal time.)	Air is blown from the upper and lower air outlets for high speed cooling during Cool mode, and for filling the room with warm air during Heat mode.
	At start or when air temperature is low.	So that air does not come into direct contact with people. Air is blown upper air outlet.

Base Operation

Remote controller



- Unit start**
Press ON/OFF on the remote controller, unit starts.
- Select operation mode**
COOL button: Cooling mode
HEAT button: Heating mode
DRY button: Dehumidify mode
- Select temp. setting**
Press TEMP+ / TEMP- button
TEMP+ Every time the button is pressed, temp. setting increase 1°C, if kept depressed, it will increase rapidly
TEMP- Every time the button is pressed, temp. setting decrease 1°C, if kept depressed, it will decrease rapidly
Select a desired temperature.
- Fan speed selection**
Press FAN button. For each press, fan speed changes as follows:
Remote controller:



Air conditioner is running under displayed fan speed. When FAN is set to AUTO, the air conditioner automatically adjusts the fan speed according to room temperature.

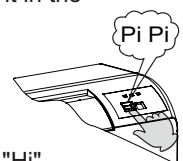
Operation Mode	Remote Controller	Note
AUTO		Under the mode of auto operation, air conditioner will automatically select Cool or Heat operation according to room temperature. When FAN is set to AUTO the air conditioner automatically adjusts the fan speed according to room temperature.
COOL		
DRY		In DRY mode, when room temperature becomes lower than temp. setting + 2°C, unit will run intermittently at LOW speed regardless of FAN setting.
FAN		In FAN operation mode, the unit will not operate in COOL or HEAT mode but only in FAN mode, AUTO is not available in FAN mode. And temp. setting is disabled. In FAN mode, sleep operation is not available.
HEAT		In HEAT mode, warm air will blow out after a short period of the time due to cold-draft prevention function. When FAN is set to AUTO, the air conditioner automatically adjusts the fan speed according to room temperature.

Emergency operation and test operation

Test operation:

Test operation switch is the same as emergency switch.

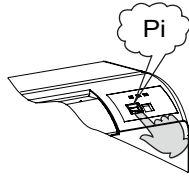
- Use this switch in the test operation when the room temperature is below 16°C, do not use it in the normal operation.
- Continue to press the test operation switch for more than 5 seconds. After you hear the "Pi" sound twice, release your finger from the switch: the cooling operation starts with the air flow speed "Hi".



Operation

Emergency Operation:

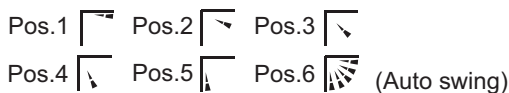
- Use this operation only when the remote controller is defective or lost.
- When the emergency operation switch is pressed, the "Pi" sound is heard once, which means the start of this operation.
- In this operation, the system automatically selects the operation modes, cooling or fan or heat, according to the room temperature.
- When machine is running in emergency, the set value of temperature and wind speed couldn't be altered; meanwhile, it can't operate for dehumidifying or under timing mode.



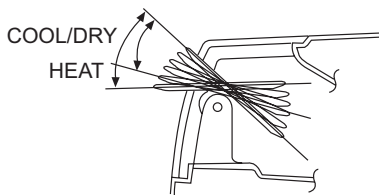
Air Flow Direction Adjustment

1. Adjusting the flap

Status display of air flow:



- When SWING is selected, the flap swinging range depends on the operation mode. (See the figure.)



2. Left and right air flow adjustment (manual)

Move the vertical blade by a knob on air conditioner to adjust left and right direction.

Cautions:

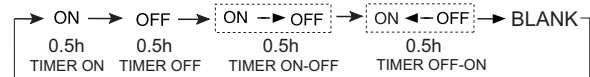
- Do not try to adjust the flap by hand. When adjusting by hand, the mechanism may not operate properly or condensation may drip from air outlets. When adjusting the flap by hand, turn off the unit, and use the remote controller to restart the unit.
- When adjusting the flap by hand, turn off the unit.
- When humidity is high, condensate water might occur at air outlet if all vertical louvers are adjusted to left or right.
- It is advisable not to keep horizontal flap at downward position for a long time in COOL or DRY mode, otherwise, condensate water might occur.

Note:

When restart after remote turning off, the remote controller will automatically memorize the previous set swing position.

Timer On/Off On-Off Operation

1. After unit starts, select your desired operation mode.
2. Press TIMER button to change TIMER mode. Every time the button is pressed, display changes as follows:
Remote controller:



Then select your desired TIMER mode (TIMER ON or TIMER OFF or TIMER ON-OFF). "ON" or "OFF" will flash.

3. Press ▼ / ▲ button to set time.

- ▲ Press the button for each time, setting time in the first 12 hours increased by 0.5 hour every time, after 12 hours, increased by 1 hour every time.
- ▼ Press the button for each time, setting time in the first 12 hours decreased by 0.5 hour every time, after 12 hours, decreased by 1 hour every time. It can be adjusted within 24 hours.

4. Confirm timer setting

After adjust the time, press button and confirm the time ON or OFF button will not flash any more.

5. Cancel timer setting

Press the timer button by times until the time display eliminated.

Hints:

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

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

TIMER On/Off Operation

- Confirming your setting





After setting correct time, press button to confirm "ON" or "OFF" on the remote controller stops flashing.
Time displayed: Unit starts or stops at x hour.

Hints:

After replacing batteries or a power failure happens, time setting should be reset. Remote controller possesses memory function, when use TIMER mode next time, just press button after mode selecting if time setting is the same as previous one.

Operation

Sleep Operation

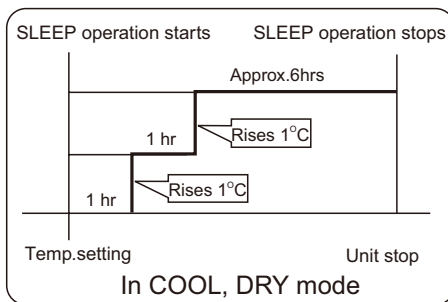
Press  button to enter additional options, when cycle display to  ,  will flash. And then press , enter to sleep function.



Operation Mode

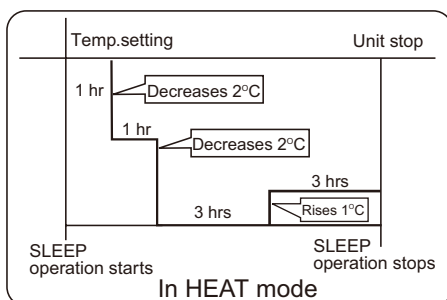
1. In COOL, DRY mode

1 hours after SLEEP mode starts, temp. will become 1°C higher than temp. setting. After another 1 hours, temp. rises by 1°C further. The unit will run for further 6 hours then stops. Temp. is higher than temp. setting so that room temperature won't be too low for your sleep.



2. In HEAT mode

1 hours after SLEEP mode starts, temp will become 2°C lower than temp. setting. After another 1 hours, temp decrease by 2°C further. After more another 3 hours, temp. rises by 1°C further. The unit will run for further 3 hours then stops. Temp. is lower than temp. setting so that room temperature won't be too high for your sleep.



3. In AUTO mode

The unit operates in corresponding sleep mode adapted to the automatically selected operation mode.

4. In FAN mode

It has no SLEEP function.

5. Set the wind speed change when sleeping





If the wind speed is high or middle before setting for the sleep, set for lowering the wind speed after sleeping. If it is low wind, no change.

Note


When TIMER function is set, the sleeping function can't be set up. After the sleeping function is set up, if user resets TIMER function, the sleeping function will be cancelled; the machine will be in the state of timing-on.

POWER/QUIET Operation

(1) POWER Operation

When you need rapid heating or cooling, you can use this function. Press  button to enter additional options, when cycle display to  ,  will flash, and then press , enter to power function. When cancel the function, please enter additional options again and to cancel power function.

(2) QUIET Operation

You can use this function when silence is needed for rest or reading. Press QUIET button, the remote controller will show  , and then achieve to the quiet function. Press again this QUIET button, the quiet function will be cancelled.

Note :

During POWER operation, in rapid HEAT or COOL mode, the room will show inhomogeneous temperature distribution. Long period QUIET operation will cause effect of not too cool or not too warm.

EUROPEAN REGULATIONS CONFORMITY FOR THE MODELS

CE

All the products are in conformity with the following European provision:

- Low Voltage Directive 73/23/EEC
- Low Voltage Directive 2006/95/EC
- Electromagnetic Compatibility 89/336/EEC
- Electromagnetic Compatibility 2004/108/EC

ROHS

The products are fulfilled with the requirements in the directive 2002/95/EEC of the European parliament and of council on the Restriction of the use of Certain Hazardous Substances in Electrical and Electronic Equipment (EU RoHS Directive)

WEEE

In accordance with the directive 2002/96/CE of the European parliament, herewith we inform the consumer about the disposal requirements of the electrical and electronic products.

DISPOSAL REQUIREMENTS:



Your air conditioning product is marked with this symbol. This means that electrical and electronic products shall not be mixed with unsorted household waste. Do not try to dismantle the system yourself: the dismantling of the air

conditioning system, treatment of the refrigerant, of oil and of other part must be done by a qualified installer in accordance with relevant local and national legislation. Air conditioners must be treated at a specialized treatment facility for reuse, recycling and recovery. By ensuring this product is disposed of correctly, you will help to prevent potential negative consequences for the environment and human health. Please contact the installer or local authority for more information. Battery must be removed from the remote controller and disposed of separately in accordance with relevant local and national legislation.

Indoor Unit Installation

Necessary Tools for Installation

- Driver
- Nipper
- Hacksaw
- Hole core drill
- Spanner(17,19 and 26mm)
- Gas leakage detector or soap-and-water solution
- Torque wrench (17mm,22mm,26mm)
- Pipe cutter
- Flaring tool
- Knife
- Measuring tape
- Reamer





Selection of Installation Place

- Place, robust not causing vibration, where the body can be supported sufficiently.
- Place, not affected by heat or steam generated in the vicinity, where inlet and outlet of the unit are not disturbed.
- Place, possible to drain easily, where piping can be connected with the outdoor unit.
- Place, where cold air can be spread in a room entirely.
- Place, nearby a power receptacle, with enough space around.
- Place where the distance of more than 1m from televisions, radios, wireless apparatuses and fluorescent lamps can be left.
- In the case of fixing the remote controller on a wall, place where the indoor unit can receive signals when the fluorescent lamps in the room are lightened.

Power Source

- Before inserting power into receptacle, check the voltage without fail.
- The power supply is the same as the corresponding nameplate.
- Install an exclusive branch circuit of the power.
- A receptacle shall be set up in a distance where the power cable can be reached. Do not extend the cable by cutting it.

Accessory Parts

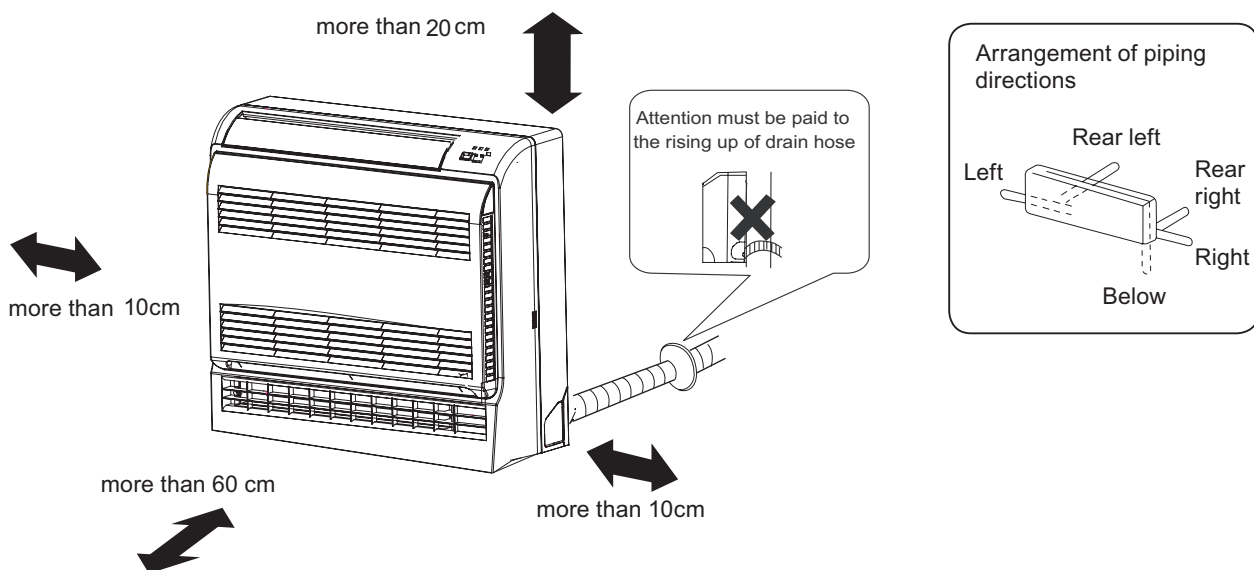
Remote controller (1)	Drain hose (1) 
R-03 dry battery (2) 	Plastic cap (4)  Ø4X25 Screw (4) 
Mounting plate (1)	Air purifying filter(Optional) (1)

Selection of Pipe

FOR 09K 12K	Liquid pipe	Φ 6.35x0.8mm
	Gas pipe	Φ 9.52x0.8mm
FOR 18K	Liquid pipe	Φ 6.35x0.8mm
	Gas pipe	Φ 12.7x0.8mm

Drawing for the installation of indoor units

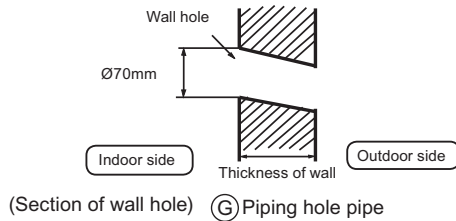
The models adopt HFC free refrigerant R410A



Indoor Unit Installation

1 Making a Hole on the Wall and Fitting the Piping Hole Cover

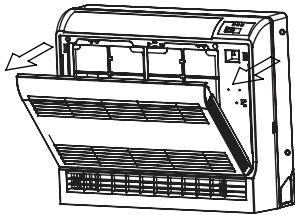
- Make a hole of 70 mm in diameter, slightly descending to outside the wall
- Install piping hole cover and seal it off with putty after installation



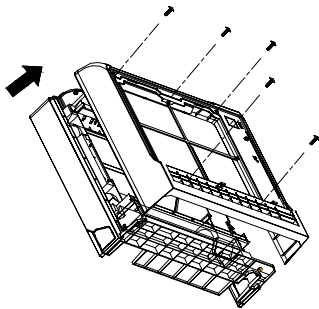
2 Installation of the Indoor Unit

Removal of Front Grille

- Hold the front panel by the tabs on the both sides and lift it until it stops with a click.



- Loosen the marked five screws and open the grille



Drawing of pipe

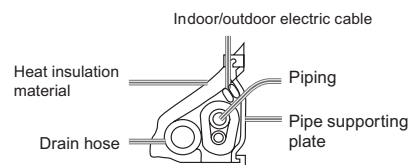
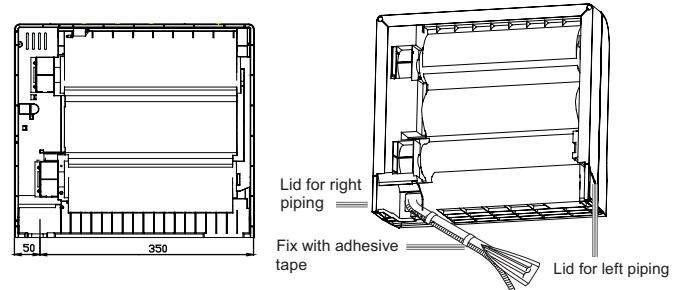
[Rear piping]

- Draw pipes and the drain hose, then fasten them with the adhesive tape

[Left · Left-rear piping]

- In case of left side piping, cut away, with a nipper, the lid for left piping.
 - In case of left-rear piping, bend the pipes according to the piping direction to the mark of hole for left-rear piping which is marked on heat insulation materials.
1. Insert the drain hose into the dent of heat insulation materials of indoor unit.
 2. Insert the indoor/outdoor electric cable from backside of indoor unit, and pull it out on the front side, then connect them.

3. Coat the flaring seal face with refrigerant oil and connect pipes. Cover the connection part with heat insulation materials closely, and make sure fixing with adhesive tape



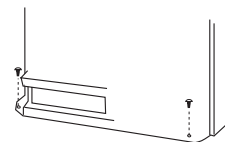
- Indoor/outdoor electric cable and drain hose must be bound with refrigerant piping by protecting tape.

[Other direction piping]

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

Fixing the indoor unit body

- Remove the front panel, then use two fastening screws to fix the unit on the floor. As the figure shown.
- Once refrigerant piping and drain piping connections are complete, fill the gap of the through hole with putty. Attach the front panel and front grille in their original positions once all connections are complete.



3 Connecting the indoor/outdoor Electric Cable

Removing the wiring cover

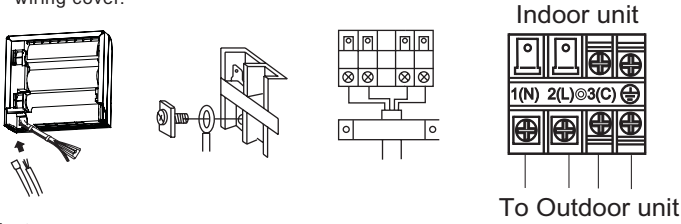
- Remove terminal cover at top right corner of indoor unit, and then take off wiring cover by removing its screws.

When connecting the cable after installing the indoor unit

1. Insert from outside the room cable into left side of the wall hole, in which the pipe has already existed.
2. Pull out the cable on the front side, and connect the cable making a loop.

When connecting the cable before installing the indoor unit

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



Note:

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

Model	AF09AS1ERA AF12AS1ERA	AF18AS1ERA
Connecting wiring	≥ 4G0.75mm ²	≥ 4G0.75mm ²

1. If the supply cord is damaged, it must be replaced by the manufacturer or its service agent or a similar qualified person. The type of connecting wire is H05RN-F or H07RN-F.
2. If the fuse on PC board is broken please change it with the type of T.3.15A/250VAC (Indoor).
3. The wiring method should be in line with the local wiring standard.
4. After installation, the power plug should be easily reached.
5. A breaker should be incorporated into fixed wiring. The breaker should be all-pole switch and the distance between its two contacts should be not less than 3mm.

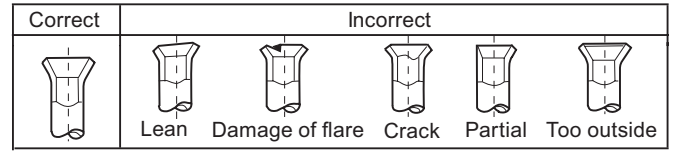
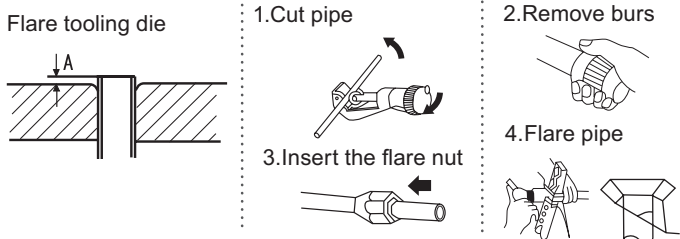
4 Power Source Installation

- The power source must be exclusively used for air conditioner.
- In the case of installing an air conditioner in a moist place, please install an earth leakage breaker.
- For installation in other places, use a circuit breaker as far as possible.

5 Cutting and Flaring Work of Piping

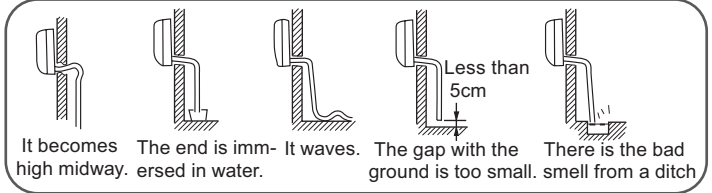
- Pipe cutting is carried out with a pipe cutter and burs must be removed.
- After inserting the flare nut, flaring work is carried out.

Flare tool for R410A	Conventional flare tool	
	Clutch-type	clutch-type(Rigid-type) Wing-nut type (Imperial-type)
A	0~0.5mm	1.0~1.5mm 1.5~2.0mm



6 On Drainage

- Please install the drain hose so as to be downward slope without fail.
- Please don't do the drainage as shown below.



- Please pour water in the drain pan of the indoor unit, and confirm that drainage is carried out surely to outdoor.
- In case that the attached drain hose is in a room, please apply heat insulation to it without fail.

7 On Drainage

Code indication	Trouble description	Analyze and diagnose
E1	Room temperature sensor failure	Faulty connector connection; Faulty thermistor; Faulty PCB;
E2	Heat-exchange sensor failure	
E4	Indoor EEPROM error	Faulty EEPROM data; Faulty EEPROM; Faulty PCB;
E7	Communication fault between indoor and outdoor units	Indoor unit- outdoor unit signal transmission error due to wiring error; Faulty PCB;
E14	Indoor fan motor malfunction	Operation halt due to breaking of wire inside the fan motor; Operation halt due to breaking of the fan motor lead wires; Detection error due to faulty indoor unit PCB;

8 Check for Installation and Test Run

- Please kindly explain to our customers how to operate through the instruction manual.

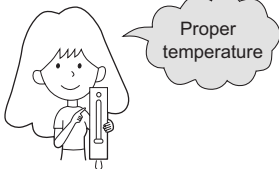
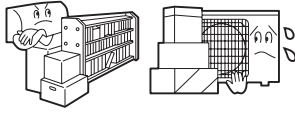


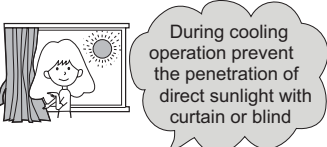
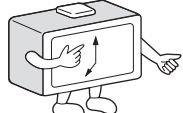

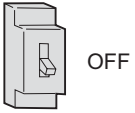

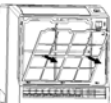

Check Items for Test Run

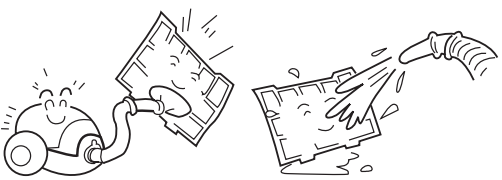

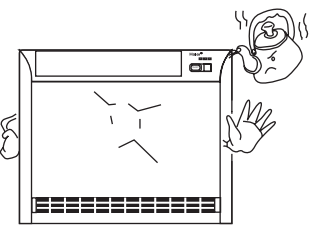
Put check mark ✓ in boxes

- Gas leak from pipe connecting?
- Heat insulation of pipe connecting?
- Are the connecting wirings of indoor and outdoor firmly inserted to the terminal block?
- Is the connecting wiring of indoor and outdoor firmly fixed?
- Is drainage securely carried out?
- Is the earth line securely connected?
- Is the indoor unit securely fixed?
- Is power source voltage abided by the code?
- Is there any noise?
- Is the lamp normally lighting?
- Are cooling and heating (when in heat pump) performed normally?
- Is the operation of room temperature regulator normal?

Maintenance

For Smart Use of The Air Conditioner

<p>Setting of proper room temperature</p> 	<p>Do not block the air inlet or outlet</p> 	<p>Remote Controller</p>  <p>Do not use water, wipe the controller with a dry cloth. Do not use glass cleaner or chemical cloth.</p>	<p>Indoor Body</p>  <p>wipe the air conditioner by using a soft and dry cloth. For serious stains, use a neutral detergent diluted with water. Wring the water out of the cloth before wiping, then wipe off the detergent completely.</p>
<p>Close doors and windows during operation</p> 	<p>Use the timer effectively</p> 	<p>Do not use the following for cleaning</p>  <p>Gasoline, benzene, thinner or cleanser may damage the coating of the unit. Hot water over 40°C(104°F) may cause discoloring or deformation.</p>	
<p>If the unit is not to be used for a long time, turn off the power supply main switch.</p> 	<p>Use the louvers effectively</p> 	<p>Air Filter cleaning</p>  <ol style="list-style-type: none"> 1 Open the inlet grille by pulling it upward. 2 Remove the filter. Push up the filter's center tab slightly until it is released from the stopper, and remove the filter downward. 3 Clean the filter. Use a vacuum cleaner to remove dust, or wash the filter with water. After washing, dry the filter completely in the shade. 4 Attach the filter. Attach the filter correctly so that the "FRONT" indication is facing to the front. Make sure that the filter is completely fixed behind the stopper. If the right and left filters are not attached correctly, that may cause defects. 5 Close the inlet grille. 	

<p>Clean the filter</p> <p>Use water or vacuum cleaner to remove dust. If it is too dirt, clean with detergent or neutral soap water. Rinsing with fresh water, dry the filter and re-assemble.</p>	
<p>Caution</p> <p>Do not wash filter in hot water above 40 °C, which will damage the filter. Do carefully wipe the filter.</p>	
<p>Clean the indoor(outdoor) unit</p> <p>Clean with warm cloth or neutral detergent, then wipe away moisture with dry cloth. Do not use too hot water(above 40 °C), which will cause discoloration or deformation. Do not use pesticide or other chemical detergents.</p>	

Cautions

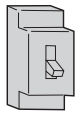
⚠ WARNING

Please call Sales/Service Shop for the Installation.

Do not attempt to install the air conditioner by yourself because improper works may cause electric shock, fire, water leakage.

⚠ WARNING

When abnormality such as burnt-smell found, immediately stop the operation button and contact sales shop.

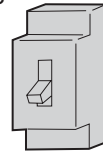


OFF



! STRICT ENFORCEMENT

Use an exclusive power source with a circuit breaker



Check proper installation of the drainage securely

! STRICT ENFORCEMENT

Connect power supply cord to the outlet completely



! STRICT ENFORCEMENT

Use the proper voltage

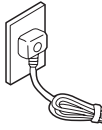


! STRICT ENFORCEMENT

1. Do not use power supply cord extended or connected in halfway
2. Do not install in the place where there is any possibility of inflammable gas leakage around the unit.
3. Do not get the unit exposed to vapor or oil steam.

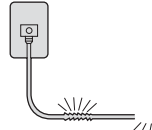
⊘ PROHIBITION

Do not use power supply cord in a bundle.



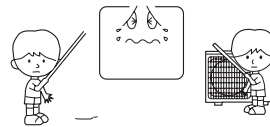
⊘ PROHIBITION

Take care not to damage the power supply cord.



⊘ PROHIBITION

Do not insert objects into the air inlet or outlet.



⊘ PROHIBITION

Do not start or stop the operation by disconnecting the power supply cord and so on.



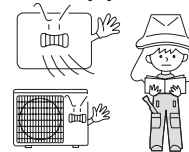
⊘ PROHIBITION

Do not channel the air flow directly at people, especially at infants or the aged.

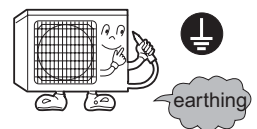


⊘ PROHIBITION

Do not try to repair or reconstruct by yourself.



Connect the earth cable.



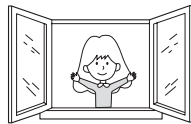
⚠ CAUTION

Do not use for the purpose of storage of food, art work, precise equipment, breeding, or cultivation.



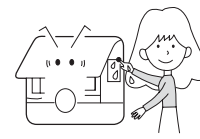
⊘ PROHIBITION

Take fresh air occasionally especially when gas appliance is running at the same time.



! STRICT ENFORCEMENT

Do not operate the switch with wet hand.



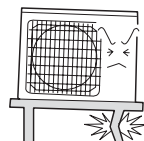
⊘ PROHIBITION

Do not install the unit near a fireplace or other heating apparatus.



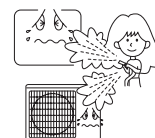
⊘ PROHIBITION

Check good condition of the installation stand



⊘ PROHIBITION

Do not pour water onto the unit for cleaning



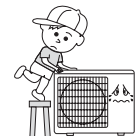
⊘ PROHIBITION

Do not place animals or plants in the direct path of the air flow



⊘ PROHIBITION

Do not place any objects on or climb on the unit.



⊘ PROHIBITION

Do not place flower vase or water containers on the top of the unit.








⊘ PROHIBITION



Trouble shooting

Cautions

Before asking for service, check the following first.

	Phenomenon	Cause or check points
Normal Performance inspection	The system does not restart immediately. 	<ul style="list-style-type: none"> When unit is stopped, it won't restart immediately until 3 minutes have elapsed to protect the system. When the electric plug is pulled out and reinserted, the protection circuit will work for 3 minutes to protect the air conditioner.
	Noise is heard 	<ul style="list-style-type: none"> During unit operation or at stop, a swishing or gurgling noise may be heard. At first 2-3 minutes after unit start, this noise is more noticeable. (This noise is generated by refrigerant flowing in the system.) During unit operation, a cracking noise may be heard. This noise is generated by the casing expanding or shrinking because of temperature changes. Should there be a big noise from air flow in unit operation, air filter may be too dirty.
	Smells are generated.	<ul style="list-style-type: none"> This is because the system circulates smells from the interior air such as the smell of furniture, paint, cigarettes.
	Mist or steam are blown out. 	<ul style="list-style-type: none"> During COOL or DRY operation, indoor unit may blow out mist. This is due to the sudden cooling of indoor air.
	In dry mode, fan speed can't be changed.	<ul style="list-style-type: none"> In DRY mode, when room temperature becomes lower than temp. setting+2 °C, unit will run intermittently at LOW speed regardless of FAN setting.
Multiple check		<ul style="list-style-type: none"> Is power plug inserted? Is there a power failure? Is fuse blownout?
	Poor cooling 	<ul style="list-style-type: none"> Is the air filter dirty? Normally it should be cleaned every 15 days. Are there any obstacles before inlet and outlet? Is temperature set correctly? Are there some doors or windows left open? Is there any direct sunlight through the window during the cooling operation?(Use curtain) Are there too much heat sources or too many people in the room during cooling operation?

- 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.

This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of appliance by person responsible for their safety. Children should be supervised to ensure that they do not play with the appliance.

Specifications

- The refrigerating circuit is leak-proof.

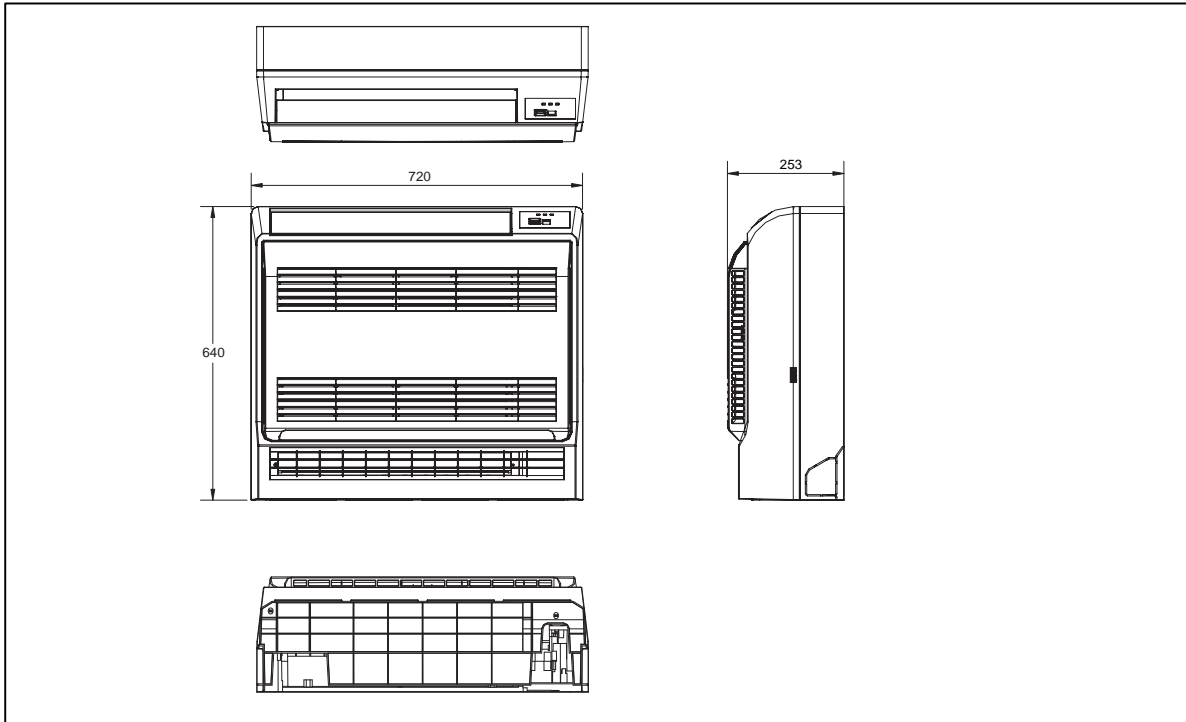
The machine is adaptive in following situation

1. Applicable ambient temperature range:

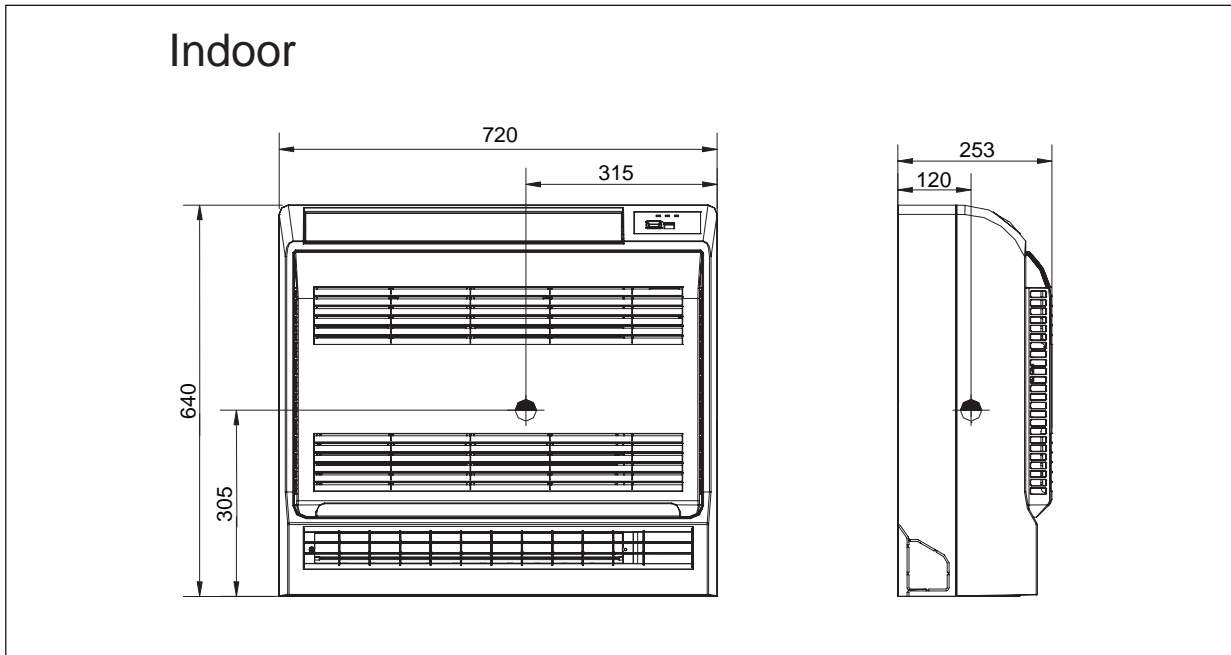
Cooling	Indoor	Maximum: D.B/W.B 32°C/23°C Minimum: D.B/W.B 21°C/15°C
	Outdoor	Maximum: D.B/W.B 43°C/26°C Minimum: D.B 18°C
Heating	Indoor	Maximum: D.B 27°C Minimum: D.B 0°C
	Outdoor	Maximum: D.B/W.B 24°C/18°C Minimum: D.B/W.B -7°C/-8°C
	Outdoor (INVERTER)	Maximum: D.B/W.B 24°C/18°C Minimum: D.B -15°C

- If the power supply cord is damaged, it must be replaced by the manufacturer or its service agent or a similar qualified person.
- If the fuse of indoor unit on PC board is broken, please change it with the type of T. 3.15A/ 250V. If the fuse of outdoor unit is broken, change it with the type of T.25A/250V
- The wiring method should be in line with the local wiring standard.
- After installation, the power plug should be easily reached.
- The waste battery should be disposed properly.
- The appliance is not intended for use by young children or infirm persons without supervision.
- Young children should be supervised to ensure that they do not play with the appliance.
- Please employ the proper power plug, which fit into the power supply cord.
- A breaker should be incorporated into fixed wiring. The breaker should be all-pole switch and the distance between its two contacts should be not less than 3mm.
- The power plug and connecting cable must have acquired the local attestation.
- In order to protect the units, please turn off the A/C first, and at least 30 seconds later, cutting off the power.

9. Dimensional drawings



10. Center of gravity



11 Service Diagnosis

11.1 Caution for Diagnosis

The operation lamp flashes when any of the following errors is detected.

1. When a protection device of the indoor or outdoor unit is activated or when the thermistor malfunctions, disabling equipment operation.
2. When a signal transmission error occurs between the indoor and outdoor units. In either case, conduct the diagnostic procedure described in the following pages.

11.2 Parameter of primary electronic appliance

NO	Name	Parameter	Picture
1	Fan motor (match cross flow fan 0010201184 ----φ97*510*7)	Rated voltage:220-230V Rated current:0.25A Rated frequency:50Hz Rated power:11W	
2	Fan motor (match cross flow fan 0010201175 ----φ97*490*7)	Rated voltage:220-230V Rated current:0.4A Rated frequency:50Hz Rated power:20W	

11.3 Problem Symptoms and Measures

Symptom	Check Item	Details of Measure
None of the units operates	Check the power supply.	Check to make sure that the rated voltage is supplied.
	Check the indoor PCB	Check to make sure that the indoor PCB is broken
Operation sometimes stops.	Check the power supply.	A power failure of 2 to 10 cycles can stop air conditioner operation.
Equipment operates but does not cool, or does not heat (only for heat pump)	Check for faulty operation of the electronic expansion valve.	Set the units to cooling operation, and compare the temperatures of the liquid side connection pipes of the connection section among rooms to check the opening and closing operation of the electronic expansion valves of the individual units.
	Diagnosis by service port pressure and operating current.	Check for insufficient gas.
Large operating noise and vibrations	Check the installation condition.	Check to make sure that the required spaces for installation (specified in the Technical Guide, etc.) are provided.

11.4 Error codes and description

	Code indication		fault description	Reference Page
	Indoor displaying panel code indication	Outdoor (LED1 flash times)		
Indoor and Outdoor	E7	15	Communication fault between indoor and outdoor units	Page49.
Indoor Malfunction	E1	--	Room temperature sensor failure	Page39.
	E2	--	Heat-exchange sensor failure	Page39.
	E4	--	Indoor EEPROM error	Page40.
	E14	--	Indoor fan motor malfunction	Page41.
Outdoor Malfunction	F12	1	Outdoor EEPROM error	Page40.
	F1	2	The protection of IPM	Page44.
	F22	3	Overcurrent protection of AC electricity for the outdoor model	Page45.
	F3	4	Communication fault between the IPM and outdoor PCB	Page46.
	F19	6	Power voltage is too high or low	Page47.
	F27	7	Compressor is lock-rotor or stopped momentary	Page51.
	F4	8	Overheat protection for Discharge temperature	Page48.
	F8	9	Outdoor DC fan motor fault	Page42.
	F21	10	Defrost temperature sensor failure	Page39 .
	F7	11	Suction temperature sensor failure	Page39.
	F6	12	Ambient temperature sensor failure	Page39.
	F25	13	Discharge temperature sensor failure	Page39.
	F13	16	Short of refrigerant	Page44.
	F11	18	deviate from the normal for the compressor	Page51.
	F28	19	Loop of the station detect error	Page51.
	/	21	Over load protection of indoor system	Page47 .
	F2	24	Overcurrent of the compressor	Page45.
	F23	25	Overcurrent protection for single-phase of the compressor	Page45.
	E9	21	High work-intense protection	Page52.

11.4.1 Thermistor or Related Abnormality

Indoor display	E1: Room temperature sensor failure E2: Heat-exchange sensor failure
	LED1 flash 10 times: Defrost temperature sensor failure
Outdoor display	LED1 flash 11 times: Suction temperature sensor failure LED1 flash 12 times: Ambient temperature sensor failure LED1 flash 13 times: Discharge temperature sensor failure

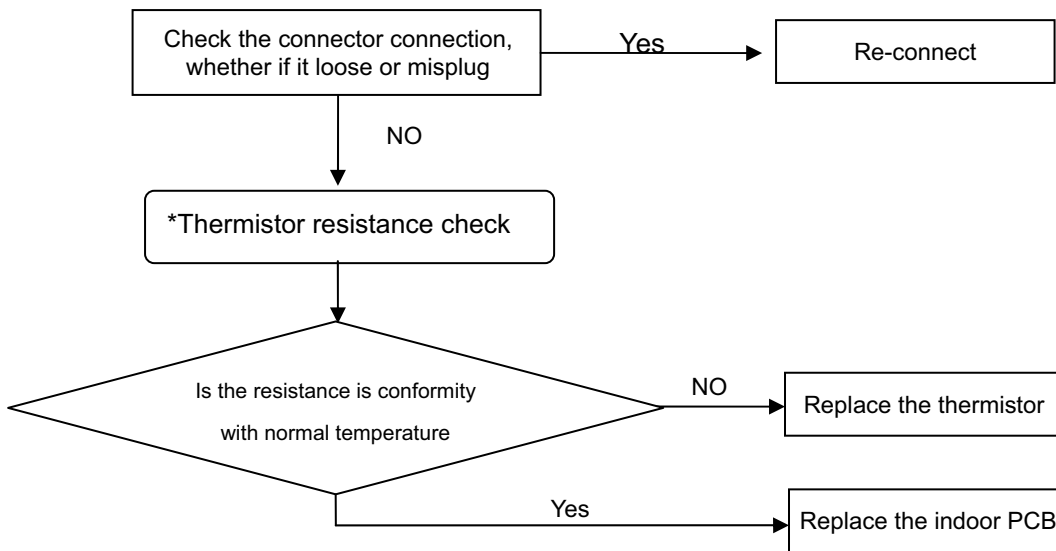
Method of malfunction detection The temperatures detected by the thermistors are used to determine thermistor errors

Malfunction detection conditions when the thermistor input is more than 4.92V or less than 0.08V during compressor operation.

- Note: The values vary slightly in some models

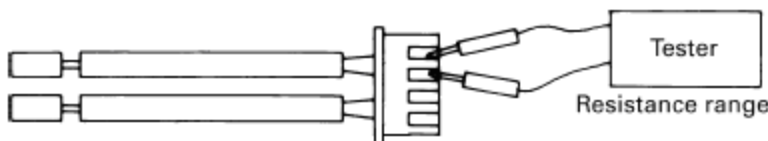
- Supposed causes**
- Faulty connector connection
 - Faulty thermistor
 - Faulty PCB

Troubleshooting * Caution Be sure to turn off power switch before connect or disconnect connector, or else parts damage may be occurred.



Thermistor resistance check method:

Remove the connector of the thermistor on the PCB, and measure the resistance of thermistor using tester. The relationship between normal temperature and resistance is shown in the value of indoor thermistor.



11.4.2 EEPROM abnormal

Indoor Display E4: indoor EEPROM error
 outdoor display F12: Outdoor EEPROM error; Outdoor LED1 flash 1 times

Method of malfunction detection

The Data detected by the EEPROM are used to determine MCU

Malfunction detection conditions

when the data of EEPROM is error or the EEPROM is damaged

Supposed causes

- Faulty EEPROM data
- Faulty EEPROM
- Faulty PCB

Troubleshooting

* Caution Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.

Replace the indoor or outdoor mainboard

11.4.3 Indoor AC fan motor malfunction

Indoor Display

E14

Method of malfunction detection

The fan speed detected by the Hall IC during fan motor running which is used to determine the fan motor operating

Malfunction detection conditions

When there is no fan speed feedback signal within 2 minutes

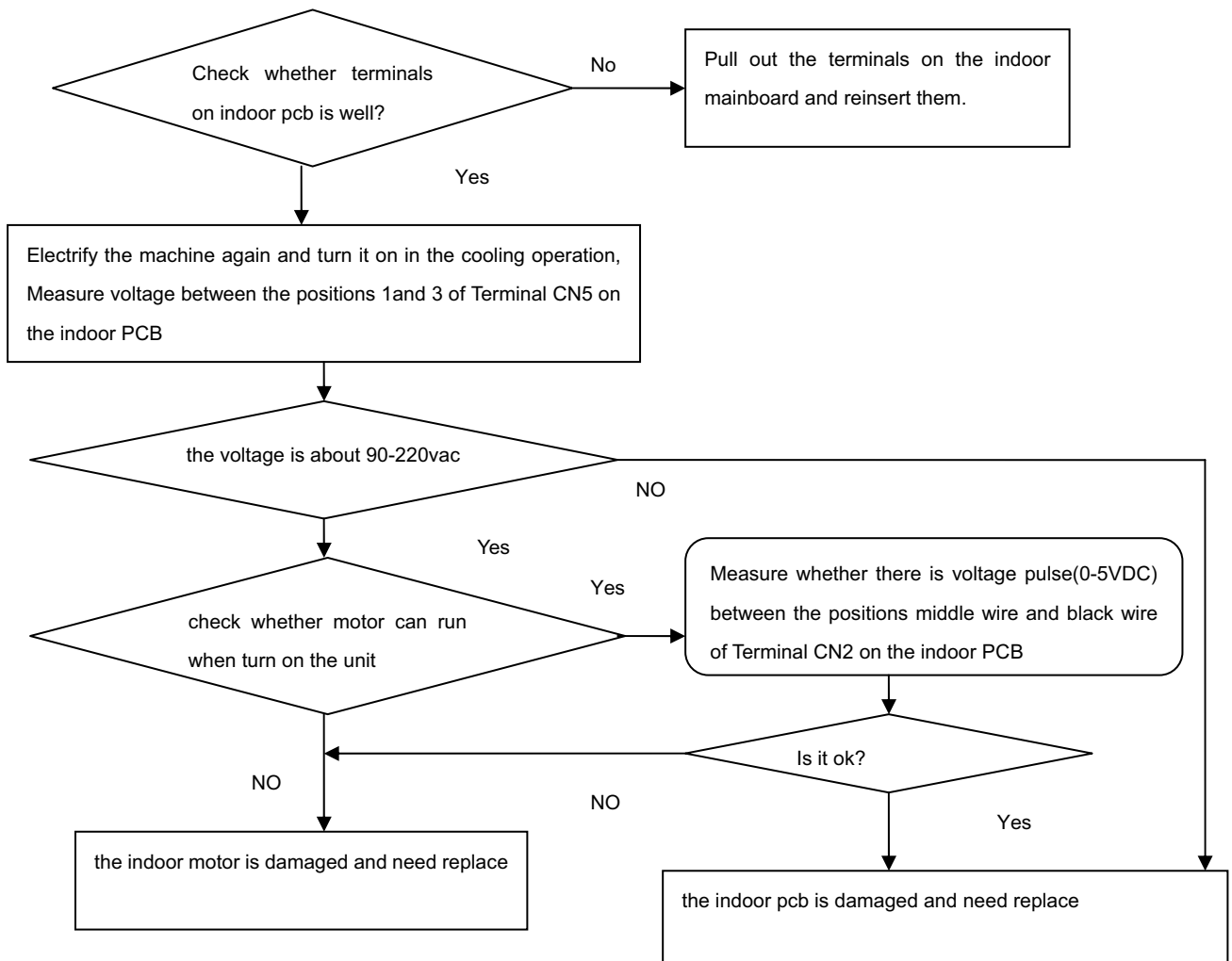
Supposed causes

- Operation halt due to breaking of wire inside the fan motor.
- Fan motor overheat protection
- Operation halt due to breaking of the fan motor lead wires
- Detection error due to faulty indoor unit PCB

Troubleshooting

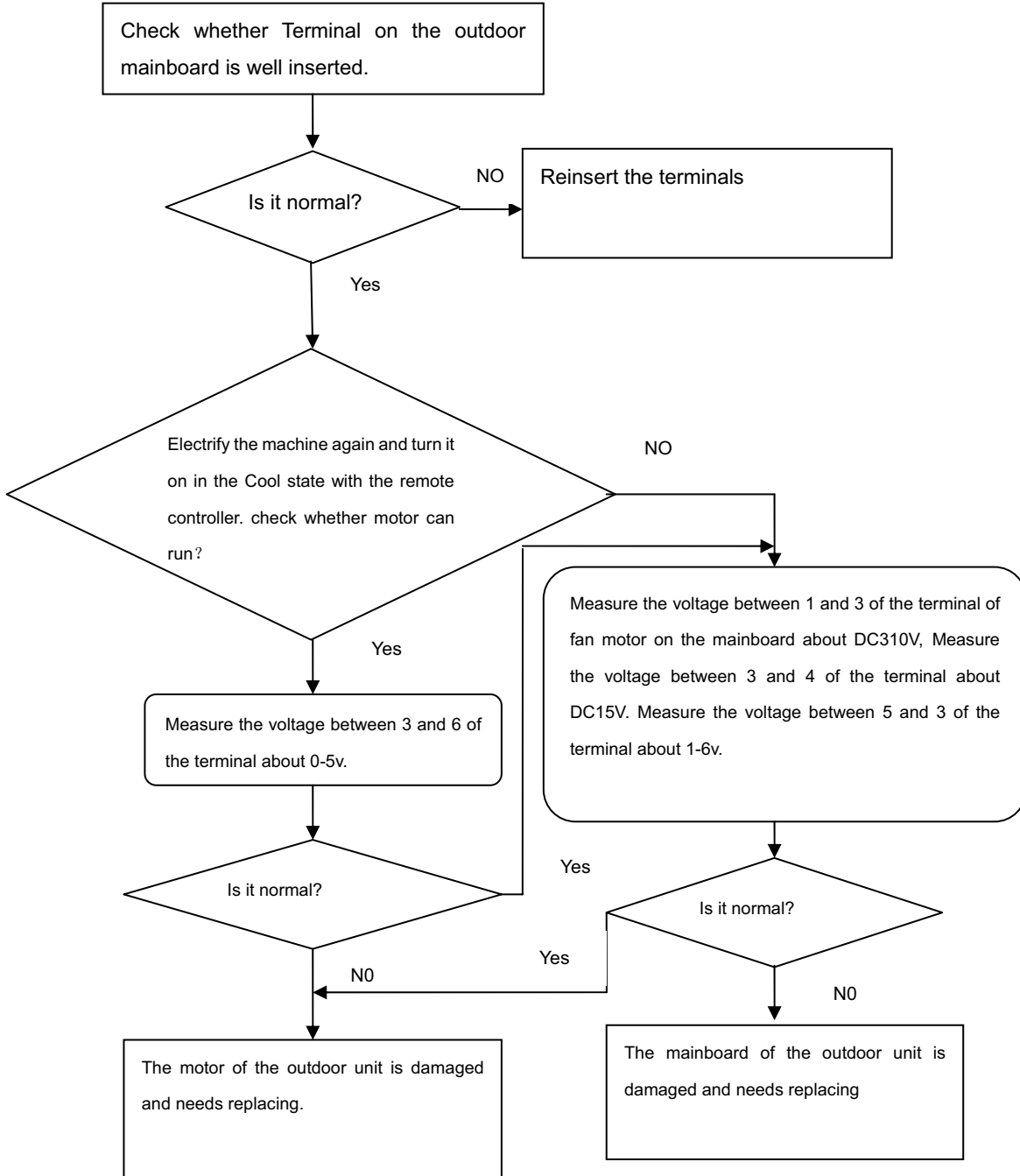
*** Caution**

Be sure to turn off power switch before connect or disconnect connector, or else parts damage may be caused



11.4.4 Outdoor DC fan motor fault

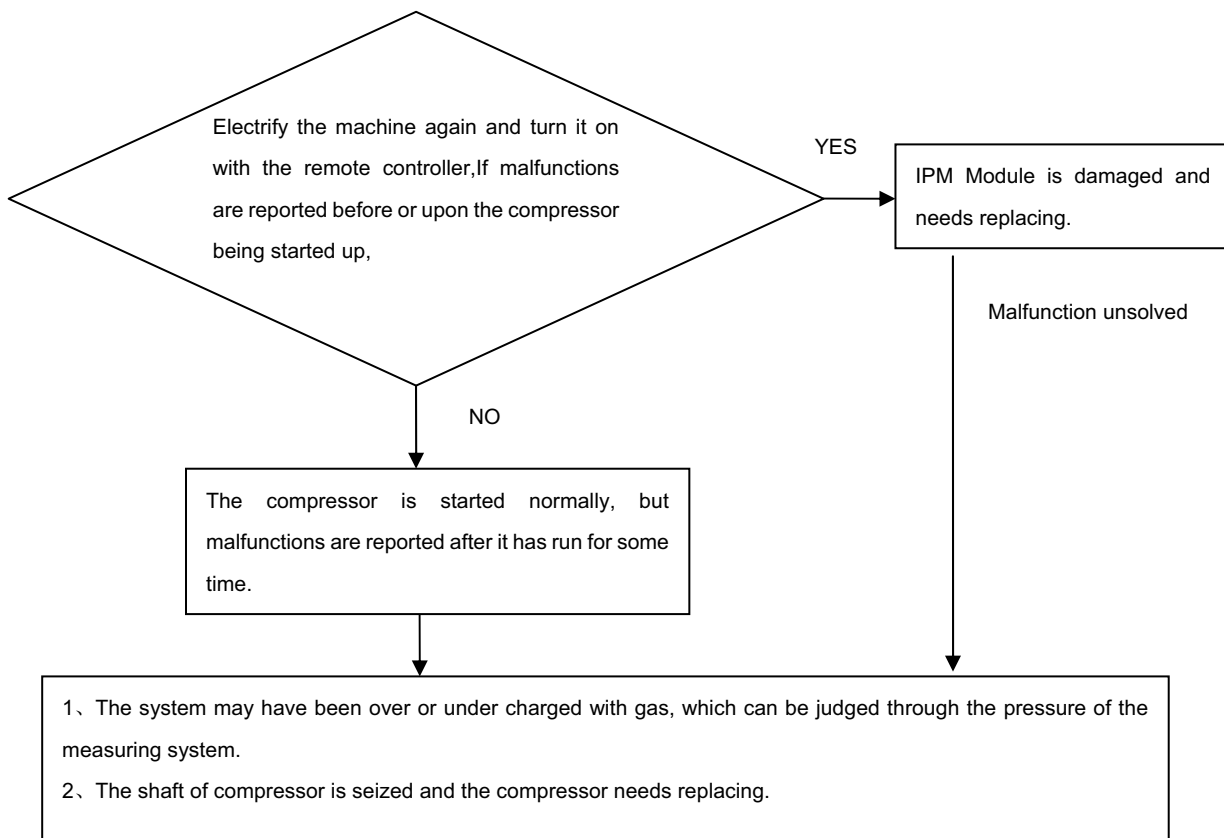
Outdoor display	LED1 flash 9 times
Method of malfunction detection	DC fan motor is detected by checking the fan running condition and so on
Malfunction detection conditions	when the data of EEPROM is error or the EEPROM is damaged
Supposed causes	<ul style="list-style-type: none"> ■DC fan motor protection dues to the DC fan motor faulty ■DC fan motor protection dues to faulty PCB
Troubleshooting	<p>* Caution</p> <p>Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.</p>



11.4.5 IPM protection

Outdoor display LED1 flash 2 times

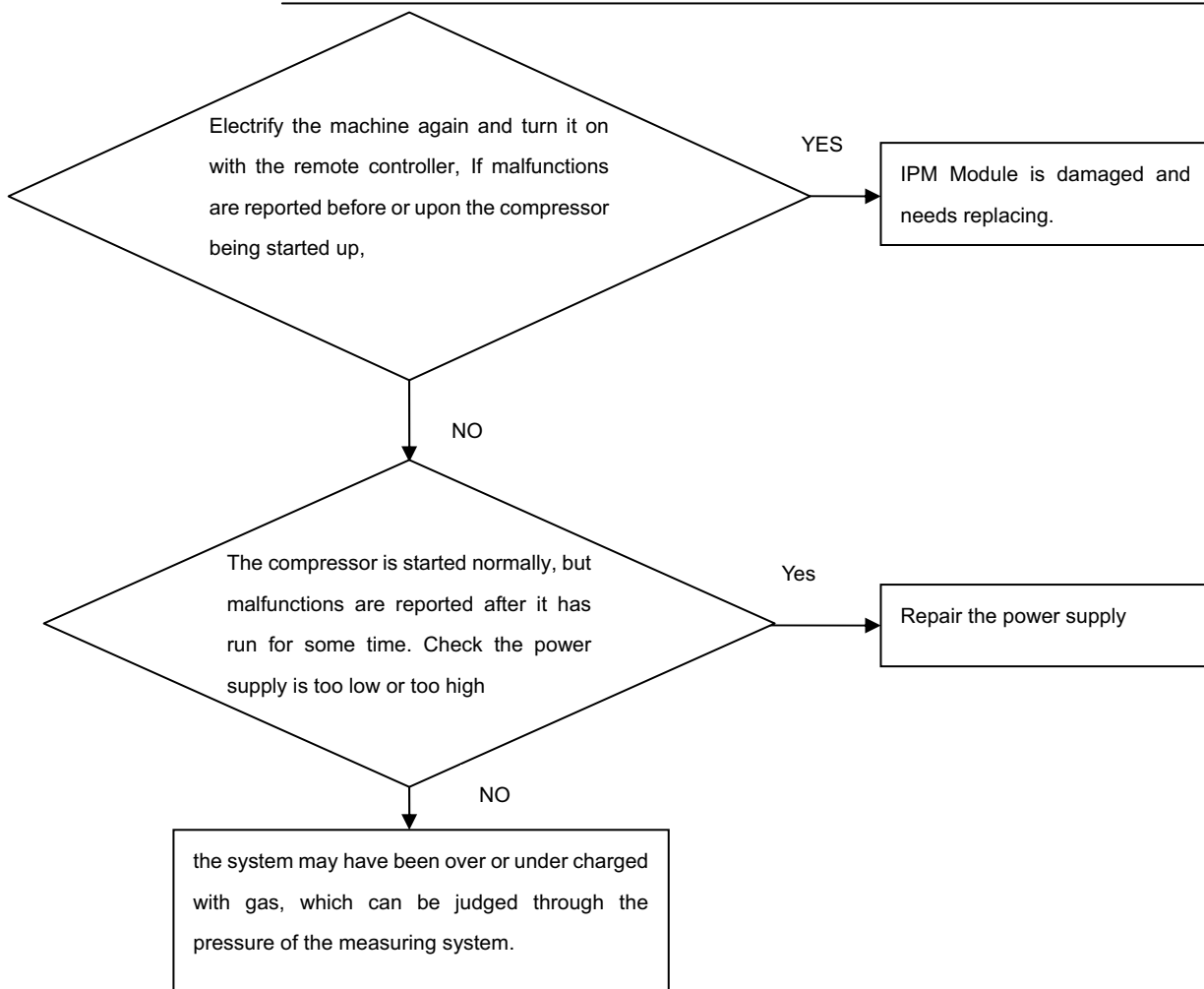
Method of malfunction detection	IPM protection is detected by checking the compressor running condition and so on
Malfunction detection conditions	<ul style="list-style-type: none"> ■The system leads to IPM protection due to over current ■The compressor faulty leads to IPM protection ■circuit component of IPM is broken and led to IPM protection
Supposed causes	<ul style="list-style-type: none"> ■IPM protection dues to the compressor faulty ■IPM protection dues to faulty PCB of IPM module ■Compressor wiring disconnected
Troubleshooting	<p>* Caution</p> <p>Be sure to turn off power switch before connect or disconnect connector, or else parts damage may be occurred..</p>



11.4.6 Over-current of the compressor

Outdoor display LED1 flash 3 or 24 or 25 times

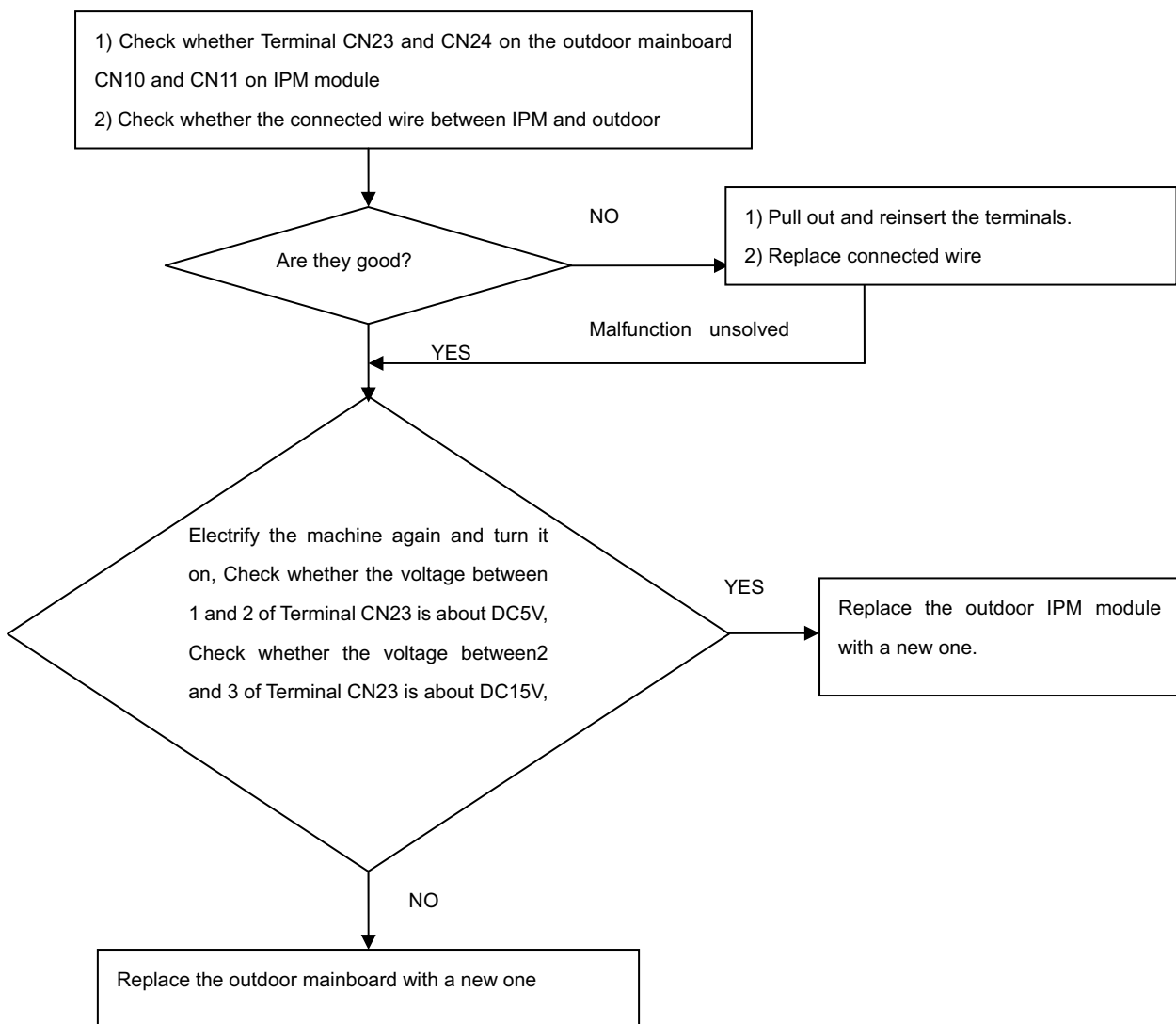
Method of malfunction detection	the current of the compressor is too high
Malfunction detection conditions	when the IPM Module is damaged or the compressor is damaged. power supply voltage is too low or too high
Supposed causes	<ul style="list-style-type: none"> ■ Faulty IPM Module ■ Faulty compressor ■ Faulty power supply
Troubleshooting	<p>* Caution</p> <p>Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred...</p>



11.4.7 The communication fault between IPM and outdoor PCB

Outdoor display LED1 flash 4 times

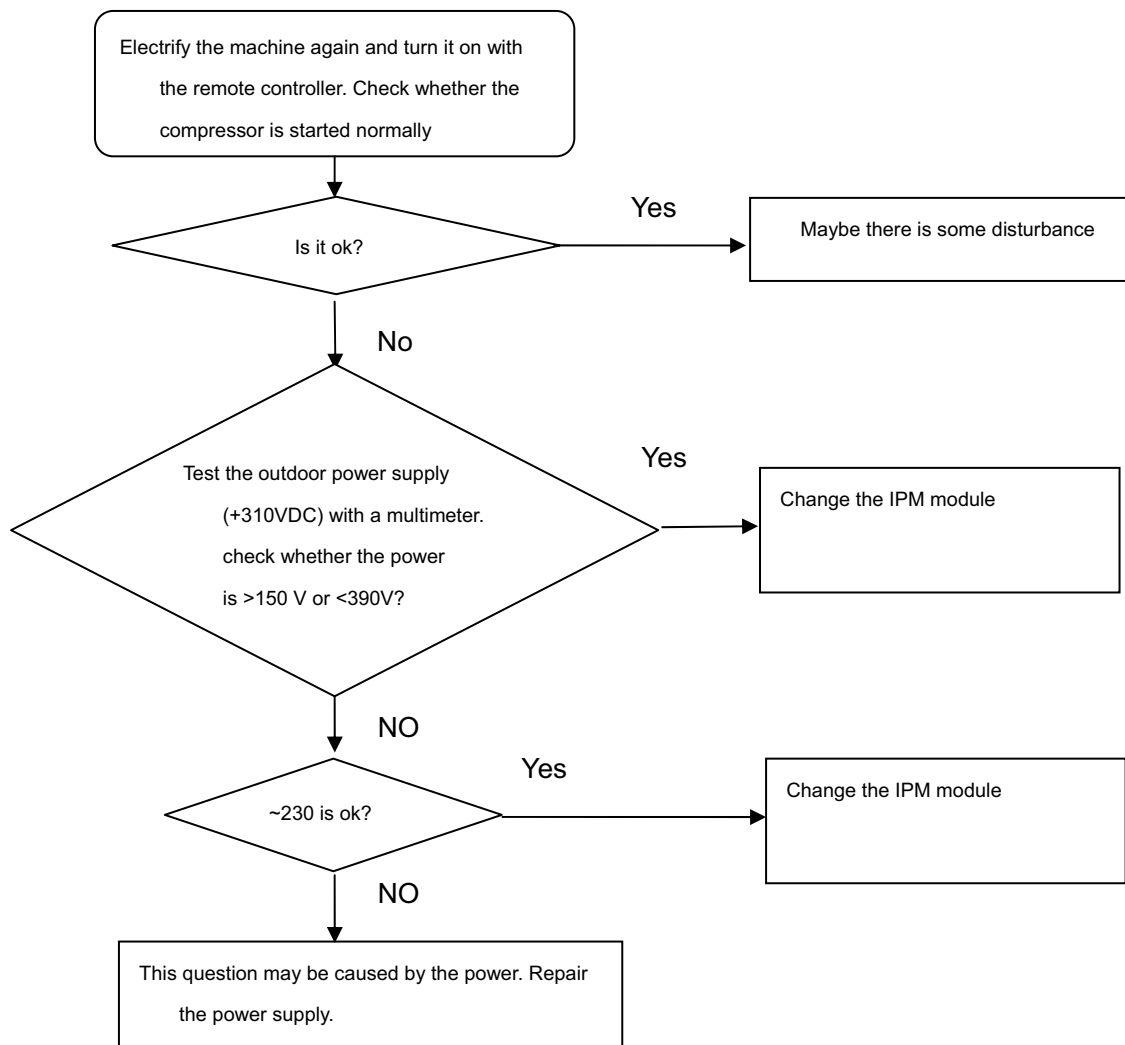
Method of malfunction detection	Communication is detected by checking the IPM module and the outdoor PCB
Malfunction detection conditions	<ul style="list-style-type: none"> ■The outdoor PCB broken leads to communication fault ■The IPM module broken leads to communication fault
Supposed causes	<ul style="list-style-type: none"> ■The outdoor PCB is broken ■The IPM module is broken ■Communication wiring disconnected
Troubleshooting	<p>* Caution</p> <p>Be sure to turn off power switch before connect or disconnect connector, or else parts damage may be occurred</p>



11.4.8 Power Supply Over or under voltage fault

Outdoor display LED1 flash 21 times The power supply is over voltage

Method of malfunction detection	An abnormal voltage rise or fall is detected by checking the specified voltage detection
Malfunction detection conditions	An voltage signal is fed from the voltage detection circuit to the microcomputer
Supposed causes	<ul style="list-style-type: none"> ■Supply voltage not as specified. ■The IPM module is broken. ■The outdoor PCB is broken.
Troubleshooting	<p>* Caution</p> <p>Be sure to turn off power switch before connect or disconnect connector, or else parts damage may be occurred.</p>

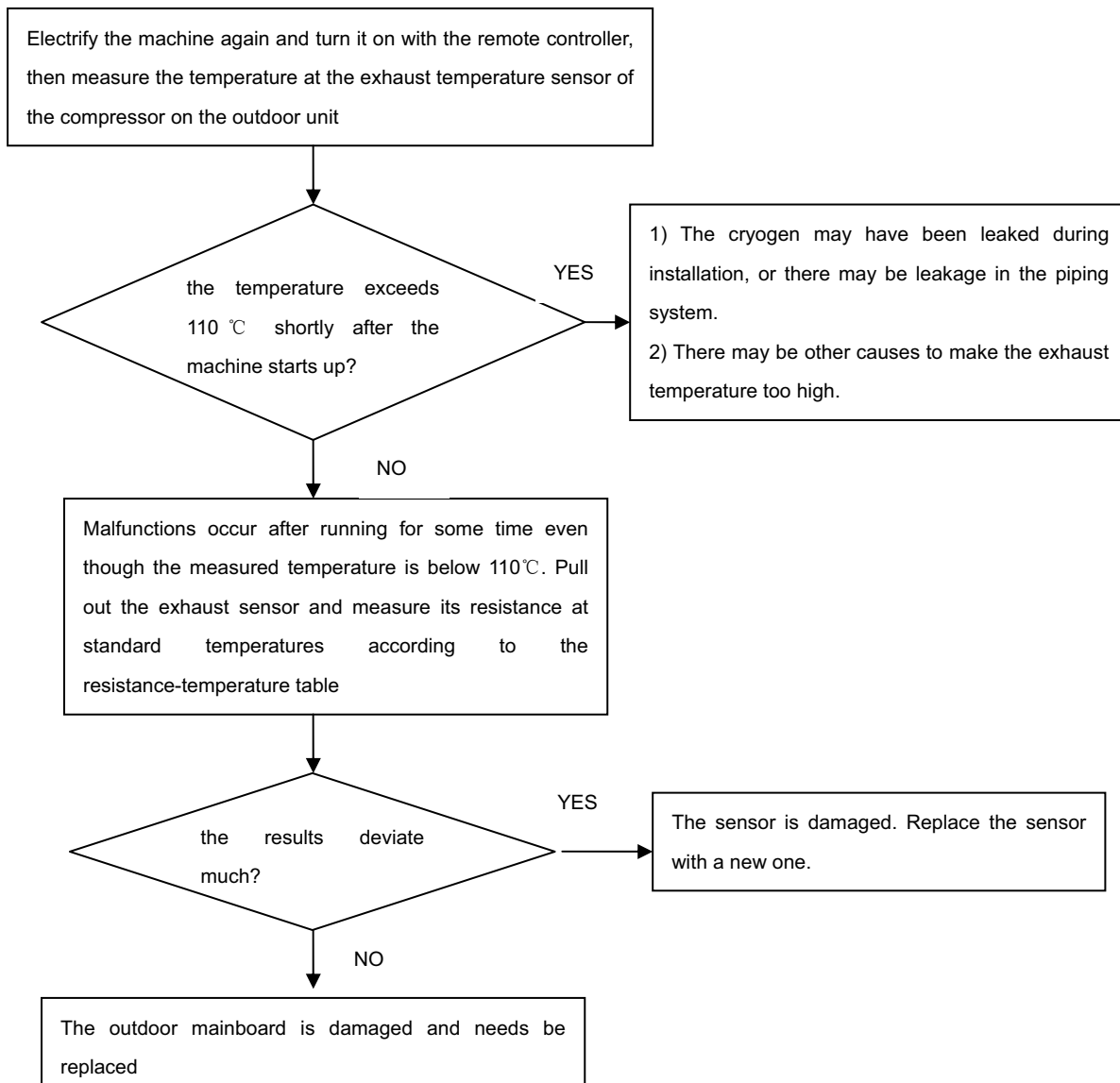


11.4.9 Overheat Protection For Discharge Temperature

Outdoor display

LED1 flash 8 times

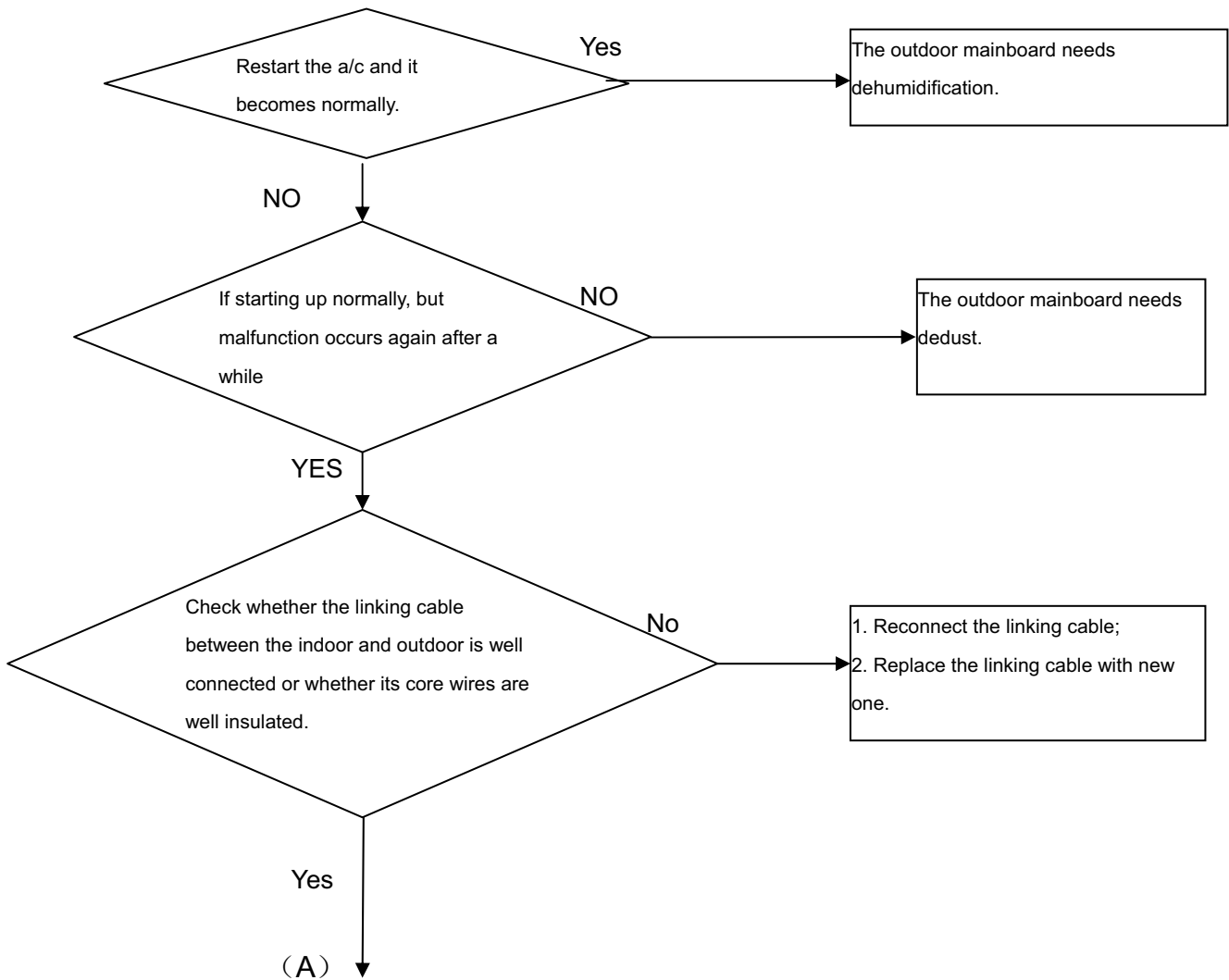
Method of malfunction detection	The Discharge temperature control is checked with the temperature being detected by the Discharge pipe thermistor
Malfunction detection conditions	when the compressor discharge temperature is above 110°C
Supposed causes	<ul style="list-style-type: none"> ■ Electronic expansion valve defective ■ Faulty thermistor ■ Faulty PCB
Troubleshooting	<p>* Caution</p> <p>Be sure to turn off power switch before connect or disconnect connector, or else parts damage may be occurred.</p>

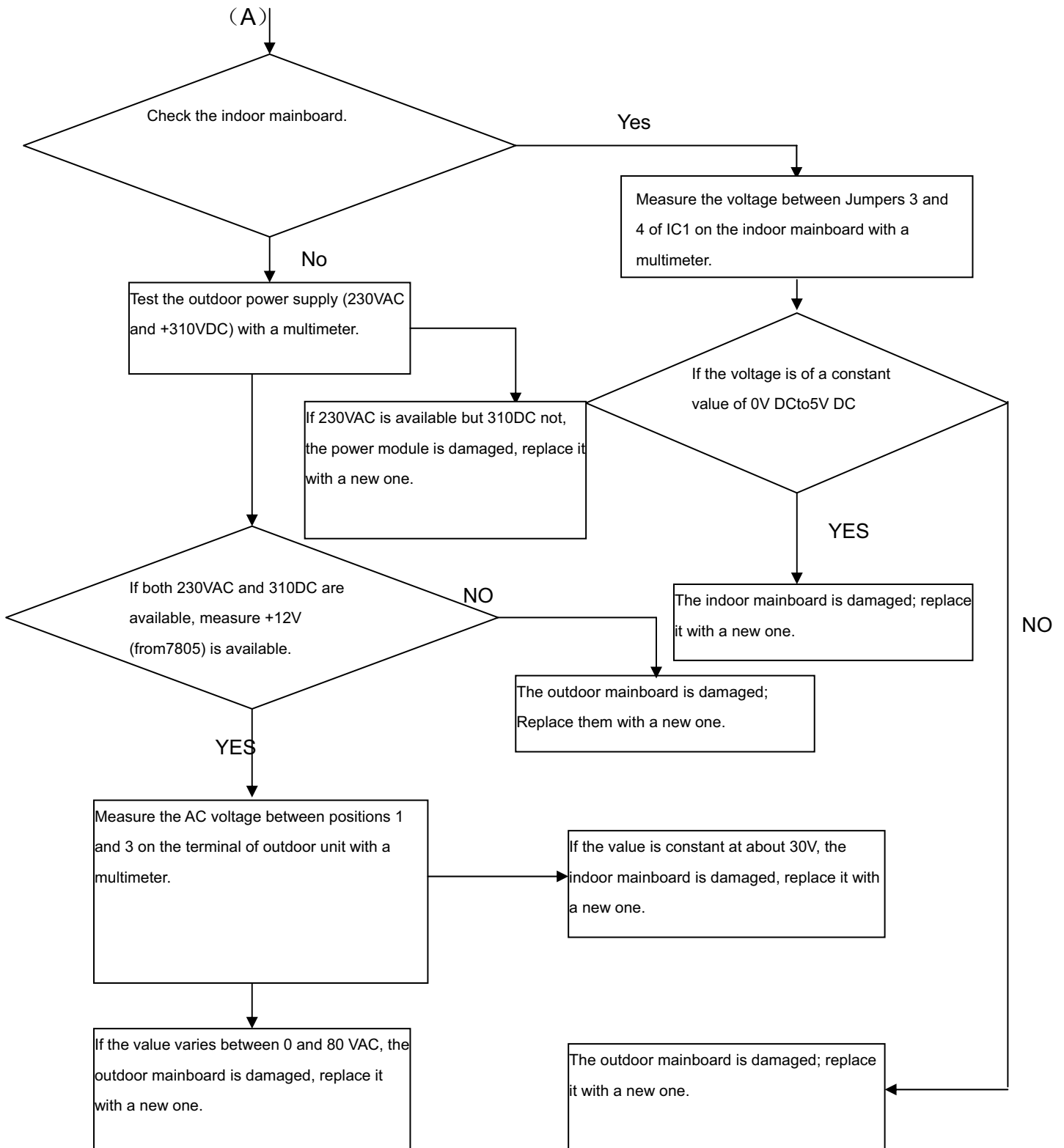


11.4.10 The communication fault between indoor and outdoor

indoor display E7
 Outdoor display LED1 flash 15 times

Method of malfunction detection	Communication is detected by checking the indoor PCB and the outdoor PCB
Malfunction detection conditions	<ul style="list-style-type: none"> ■The outdoor PCB broken leads to communication fault ■The indoor PCB broken leads to communication fault
Supposed causes	<ul style="list-style-type: none"> ■Communication wiring disconnected ■The indoor PCB is broken ■The outdoor PCB is broken ■The module PCB is broken
Troubleshooting	<p>* Caution</p> <p>Be sure to turn off power switch before connect or disconnect connector, or else parts damage may be occurred.</p>



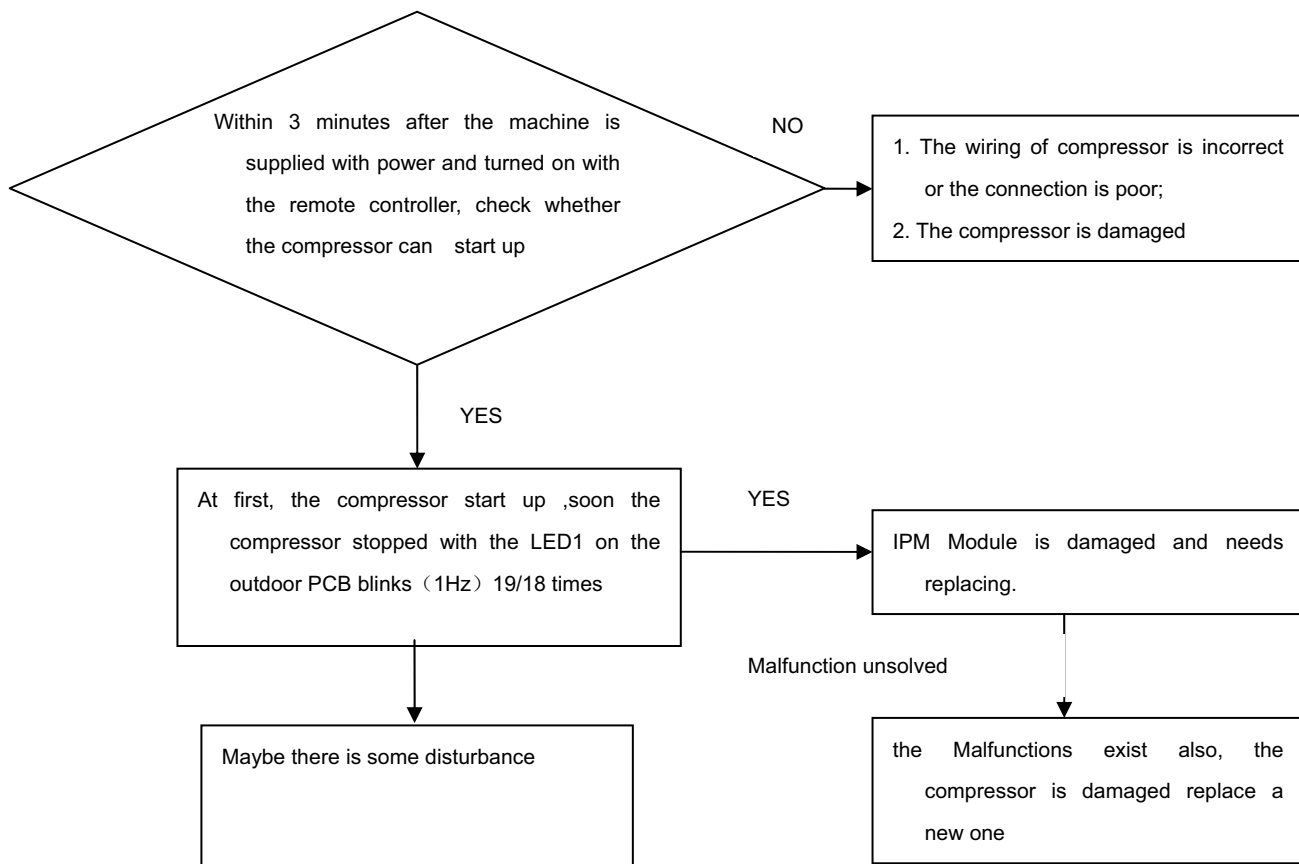


11.4.11 Loss of synchronism detection

Inverter side current detection is abnormal

Outdoor display LED1 flash 18 times
 LED1 flash 19 times

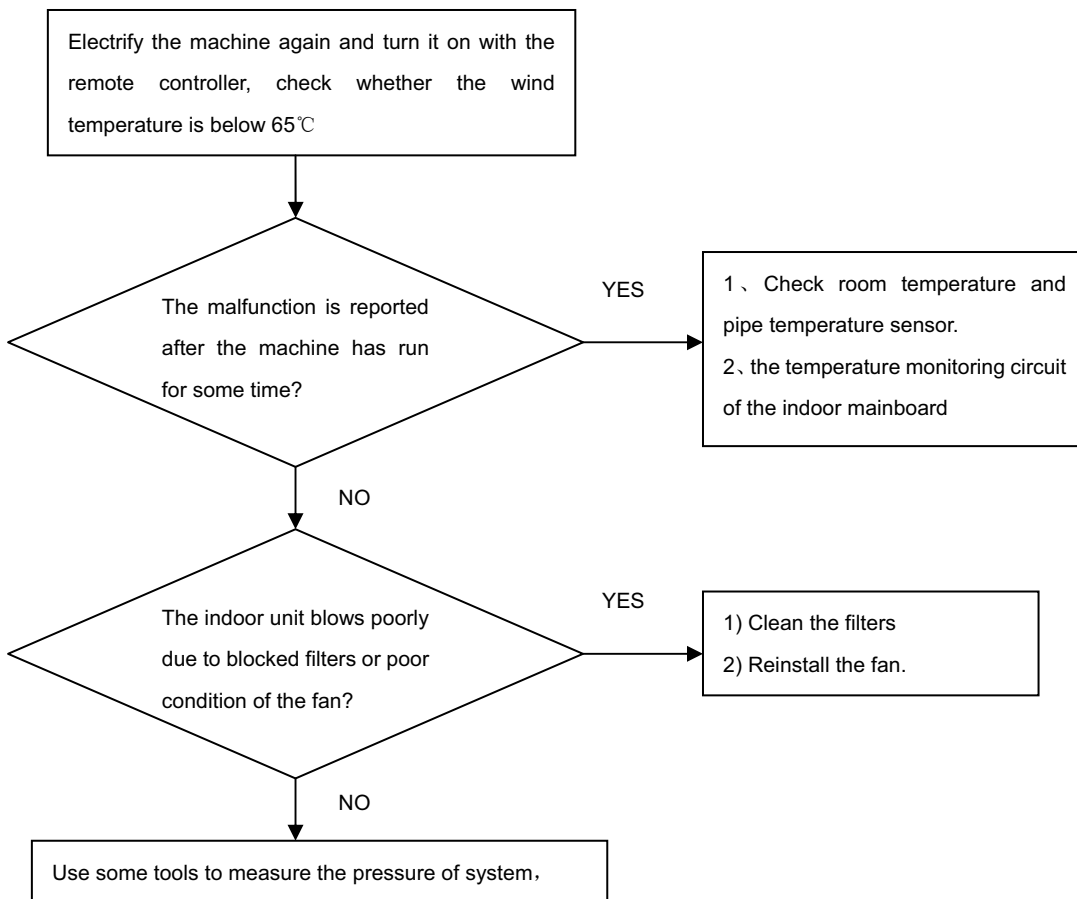
Method of malfunction detection	The position of the compressor rotor can not detected normally
Malfunction detection conditions	when the wiring of compressor is wrong or the connection is poor; or the compressor is damaged
Supposed causes	<ul style="list-style-type: none"> ■Faulty The wiring of compressor ■Faulty compressor ■Faulty PCB
Troubleshooting	<p>* Caution</p> <p>Be sure to turn off power switch before connect or disconnect connector, or else parts damage may be occurred.</p>



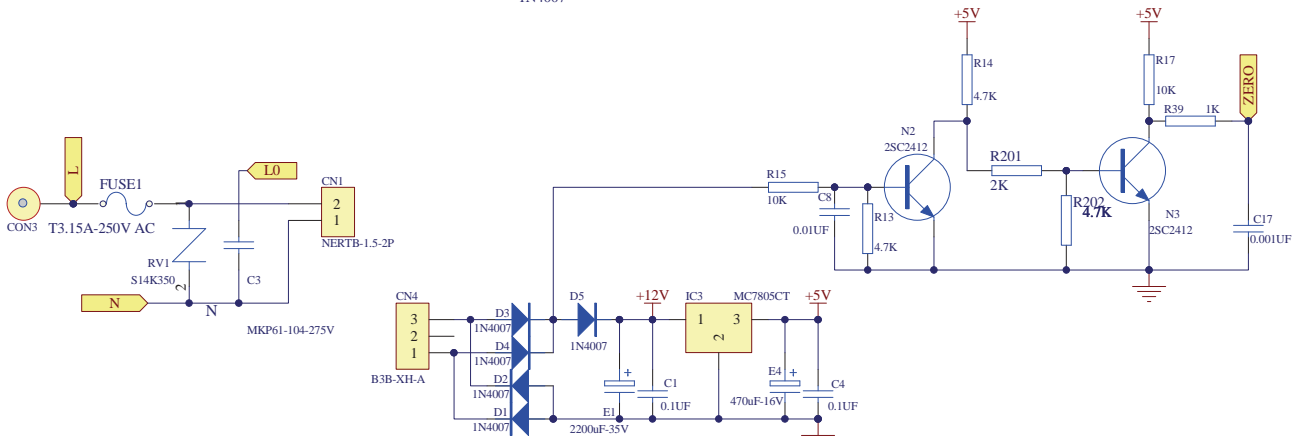
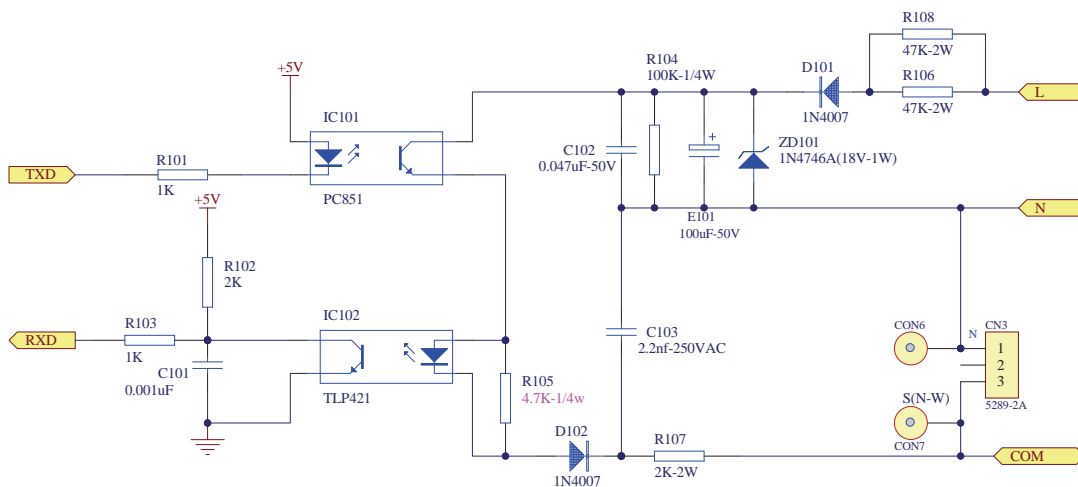
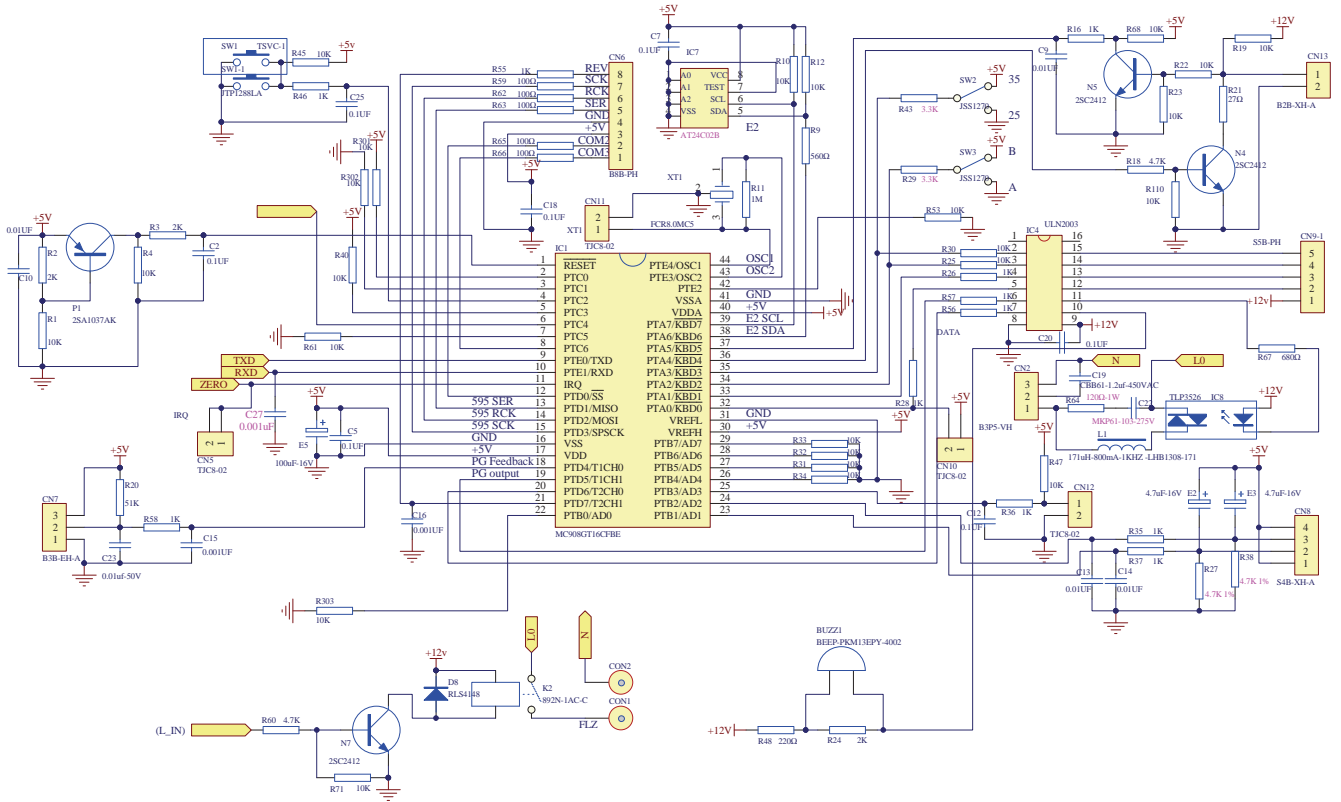
11.4.12 High work-intense protection

Outdoor display LED1 flash 21 times

Method of malfunction detection	High work-intense control is activated in the heating mode if the temperature being sensed by the heat exchanger thermistor exceeds the limit.
Malfunction detection conditions	Activated when the temperature being sensed by the heat exchanger rises above 65°C twice in 30 minutes.
Supposed causes	<ul style="list-style-type: none"> ■ Faulty electronic expansion valve ■ Dirty heat exchanger ■ Faulty heat-exchange sensor ■ Insufficient gas
Troubleshooting	<p>* Caution</p> <p>Be sure to turn off power switch before connect or disconnect connector, or else parts damage may be occurred.</p>



12. Circuit diagrams



Haier SERVICE MANUAL

Wall Mounted Type DC Inverter SUPER MATCH Model No. AS07NS3HRA AS09NS3HRA



WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or Repair the product or products dealt with in this service information by anyone else could result in serious injury or death

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Haier Group

Version: V1

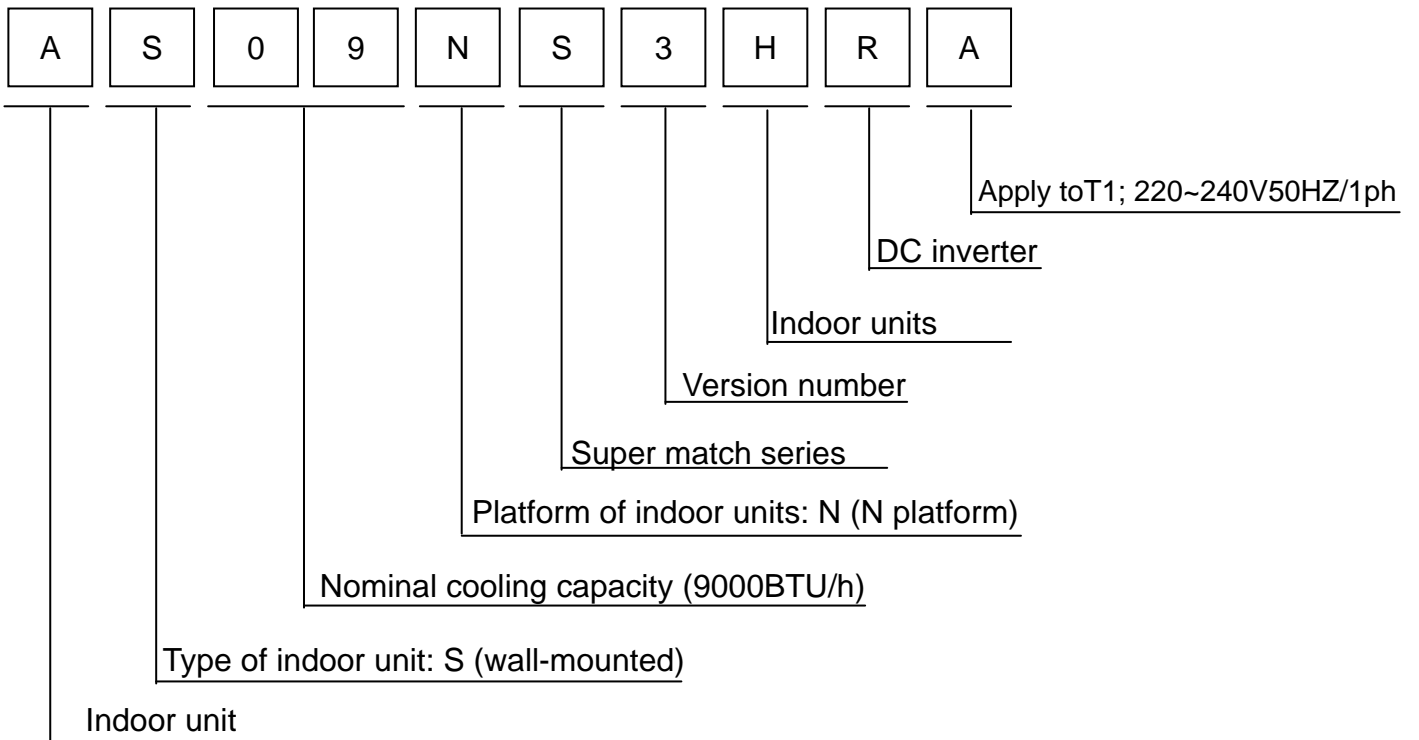
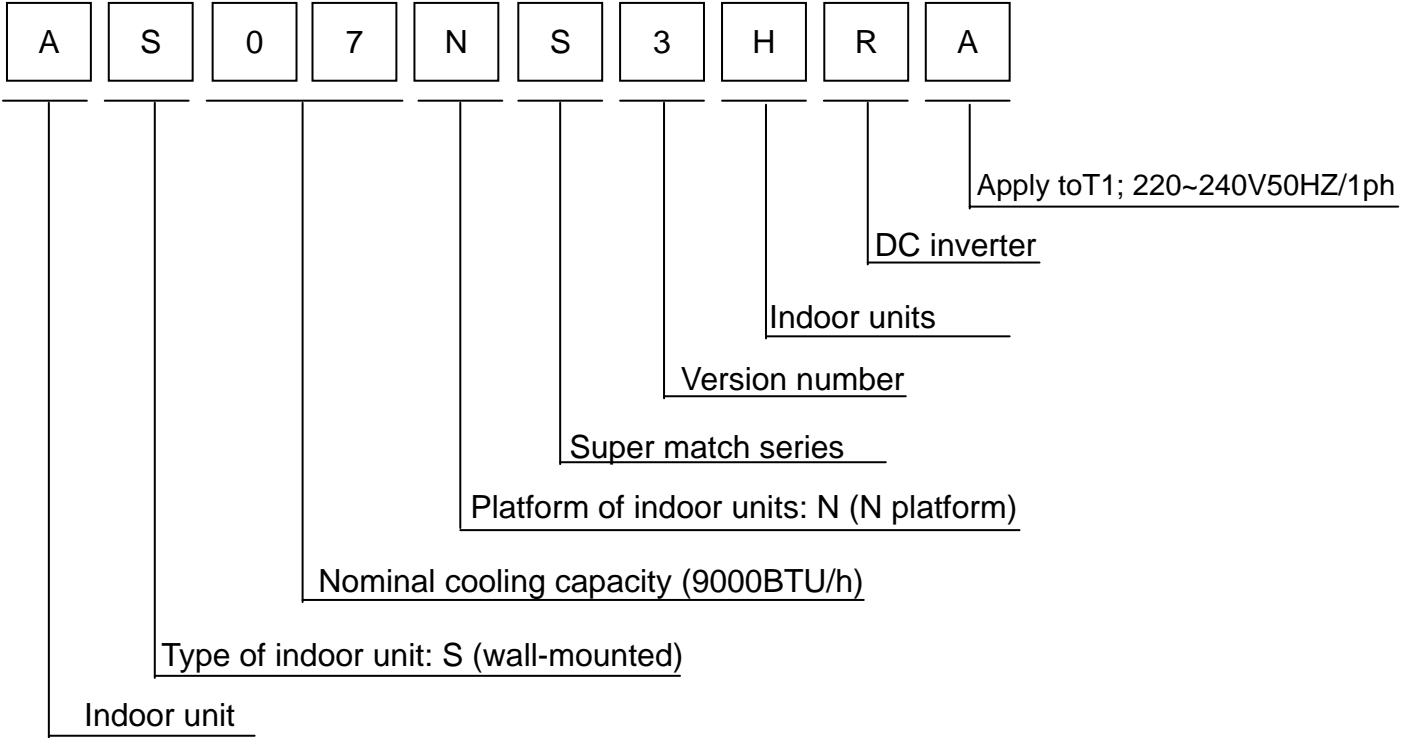
Date: 2013-11-25

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1 Introduction

1.1 Model name explanation



1.2 Safety Cautions

Be sure to read the following safety cautions before conducting repair work.






The caution items are classified into “Warning” and “Caution”. The “Warning” items are especially important since they can lead to death or serious injury if they are not followed closely. The “Caution” items can also lead to serious accidents under some conditions if they are not followed. Therefore, be sure to observe all the safety caution items described below.







About the pictograms

- △ This symbol indicates an item for which caution must be exercised.
The pictogram shows the item to which attention must be paid.
- This symbol indicates a prohibited action.
The prohibited item or action is shown inside or near the symbol.
- This symbol indicates an action that must be taken, or an instruction.
The instruction is shown inside or near the symbol.

After the repair work is complete, be sure to conduct a test operation to ensure that the equipment operates Normally, and explain the cautions for operating the product to the customer.



1.2.1 Caution in Repair


Warning	
<p>Be sure to disconnect the power cable plug from the plug socket before disassembling the equipment for a repair.</p> <p>Working on the equipment that is connected to a power supply can cause an electrical shock.</p> <p>If it is necessary to supply power to the equipment to conduct the repair or inspecting the circuits, do not touch any electrically charged sections of the equipment.</p>	
<p>If the refrigerant gas discharges during the repair work, do not touch the discharging refrigerant gas .The refrigerant gas can cause frostbite.</p>	
<p>When disconnecting the suction or discharge pipe of the compressor at the welded section, release the refrigerant gas completely at a well-ventilated place first.</p> <p>If there is a gas remaining inside the compressor , the refrigerant gas or refrigerating machine oil discharges when the pipe is disconnected, and it can cause injury.</p>	
<p>If the refrigerant gas leaks during the repair work, ventilate the area. The refrigerant gas can generate toxic gases when it contacts flames.</p>	
<p>The step-up capacitor supplies high-voltage electricity to the electrical components of the outdoor unit.</p> <p>Be sure to discharge the capacitor completely before conducting repair work . A charged capacitor can cause an electrical shock.</p>	
<p>Do not start or stop the air conditioner operation by plugging or unplugging the power cable plug.</p> <p>Plugging or unplugging the power cable plug to operate the equipment can cause an electrical shock or fire.</p>	

Warning	
Do not repair the electrical components with wet hands . Working on the equipment with wet hands can cause an electrical shock	
Do not clean the air conditioner by splashing water. Washing the unit with water can cause an electrical shock.	
Be sure to provide the grounding when repairing the equipment in a humid or wet place, to avoid electrical shock.	
Be sure to turn off the power switch and unplug the power cable when cleaning the equipment. The internal fan rotates at a high speed, and cause injury.	
Do not tilt the unit when removing it. The water inside the unit can spill and wet the furniture and floor.	
Be sure to check that the refrigerating cycle section has cooled down sufficiently before conducting repair work. Working on the unit when the refrigerating cycle section is hot can cause burns.	
Use the welder in a well-ventilated place. Using the welder in an enclosed room can cause oxygen deficiency.	



1.2.2 Cautions Regarding Products after Repair


Warning	
Be sure to use parts listed in the service parts list of the applicable model and appropriate tools to conduct repair work. Never attempt to modify the equipment. The use of inappropriate parts or tools can cause an electrical shock, excessive heat generation or fire.	
When relocating the equipment, make sure that the new installation site has sufficient strength to withstand the weight of the equipment. If the installation site does not have sufficient strength and if the installation work is not conducted securely, the equipment can fall and cause injury.	
Be sure to install the product correctly by using the provided standard installation frame. Incorrect use of the installation frame and improper installation can cause the equipment to fall, resulting in injury.	For integral units only
Be sure to install the product securely in the installation frame mounted on a window frame. If the unit is not securely mounted, it can fall and cause injury.	For integral units only


Warning	
<p>Be sure to use an exclusive power circuit for the equipment, and follow the technical standards related to the electrical equipment, the internal wiring regulations and the instruction manual for installation when conducting electrical work.</p> <p>Insufficient power circuit capacity and improper electrical work can cause an electrical shock or fire.</p>	
<p>Be sure to use the specified cable to connect between the indoor and outdoor units. Make the connections securely and route the cable properly so that there is no force pulling the cable at the connection terminals.</p> <p>Improper connections can cause excessive heat generation or fire.</p>	
<p>When connecting the cable between the indoor and outdoor units, make sure that the terminal cover does not lift off or dismount because of the cable.</p> <p>If the cover is not mounted properly, the terminal connection section can cause an electrical shock, excessive heat generation or fire.</p>	
<p>Do not damage or modify the power cable.</p> <p>Damaged or modified power cable can cause an electrical shock or fire. Placing heavy items on the power cable, and heating or pulling the power cable can damage the cable.</p>	
<p>Do not mix air or gas other than the specified refrigerant (R-410A / R22) in the refrigerant system.</p> <p>If air enters the refrigerating system, an excessively high pressure results, causing equipment damage and injury.</p>	
<p>If the refrigerant gas leaks, be sure to locate the leak and repair it before charging the refrigerant. After charging refrigerant, make sure that there is no refrigerant leak.</p> <p>If the leak cannot be located and the repair work must be stopped, be sure to perform pump-down and close the service valve, to prevent the refrigerant gas from leaking into the room. The refrigerant gas itself is harmless, but it can generate toxic gases when it contacts flames, such as fan and other heaters, stoves and ranges.</p>	
<p>When replacing the coin battery in the remote controller, be sure to disposed of the old battery to prevent children from swallowing it.</p> <p>If a child swallows the coin battery, see a doctor immediately.</p>	

Caution	
Installation of a leakage breaker is necessary in some cases depending on the conditions of the installation site, to prevent electrical shocks.	
Do not install the equipment in a place where there is a possibility of combustible gas leaks. If a combustible gas leaks and remains around the unit, it can cause a fire.	
Be sure to install the packing and seal on the installation frame properly. If the packing and seal are not installed properly, water can enter the room and wet the furniture and floor.	

1.2.3 Inspection after Repair

Warning	
Check to make sure that the power cable plug is not dirty or loose, then insert the plug into a power outlet all the way. If the plug has dust or loose connection, it can cause an electrical shock or fire.	
If the power cable and lead wires have scratches or deteriorated, be sure to replace them. Damaged cable and wires can cause an electrical shock, excessive heat generation or fire.	





Warning	
Do not use a joined power cable or extension cable, or share the same power outlet with other electrical appliances since it can cause an electrical shock, excessive heat generation or fire.	

Caution	
Check to see if the parts and wires are mounted and connected properly, and if the connections at the soldered or crimped terminals are secure. Improper installation and connections can cause excessive heat generation, fire or an electrical shock.	
If the installation platform or frame has corroded, replace it. Corroded installation platform or frame can cause the unit to fall, resulting in injury.	
Check the grounding, and repair it if the equipment is not properly grounded. Improper grounding can cause an electrical shock.	
Be sure to measure the insulation resistance after the repair, and make sure that the resistance is 1 M ohm or higher. Faulty insulation can cause an electrical shock.	
Be sure to check the drainage of the indoor unit after the repair. Faulty drainage can cause the water to enter the room and wet the furniture and floor.	

1.2.4 Using Icons

Icons are used to attract the attention of the reader to specific information. The meaning of each icon is described in the table below:

1.2.5 Using Icons List

Icon	Type of Information	Description
 Note	Note	A “note” provides information that is not indispensable, but may nevertheless be valuable to the reader, such as tips and tricks.
 Caution	Caution	A “caution” is used when there is danger that the reader, through incorrect manipulation, may damage equipment, lose data, get an unexpected result or has to restart (part of) a procedure.
 Warning	Warning	A “warning” is used when there is danger of personal injury.
	Reference	A “reference” guides the reader to other places in this binder or in this manual, where he/she will find additional information on a specific topic.

2.Features



Super quiet: Lower noise operation condition



A-PAM DC inverter:With adoption of S-TYPE,S-PAM and PHASE control technology to works more stably at low-frequency,and is more energy-saving,mor powerful at high frequency.



Long distance air supplying:



-15°C Heating: When -15°C can still heating natural



10°C heating maintenance:Heating Holding 10°C temperature



Comfortable sleep: The setting temperature and the indoor noise can be adjusted to a more comfortable level when you set the “sleep mode” during night sleep.



Super match:One outdoor unit can match two or more indoor unit.



DIY auto mode: Adjust the last fixed operation mode automatically.



Turbo mode: Quick cooling or heating



Auto restart: Automatic return to previous operation conditions after sudden power blackout



24 hours timer: Use the timer function to set on,or off,or from on to off,or from off to on.



Intergrative valve cover:The valve cover is Intergrative.



2-way piping design: The pipe can shoot out both from left or right side.



Easy clean design: The panel is easy to wash and the airflow vents can be detached easily



Double 8 display:The display is Double 8 mode.

3 Specifications

NOMINAL DISTRIBUTION SYSTEM VOLTAGE		
Phase	/	1
Frequency	Hz	50
Voltage	V	230

NOMINAL CAPACITY and NOMINAL INPUT			
		cooling	heating
Capacity rated	KW	2.7 (0.9-3.2)	2.8 (1.4-3.2)
	Btu/h	9210 (3070-10920)	9560 (4780-10920)
Power Consumption(Rated)	KW	0.71	0.68
SEER/SCOP	W/W	6.4	4.0
Annual energy consumption	KWh	148	830
Moisture Removal	m ³ /h	1.2*10 ⁻³	

TECHNICAL SPECIFICATIONS			
Dimensions	H*W*D	mm	855*204*280
Packaged Dimensions	H*W*D	mm	954*279*355
Weight	/	KG	10.0
Gross weight	/	KG	12.2
Color	/	/	Golden/Grey/White
Sound level	Sound pressure(Hi/Mid/Lo)	dB(A)	38/33/26
	Sound power(high)	dB(A)	52
			39/33/26
			53

TECHNICAL SPECIFICATIONS-PARTS			
		cooling	heating
Fan	Type	Cross flow fan	
	Motor output	W	27
	Air flow rate(high)	m ³ /h	600
	Speed(Hi/Mid/Lo)	rpm	950/800/650
Heat exchanger	Type	ML fin- φ 7HI-HX tube	
	Segment *stage*fitch	3*14*1.4	
Air direction control		Right,Left,Horizontal,Downward	
Air filter		Removable/Washable/Mildew Proof	
Temperature control		Microcomputer Control	
Remote controller model		YR-HB01	

Note: the data are based on the conditions shown in the table below

cooling	heating	Piping length
Indoor: 27°CDB/19°CWB Outdoor: 35°CDB/24°CWB	Indoor:20°CDB Outdoor: 7°CDB/6°CWB	5m

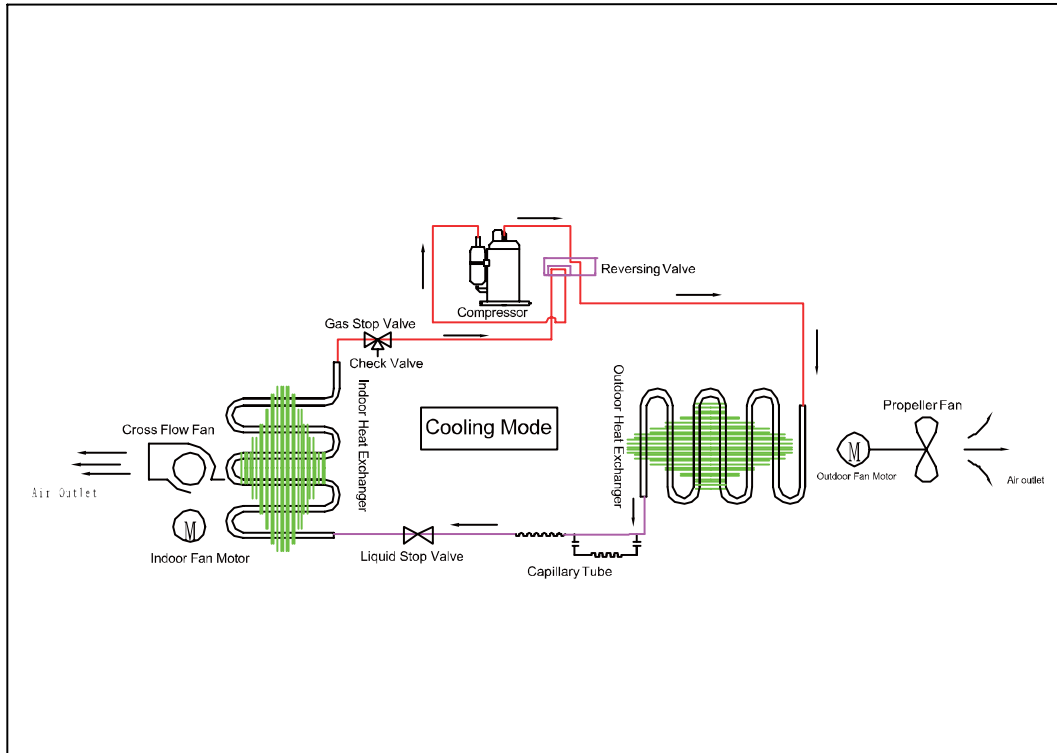
Conversion formulae
Kcal/h= KW×860
Btu/h= KW×3414
cfm=m ³ /min×35.3

4. Sensors list

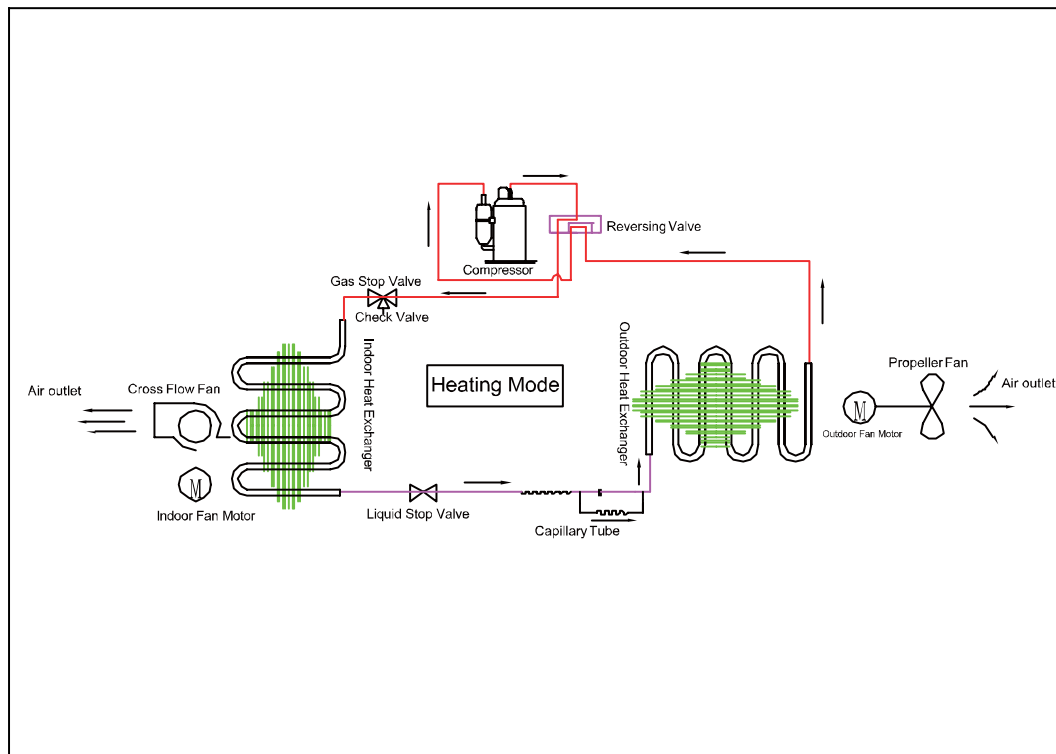
type	Description	Qty
Room sensor	Its used for detecting room temperature	1
Pipe sensor	Its used for detecting temperature of evaporator	1

5. Piping diagrams

Cooling mode



Heating mode



6. Printed Circuit Board Connector Wiring Diagram

Connectors

series	PCB connector	Connect with load
1	CN9	Connector for fan motor
2	CN6	Connector for heat exchanger thermistor and Room temperature thermistor
3	CN5	Connector for UP&DOWN STEP motor
4	CN10	Connector for L&R STEP motor
5	CN11	
6	CON21	Connector for power N wire
7	CON52	Connector for power L
8	CN7	Connector for display board
9	CON2	Connector for ions generator
10	CON3	
11	CON23	Connector for communicate between the indoor PCB and the outdoor PCB
12	CN36	Connector for long-range control
13	CN34	Connector for Net Module
14	CN51	Connector for room card
15	CN1	Connector for Fresh air

Note: Other designations

PCB(1) (Indoor Control PCB)

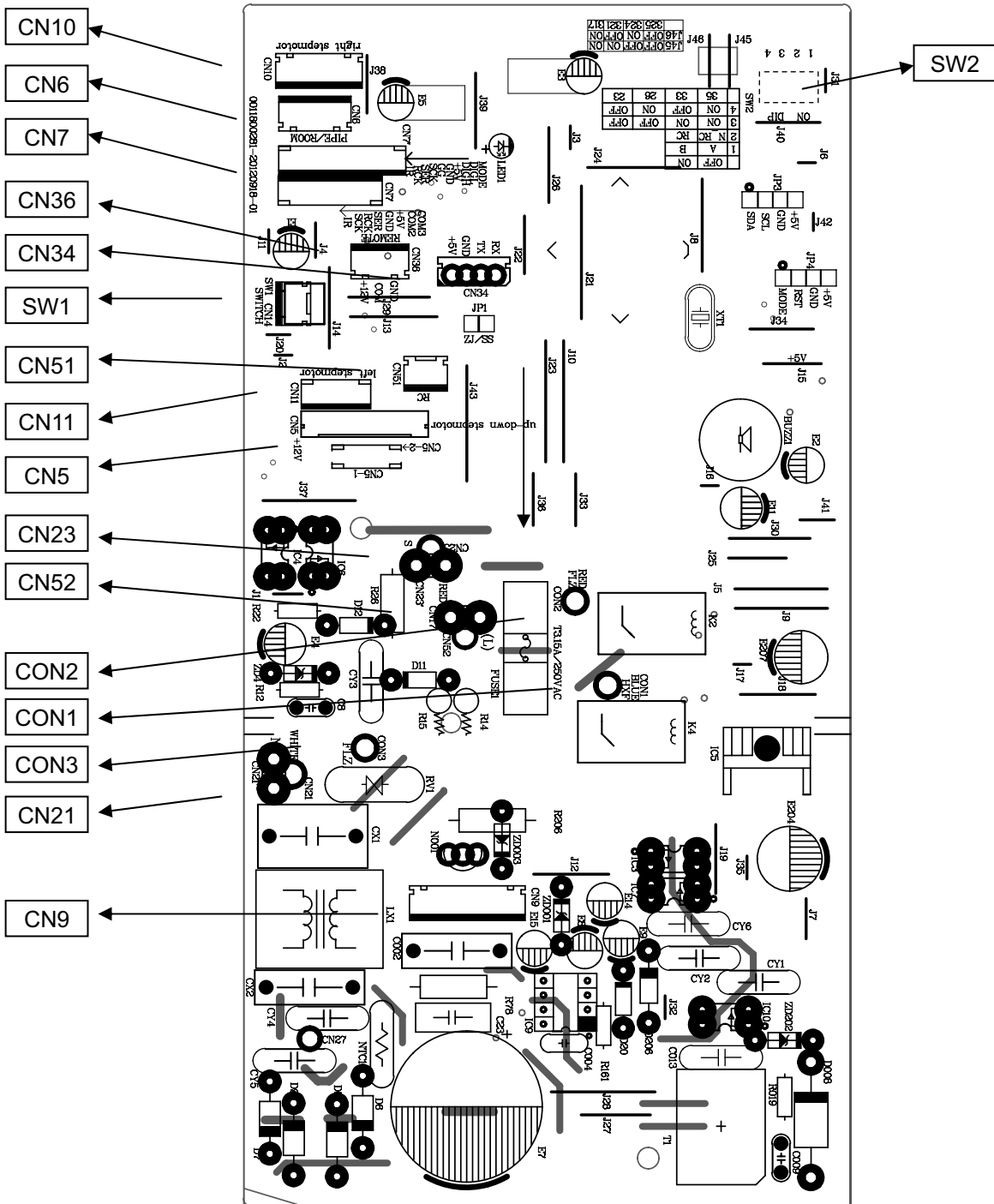
1) SW1 Connector for Forced operation ON / OFF switch

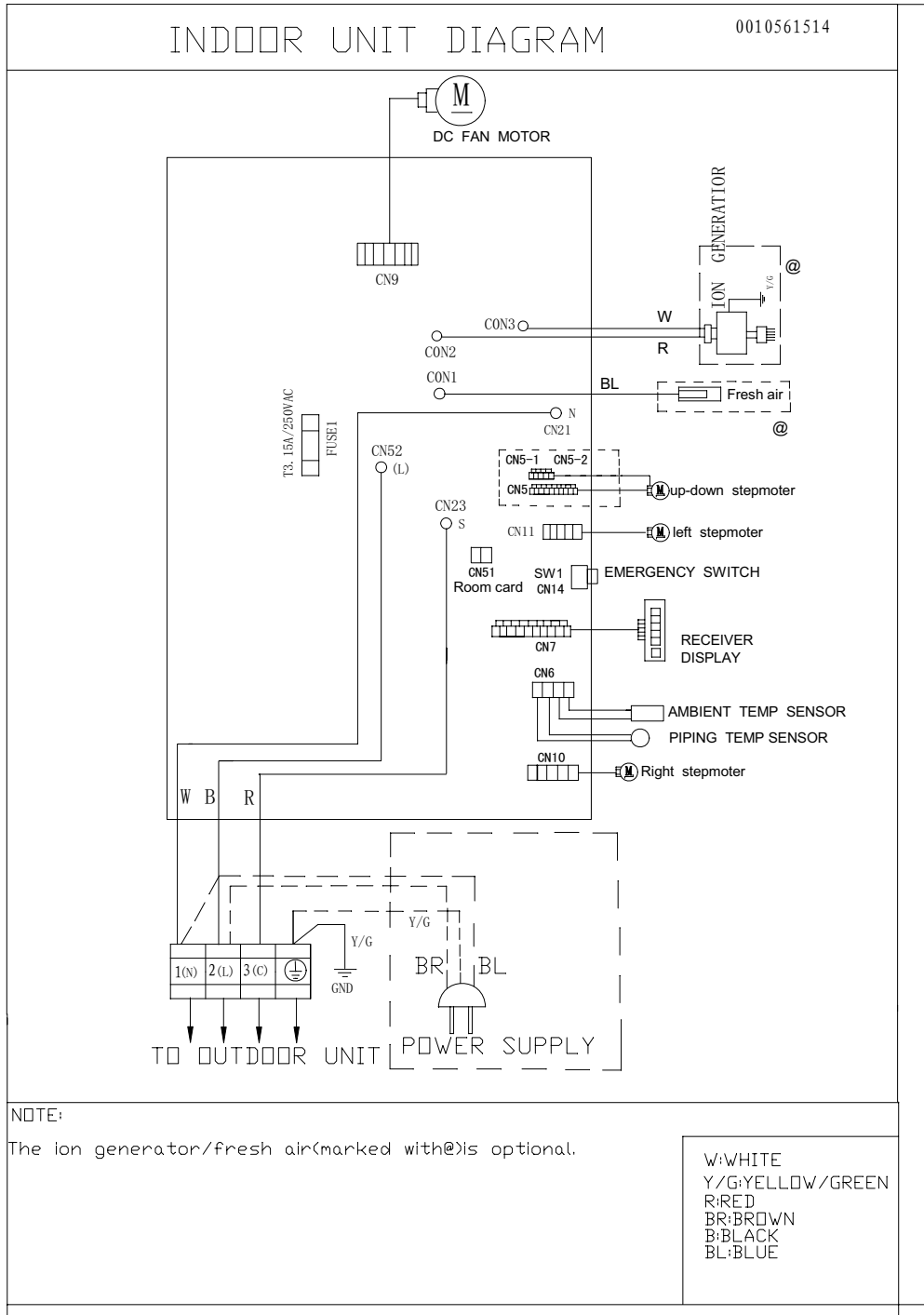
2) SW2 1 Select remote code A or B, 2 Select room card able or disable, 3,4 Select 23、26、33 and 35 ,

3) RV1 Varistor0

4) FUSE1 Fuse 3.15A/250VAC

PCB





7.Functions and Control

7.1 Main functions and control specification

7.1.1 Automatic operation

When the running mode is turned to automation after starting the system, the system will first determine the running mode according to the current room temperature and then will run according to the determined mode. Tr in the following selection conditions means room temperature, Ts means setting temperature, Tp means temperature of indoor coil pipe

Tr \geq 23 $^{\circ}$ C Choose Cooling Mode

Tr<23 $^{\circ}$ C Choose Heating Mode

After turning to the automation mode, the running mode can be switched between cooling mode, fan mode and heating mode according to the change of the indoor ambient temperature. But the automatic conversion between cooling mode and heating mode must be conducted after 15 minutes.

7.1.2 Cooling operation mode

Temperature control range: 16 $^{\circ}$ C---30 $^{\circ}$ C

Temperature difference: \pm 1 $^{\circ}$ C

* Control features: When Tr(input airflow)>Ts(set temperature) $^{\circ}$ C, the compressor will be opened, the indoor fan will operate at the set speed and the mode signal will be sent to the outdoor system. When Tr (input airflow) < Ts (set temperature) $^{\circ}$ C, the compressor will be opened, the indoor fan will operate at the set speed and the mode signal will be sent to the outdoor system. The system will keep the original status if Tr= Ts.

Airflow speed control: (temperature difference 1 $^{\circ}$ C)

Automatic: When Tr \leq Ts+3 $^{\circ}$ C, high speed.

When Ts+1 $^{\circ}$ C \leq Tr<Ts+3 $^{\circ}$ C, medium speed

When Tr<Ts+1 $^{\circ}$ C, low speed

When the sensor is off, low speed

When the airflow speed has no delay from the high to low switching, the speed should be delayed for 3 minutes (remain at high speed for 3 minutes.) before the next switch.

Manus: When the system is operating, you can set the high, medium or low speed manually. (When the sensor is on or off, the system will change the speed 2 seconds after receiving the signal.)

*Airgate location control: the location for the airgate can be set according to your needs.

*Defrosting function: preventing the frosting on the indoor heat exchanger (when cooling or dehumidifying). When the compressor works continuously for 1/6 minutes (adaptable in EEPROM) and the temperature of the indoor coils has been below zero centigrade for 10 seconds, the compressor will be stopped and the malfunction will be recorded in the malfunction list. The indoor system will continue to run. When the temperature of the indoor coil is raised to 7 $^{\circ}$ C, the compressor will be restarted again (the requirement of 3 minutes' delay should be satisfied.)

* timing system on/off function.

* Dormant control function.

7.1.3 Dehumidifying mode.

* temperature control range: 16---30℃

* temperature difference: $\pm 1^{\circ}\text{C}$

Control feature: send the dehumidifying signal to the outdoor system.

When $T_r > T_s + 2^{\circ}\text{C}$, the compressor will be turned on, the indoor fan will operate at the set speed.

When T_r is between the T_s and $T_s + 2^{\circ}\text{C}$, the outdoor system will operate at the high dehumidifying frequency for 10 minutes and then at the low dehumidifying mode for six minutes. The indoor fan will operate at low speed.

When $T_r < T_s$, the outdoor system will be stopped, the indoor fan will be stopped for 3 minutes and then turned to the low speed option.

All the frequency converses have a $\pm 1^{\circ}\text{C}$ difference.

* Wind speed control: Automatic:

When $T_r \geq T_s + 5^{\circ}\text{C}$, high speed.

When $T_s + 3^{\circ}\text{C} \leq T_r < T_s + 5^{\circ}\text{C}$, medium speed.

When $T_s + 2^{\circ}\text{C} \leq T_r < T_s + 3^{\circ}\text{C}$, low speed.

When $T_r < T_s + 2^{\circ}\text{C}$, light speed.

If the outdoor fan stopped, the indoor fan will be paused for 3 minutes.

If the outdoor fan stopped for more than 3 minutes and the outdoor system still operates, the system will be changed into light speed mode.

When the airflow speed has no delay from the high to low switching, the speed should be delayed for 3 minutes (remain at high speed for 3 minutes.) before the next switch.

Manual: When the sensor is off or $T_r < T_s + 3^{\circ}\text{C}$, the manual operation can not be made. (obligatory automatic operation.)

* Airgate location control: the location for the airgate can be set according to your needs.

* Defrosting function: preventing the frosting on the indoor heat exchanger (when cooling or dehumidifying).

When the compressor works continuously for 1/6 minutes (adaptable in EEPROM) and the temperature of the indoor coils has been below zero centigrade for 10 seconds, the compressor will be stopped and the malfunction will be recorded in the malfunction list. The indoor system will continue to run. When the temperature of the indoor coil is raised to 7°C , the compressor will be restarted again (the requirement of 3 minutes' delay should be satisfied.)

* Coil protection (synchronic overheating protection) are installed for the four directions latch malfunctions when dehumidifying.

* Timing system on/off function.

* Dormant control function.

7.1.4 Heating operation mode.

* temperature control range: 16---30℃

* temperature difference: $\pm 1^{\circ}\text{C}$

* control feature: the temperature compensation is automatically added and the system will send the heating signals to the outdoor system.

If $T_r \leq T_s$, the outdoor compressor is turned on, the indoor fan will be at the cold air proof mode.

If $T_r > T_s +$, the outdoor system is turned off, the indoor fan will be at the heat residue sending mode.

If $T_r < T_s +$, the outdoor system will be turned on again, the indoor fan will be at the cold air proof mode.

***Indoor fan control**

manual control: You can choose high, medium, low and automatic speed control.

Automatic: When $T_r < T_s$, high speed.

When $T_s \leq T_r \leq T_s + 2^\circ\text{C}$, medium speed.

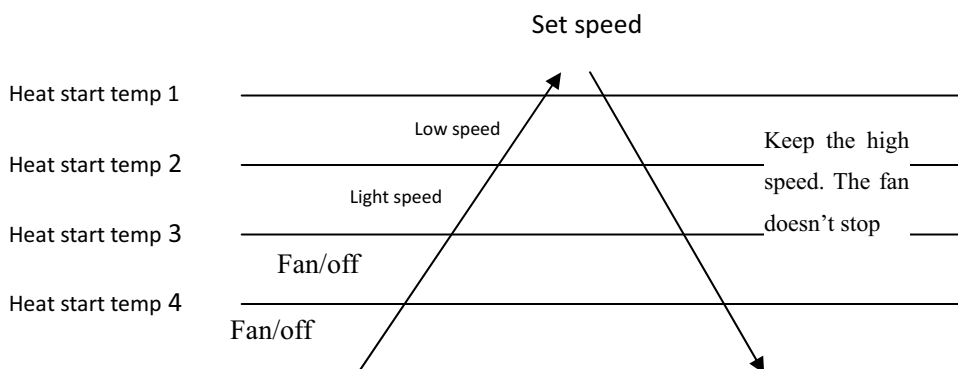
When $T_r > T_s + 2^\circ\text{C}$, low speed.

When the airflow speed has no delay from the high to low switching, the speed should be delayed for 3 minutes (remain at high speed for 3 minutes.) before the next switch.

*Airgate location control: the location for the airgate can be set according to your needs.

Coldair proof operation

1. The indoor operation within 4 minutes after the start up is as the following diagram, the air speed can be raised only after the speed has reached a certain level.



2. 4 minutes after the start up of the indoor fan, the light airflow and the low airflow will be turned to the set speed airflow.

3. In the cold air proof operation, the fan won't stop after the start up.

4. During the cold air proof operation, the indoor system will continuously send 'indoor high speed' signals to the outdoor system.

* Residue heat sending. The indoor fan will send the residue heat at a low speed for 12 seconds.

If other conditions are satisfied, when the compressor stops, the indoor system will operate at a light speed. The indoor fan will stop when the coil temperature is below the 'heat start temp 4'.

* Defrosting. When the system receives the defrosting signal from outdoors, the indoor fan will stop and the indoor temperature display won't change. At the time, any indoor coil malfunctions will be neglected. When the outdoor defrosting finishes, the coil malfunction will still be neglected until the compressor has been started up for 30 seconds. The indoor temperature display will not change and the system operates at the cold air proof mode.

* Automatic heating temperature compensation: when the system enters the heating mode, the temperature compensation (4) will be added. When the status is switched off, the compensation will be erased.

7.1.5 Strength operation

The system enters the mode after receiving the 'strength signal'.

Send strength operation signal to the outdoor system.

The mode change finishes the strength operation.

Entering 'mute', you can have normal operation or signal control such as timing to finish the strength operation.

When the system is at the automatic option with the strength/ mute function, if the system enters the cooling

mode, the cooling strength/ mute function will be offered; if the system enters the heating mode, then the heating strength/ mute function will be offered; if the system enters the airflow mode, there will be no strength/ mute function.

7.1.6 Mute operation

The system enters the mode after receiving the 'mute signal'.

- a. Mute heating: the airflow speed is slight, the system sends the mute signal to the outdoor system.
- b. mute cooling: the airflow speed is slight, the system sends the mute signal to the outdoor system.

When the compressor operates, the airflow speed is mute speed. EEPROM is adaptable.

Mute operation can not work under the dehumidifying and airflow-sending operation.

7.1.7 Air refreshing

After receiving the signal from the remote control, (HV series: the background light of the 'health' logo is green. HS series: the 'health' indicator will be lighted). If the fan operates, the Nano-Aqua operates to realize the ions sending function.

If the indoor fan stops, the Nano-Aqua is turned off.

When the Nano-Aqua is turned off, if the air refreshing system is turned on, the Nano-Aqua will be turned on when the fan operates.

7.1.8 Timing

You can set 24 hours' on/off timing accordingly. After the setting, the timing indicator will be lightened. Also, the light will be turning off after the timing is finished. The followings are several timing methods.

1.system /on timing: The timing indicator will be lightened and the indoor system is under the waiting mode. The light will be turned off when the timing is finished and the rest of the system will operate under a normal condition. The timing starts since the last reception of the timing signal.

2.system /off timing: When the system is turned on, the timing indicator is lightened, the rest of the system will operated under a normal condition. When set time comes, the indicator light will be turned off and the system will be turned off. If you have set the dormant functions, the order of your settings will be operated according to the timing settings.

3 .system /on and off timing: The settings will be completed according to the orders..

7.1.9 Dormant operation

The dormant timing is an eight hours unadaptable one. The timing signs are shown on the V series board. (RC series show the dormant signal, the timing light is lighted on the 6 lights board).

2.1 Under the cooling/ dehumidifying operation, after the setting of the dormant operation, the set temperature will be raised for 1 centigrade after 1 hour's operation and will be raised for 1 centigrade 1 hour later. The system will keep this status for 6 hours and then close.

2.2 Under the heating mode, after the setting of the dormant operation, the setting temperature will fall 2 centigrade after 1 hour's operation and will fall 2 centigrade 1 hour later. 3 hours after the preceding operations, the set temperature will be raised for 1 centigrade and the system will keep this status for 3 hours and then close down.

2.3 During the dormant time, except the change of the system mode or a new press on the dormant setting

keys, the timing of the 8 hours dormancy will take the first timing as the start time, any presses on other keys will not affect the original timing.

2.4 Indoor fan control under the dormant operation.

If the indoor fan is at the high speed before the dormant operation setting, the speed will be turned to medium after the setting. If the fan is at the medium speed before the dormant setting, the speed will be turned to low after the setting. If the fan is at the low speed before the dormant setting, the speed will not change.

7.1.10 Urgent on/off input

Press the urgency button the buzzer will ring. The system will enter the automatic mode if you don't press the button for more than 5 seconds.

Under the system off mode, if you press the urgency key for 5 to 10 seconds, the system will start the test operation.

Under the system off mode, if you press the urgency key for 10 to 15 seconds, the display screen will show the resume of the last malfunction.

If the system is under operation, the press on the urgency key will stop it.

Under the system off mode, the display screen will show automatic running sign.

Under the system off mode, the system will not receive the remote control signal if the press on the urgency key doesn't last for 15 seconds or if the key is loosened.

Urgency operation: If you press the urgency key for less than 5 seconds, the buzzer will ring when you press the on/off key. The system will enter the urgency operation when the urgency key is loosened. The urgency operation is fully automatic.

Test operation.

The inlet temperature sensor doesn't work, the indoor fan and the indoor air direction board motor works synchronically. High speed airflow, cooling, outdoor system on, etc, will send the ambient temperature 30 centigrade and coil temperature 16 centigrade information to the outdoor system.

Test operation

The defrost protection of the evaporator doesn't work.

The temperature control doesn't work.

The test operation will be finished in 30 minutes.

The test operation can be stopped by the relative commands from the remote control.

7.1.11 Low load protection control

In order to prevent the frosting of the indoor heat interaction device, the outdoor system will be stopped if the indoor heat interaction temperature is below zero centigrade for 5 minutes, but the fan will continue to operate. The outdoor system will be started again when the heat interaction temperature is above 7 centigrade and the system has been stopped for 3 minutes. The malfunction will be stored in the malfunction resume and will not be revealed.

7.1.12 High load protection control

The outdoor system will be stopped if the coil temperature is above 65°C for 2 minutes. The indoor fan will be controlled by the thermostat. The outdoor system can be restarted when the coil temperature is below 42°C and the system has been stopped for 3 minutes. The malfunction will be stored in the malfunction resume

and will not be revealed.

7.1.13 Abnormal operation of indoor system

When the outdoor system operates, if the indoor system operation differs from the outdoor system, the abnormal operation malfunction will be reported. 10s after the report, the indoor system will be closed.

Outdoor system mode	Indoor system mode	conflicts
cooling	heating	yes
cooling	cooling	no
cooling	airflow	no
heating	heating	no
heating	airflow	yes
heating	cooling	yes

7.1.14 Malfunction list resume.

Nothing is presented if there is no code list.

The malfunction display will automatically finish in 10 seconds.

The remote control only receives the signals for stop. According to the signals, the malfunction resume presentation finishes.

The resume restores after the power supply restores.

7.1.15 Abnormality confirmation approaches

1. indoor temperature sensor abnormality:

Under the operation, the normal temperature ranges from 120 degree to -30 degree. When the temperature goes beyond this range, the abnormality can be confirmed. If the temperature goes back into the range, the system will automatically resume.

2 .indoor heat interaction sensor abnormality:

Under the operation, the normal temperature ranges from 120 degree to -30 degree. When the temperature goes beyond this range, the abnormality can be confirmed. If the temperature goes back into the range, the system will automatically resume.

3 .indoor malfunction:

Out door malfunction: When the indoor system receives the outdoor malfunction codes, it will store the code into E2 for the malfunction list resume. The indoor system will continue to operate according to the original status, the malfunction code will not be revealed or processed.

4. transmission abnormality:

If the indoor system can't receive the outdoor system for 8 minutes, the communication abnormality can be confirmed and reported and the outdoor system will be stopped.

7.1.16 Single indoor system operation

* Enter condition: First, set the high speed airflow and 30 centigrade set temperature, then press the dormant keys for 6 times within 7 seconds, the system will feedback with 6 rings.

* After the system enters the separate indoor system operation mode, the indoor system will operate

according to the set mode and neglect the communication signals of the outdoor system. However, it has to send signals to the outdoor system.

* Quitting condition: This mode can be quitted after receiving the quitting signal from the remote control or urgency system. The indoor system thus can quit the single operation mode.

7.1.17 Power cut compensation

* Entering condition: Press dormant button 10 times within 7 second, the buzzer will ring 4 times and the present system status will be stored into the EEPROM of the indoor system.

* After entering the power cut compensation mode, the processing of the indoor system should be as the followings:

Remote control urgency signal: operate according to the remote control and the urgent conditions, the present status will be stored into the EEPROM of the indoor system.

* Quitting conditions: Press dormant button 10 times within 7 seconds and the buzzer will ring twice.

7.1.18 Fixed frequency operation

1. Fixed cooling: a. under G code condition: high speed cooling, set 16°C, press temperature '-' key and the set key at the same time. The system will enter the fixed frequency operation after the buzzer rings twice.

b. The proceeding programs are as the follows:

Entering the fixed frequency operation, you can set the fixed strength location 1 and send the cooling signal to the outdoor system. Meanwhile, you can fix the indoor system at high speed mode, the location of the airflow direction board can be switched to the maximal position.

c. Quitting condition: The fixed frequency cooling can be quitted after receiving the remote signal, and the system will enter the remote setting status.

2. Fixed heating: a. under G code condition: high speed heating, set 30°C, press temperature '+' key and the set key at the same time. The system will enter the fixed frequency operation after the buzzer rings twice.

b. The proceeding programs are as the follows:

Entering the fixed frequency operation, you can set the fixed strength location 1 and send the heating signal to the outdoor system. Meanwhile, you can fix the indoor system at high speed mode, the location of the airflow direction board can be switched to the maximal position.

c. Quitting condition: The fixed frequency heating can be quitted after receiving the remote signal, and the system will enter the remote setting status.

7.1.19 Test program

First, connect the test program terminal on the mainboard. Then connect the system to the power circuit. The test program will operate as follows.

HV series display: The buzzer rings for one time—the signal will be sent to outdoor system for 0.5 second—the violet is sent for 0.5-- the background light turns to white—the back ground light turns to white—the background light turns to white—the background light is fully lighted for 0.5 second—LED screen lights for 0.5 second— the step-in motor fully output for 0.5 second—then the motor doesn't output for 0.5 second—the motor fully output again for 0.5 second. The test program finishes.

7.1.20 Time cutting function:

Connect the test program terminal on the mainboard after connecting the system to the power circuit. The CPU of the main control will be 60 times faster.

7.2 Value of thermistor

Room sensor and Pipe Sensor

$R_{25^{\circ}\text{C}}=10\text{K}\Omega \pm 3\%$

$B_{25^{\circ}\text{C}/50^{\circ}\text{C}}=3700\text{K} \pm 3\%$

Temp.((°C))	Max.(KΩ)	Normal(KΩ)	Min.(KΩ)	Tolerance(°C)	
-30	165.2170	147.9497	132.3678	-1.94	1.75
-29	155.5754	139.5600	125.0806	-1.93	1.74
-28	146.5609	131.7022	118.2434	-1.91	1.73
-27	138.1285	124.3392	111.8256	-1.89	1.71
-26	130.2371	117.4366	105.7989	-1.87	1.70
-25	122.8484	110.9627	100.1367	-1.85	1.69
-24	115.9272	104.8882	94.8149	-1.83	1.67
-23	109.4410	99.1858	89.8106	-1.81	1.66
-22	103.3598	93.8305	85.1031	-1.80	1.64
-21	97.6556	88.7989	80.6728	-1.78	1.63
-20	92.3028	84.0695	76.5017	-1.76	1.62
-19	87.2775	79.6222	72.5729	-1.74	1.60
-18	82.5577	75.4384	68.8710	-1.72	1.59
-17	78.1230	71.5010	65.3815	-1.70	1.57
-16	73.9543	67.7939	62.0907	-1.68	1.55
-15	70.0342	64.3023	58.9863	-1.66	1.54
-14	66.3463	61.0123	56.0565	-1.64	1.52
-13	62.8755	57.9110	53.2905	-1.62	1.51
-12	59.6076	54.9866	50.6781	-1.60	1.49
-11	56.5296	52.2278	48.2099	-1.58	1.47
-10	53.6294	49.6244	45.8771	-1.56	1.46
-9	50.8956	47.1666	43.6714	-1.54	1.44
-8	48.3178	44.8454	41.5851	-1.51	1.42
-7	45.8860	42.6525	39.6112	-1.49	1.40
-6	43.5912	40.5800	37.7429	-1.47	1.39
-5	41.4249	38.6207	35.9739	-1.45	1.37
-4	39.3792	36.7676	34.2983	-1.43	1.35
-3	37.4465	35.0144	32.7108	-1.41	1.33
-2	35.6202	33.3552	31.2062	-1.38	1.31
-1	33.8936	31.7844	29.7796	-1.36	1.29
0	32.2608	30.2968	28.4267	-1.34	1.28
1	30.7162	28.8875	27.1431	-1.32	1.26

2	29.2545	27.5519	25.9250	-1.29	1.24
3	27.8708	26.2858	24.7686	-1.27	1.22
4	26.5605	25.0851	23.6704	-1.25	1.20
5	25.3193	23.9462	22.6273	-1.23	1.18
6	24.1432	22.8656	21.6361	-1.20	1.16
7	23.0284	21.8398	20.6939	-1.18	1.14
8	21.9714	20.8659	19.7982	-1.15	1.12
9	20.9688	19.9409	18.9463	-1.13	1.09
10	20.0176	19.0621	18.1358	-1.11	1.07
11	19.1149	18.2270	17.3646	-1.08	1.05
12	18.2580	17.4331	16.6305	-1.06	1.03
13	17.4442	16.6782	15.9315	-1.03	1.01
14	16.6711	15.9601	15.2657	-1.01	0.99
15	15.9366	15.2770	14.6315	-0.98	0.96
16	15.2385	14.6268	14.0271	-0.96	0.94
17	14.5748	14.0079	13.4510	-0.93	0.92
18	13.9436	13.4185	12.9017	-0.91	0.90
19	13.3431	12.8572	12.3778	-0.88	0.87
20	12.7718	12.3223	11.8780	-0.86	0.85
21	12.2280	11.8126	11.4011	-0.83	0.83
22	11.7102	11.3267	10.9459	-0.81	0.80
23	11.2172	10.8634	10.5114	-0.78	0.78
24	10.7475	10.4216	10.0964	-0.75	0.75
25	10.3000	10.0000	9.7000	-0.75	0.75
26	9.8975	9.5974	9.2980	-0.76	0.76
27	9.5129	9.2132	8.9148	-0.80	0.80
28	9.1454	8.8465	8.5496	-0.84	0.83
29	8.7942	8.4964	8.2013	-0.87	0.86
30	8.4583	8.1621	7.8691	-0.91	0.90
31	8.1371	7.8428	7.5522	-0.95	0.93
32	7.8299	7.5377	7.2498	-0.98	0.97
33	7.5359	7.2461	6.9611	-1.02	1.00
34	7.2546	6.9673	6.6854	-1.06	1.04
35	6.9852	6.7008	6.4222	-1.10	1.07
36	6.7273	6.4459	6.1707	-1.13	1.11
37	6.4803	6.2021	5.9304	-1.17	1.14
38	6.2437	5.9687	5.7007	-1.21	1.18
39	6.0170	5.7454	5.4812	-1.25	1.22
40	5.7997	5.5316	5.2712	-1.29	1.25
41	5.5914	5.3269	5.0704	-1.33	1.29
42	5.3916	5.1308	4.8783	-1.37	1.33
43	5.2001	4.9430	4.6944	-1.41	1.36
44	5.0163	4.7630	4.5185	-1.45	1.40

45	4.8400	4.5905	4.3500	-1.49	1.44
46	4.6708	4.4252	4.1887	-1.53	1.47
47	4.5083	4.2666	4.0342	-1.57	1.51
48	4.3524	4.1145	3.8862	-1.61	1.55
49	4.2026	3.9686	3.7443	-1.65	1.59
50	4.0588	3.8287	3.6084	-1.70	1.62
51	3.9206	3.6943	3.4780	-1.74	1.66
52	3.7878	3.5654	3.3531	-1.78	1.70
53	3.6601	3.4416	3.2332	-1.82	1.74
54	3.5374	3.3227	3.1183	-1.87	1.78
55	3.4195	3.2085	3.0079	-1.91	1.82
56	3.3060	3.0989	2.9021	-1.95	1.85
57	3.1969	2.9935	2.8005	-2.00	1.89
58	3.0919	2.8922	2.7029	-2.04	1.93
59	2.9909	2.7948	2.6092	-2.08	1.97
60	2.8936	2.7012	2.5193	-2.13	2.01
61	2.8000	2.6112	2.4328	-2.17	2.05
62	2.7099	2.5246	2.3498	-2.22	2.09
63	2.6232	2.4413	2.2700	-2.26	2.13
64	2.5396	2.3611	2.1932	-2.31	2.17
65	2.4591	2.2840	2.1195	-2.36	2.21
66	2.3815	2.2098	2.0486	-2.40	2.25
67	2.3068	2.1383	1.9803	-2.45	2.29
68	2.2347	2.0695	1.9147	-2.49	2.34
69	2.1652	2.0032	1.8516	-2.54	2.38
70	2.0983	1.9393	1.7908	-2.59	2.42
71	2.0337	1.8778	1.7324	-2.63	2.46
72	1.9714	1.8186	1.6761	-2.68	2.50
73	1.9113	1.7614	1.6219	-2.73	2.54
74	1.8533	1.7064	1.5697	-2.78	2.58
75	1.7974	1.6533	1.5194	-2.83	2.63
76	1.7434	1.6021	1.4710	-2.88	2.67
77	1.6913	1.5528	1.4243	-2.92	2.71
78	1.6409	1.5051	1.3794	-2.97	2.75
79	1.5923	1.4592	1.3360	-3.02	2.80
80	1.5454	1.4149	1.2942	-3.07	2.84
81	1.5000	1.3721	1.2540	-3.12	2.88
82	1.4562	1.3308	1.2151	-3.17	2.93
83	1.4139	1.2910	1.1776	-3.22	2.97
84	1.3730	1.2525	1.1415	-3.27	3.01
85	1.3335	1.2153	1.1066	-3.32	3.06
86	1.2953	1.1794	1.0730	-3.38	3.10
87	1.2583	1.1448	1.0405	-3.43	3.15

88	1.2226	1.1113	1.0092	-3.48	3.19
89	1.1880	1.0789	0.9789	-3.53	3.24
90	1.1546	1.0476	0.9497	-3.58	3.28
91	1.1223	1.0174	0.9215	-3.64	3.33
92	1.0910	0.9882	0.8942	-3.69	3.37
93	1.0607	0.9599	0.8679	-3.74	3.42
94	1.0314	0.9326	0.8424	-3.80	3.46
95	1.0030	0.9061	0.8179	-3.85	3.51
96	0.9756	0.8806	0.7941	-3.90	3.55
97	0.9490	0.8558	0.7711	-3.96	3.60
98	0.9232	0.8319	0.7489	-4.01	3.64
99	0.8983	0.8088	0.7275	-4.07	3.69
100	0.8741	0.7863	0.7067	-4.12	3.74
101	0.8507	0.7646	0.6867	-4.18	3.78
102	0.8281	0.7436	0.6672	-4.23	3.83
103	0.8061	0.7233	0.6484	-4.29	3.88
104	0.7848	0.7036	0.6303	-4.34	3.92
105	0.7641	0.6845	0.6127	-4.40	3.97
106	0.7441	0.6661	0.5957	-4.46	4.02
107	0.7247	0.6482	0.5792	-4.51	4.07
108	0.7059	0.6308	0.5632	-4.57	4.12
109	0.6877	0.6140	0.5478	-4.63	4.16
110	0.6700	0.5977	0.5328	-4.69	4.21
111	0.6528	0.5820	0.5183	-4.74	4.26
112	0.6361	0.5667	0.5043	-4.80	4.31
113	0.6200	0.5518	0.4907	-4.86	4.36
114	0.6043	0.5374	0.4775	-4.92	4.41
115	0.5891	0.5235	0.4648	-4.98	4.45
116	0.5743	0.5100	0.4524	-5.04	4.50
117	0.5600	0.4968	0.4404	-5.10	4.55
118	0.5460	0.4841	0.4288	-5.16	4.60
119	0.5325	0.4717	0.4175	-5.22	4.65
120	0.5194	0.4597	0.4066	-5.28	4.70

8 System configuration

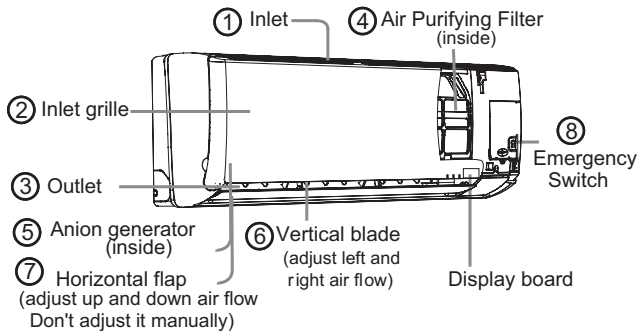
8.1 System configuration

After the installation and test operation of the room air conditioner have been completed, it should be operated and handled as described below. Every user would like to know the correct method of operation of the room air conditioner, to check if it is capable of cooling(or heating) well, and to know a clever method of using it. In order to meet this expectation of the users, giving sufficient explanations taking enough time can be said to reduce about 80% of the requests for servicing. However good the installation work is and however good the functions are, the customer may blame either the room air conditioner or its installation work because of improper handling. The installation work and handing over of the unit can only be considered to have been completed when its handling has been explained to the user without using technical terms but giving full knowledge of the equipment.

8.2 Instrction

Parts and Functions

Indoor Unit



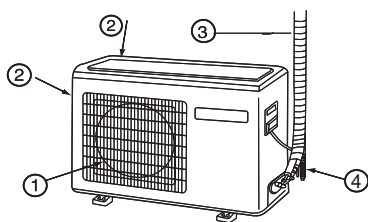
Display board



- 1 Remote signal receiver
(A beeping sound is generated when a signal from remote controller is received.)
- 2 Power indicator (Lights up when unit starts.)
- 3 Timer mode indicator
(Lights up when Timer operation is selected.)
- 4 Operation mode indicator (lights up when the compressor is on.)
- 5 Ambient temp display
When receiving the remote control signal, display the set temperature.

Actual inlet grille may vary from the one shown in the manual according to the product purchased

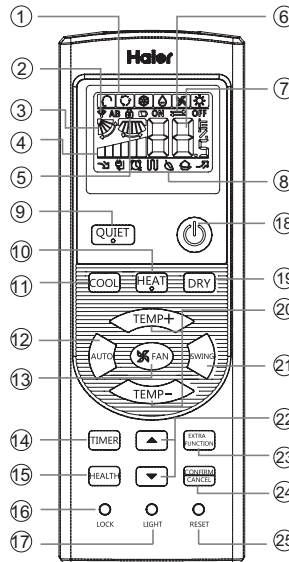
Outdoor Unit



- 1 OUTLET
- 2 INLET
- 3 CONNECTING PIPING AND ELECTRICAL WIRING
- 4 DRAIN HOSE

Please be subject to the actual produce purchased the above picture is just from your reference

Remote controller



8. Additional functions display

Operation mode	QUIET	SLEEP	Supplemented electrical heating	HEALTH	POWER
Remote controller					

9. QUIET button
10. HEAT button
11. COOL button
12. AUTO button
13. FAN button
14. TIMER button
15. HEALTH button
16. LOCK button
Used to lock buttons and LCD display.
17. LIGHT button
Control the lightening and extinguishing of the indoor LED display board.
18. POWER ON/OFF button
19. DRY button
20. TEMP button
21. SWING button
22. HOUR button
23. EXTRA FUNCTION button
Function: Air sending-->Healthy airflow position 1--> Healthy airflow position 2 -->Restore the original flap position --> Right & left air airflow -->A-B yard-->10 and heating symbol displayed simultaneously--> Sleeping --> Electrical heating--> Refresh air (reserved function) --> Power --> Fahrenheit/Celsius mode conversion
24. CANCEL/CONFIRM button
Function: Setting and cancel to the timer and other additional functions.
25. RESET button
When the remote controller appears abnormal, use a sharp pointed article to press this button to reset the remote

1. Mode display

Operation mode	AUTO	COOL	DRY	HEAT	FAN
Remote controller					

2. Signal sending display

3. SWING display

4. FAN SPEED display



5. LOCK display

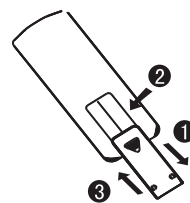
6. TIMER OFF display

TIMER ON display

7. TEMP display

Healthy function is not available for some units.

Loading of the battery



- 1 Remove the battery cover;
- 2 Load the batteries as illustrated.
2 R-03 batteries, resetting key (cylinder);
- 3 Be sure that the loading is in line with the "+" and "-";
Load the battery, then put on the cover again.

Note:

- The distance between the signal transmission head and the receiver hole should be within 7m without any obstacle as well.
- When electronic-started type fluorescent lamp or change-over type fluorescent lamp or wireless telephone is installed in the room, the receiver is apt to be disturbed in receiving the signals, so the distance to the indoor unit should be shorter.
- Full display or unclear display during operation indicates the batteries have been used up. Please change batteries.
- If the remote controller can't run normally during operation, please remove the batteries and reload several minutes later.

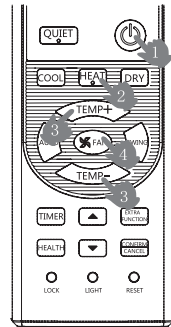
Hint:

Remove the batteries in case won't be in use for a long period. If there is any display after taking-out, just press reset key.

Operation

Unit start / stop

Remote controller



1. Unit start

Press ON/OFF on the remote controller, unit starts.

2. Select temp. setting

Press TEMP+ / TEMP- button

TEMP+ Every time the button is pressed, temp.setting increase 1°C,if kept depressed, it will increase rapidly

TEMP- Every time the button is pressed, temp.setting decrease 1°C,if kept depressed, it will decrease rapidly

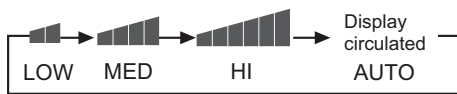
Select a desired temperature.

3. Fan function

Press **EXTRA FUNCTION** button to enter additional options, when cycle display to , will flash. And then press **CONFIRM/CANCEL** enter to FAN function.

For each press button fan speed changes as follows:

Remote controller:



Air conditioner is running under displayed fan speed. When FAN is set to AUTO, the air conditioner automatically adjusts the fan speed according to room temperature.

Operation Mode	Remote Controller	Note
AUTO		Under the mode of auto operation, air conditioner will automatically select Cool or Heat operation according to room temperature. When FAN is set to AUTO, the air conditioner automatically adjusts the fan speed according to room temperature.
COOL		Cooling only unit do not have displays and functions related with heating
DRY		In DRY mode, when room temperature becomes lower than temp.setting+2°C,unit will run intermittently at LOW speed regardless of FAN setting.
HEAT		In HEAT mode,warm air will blow out after a short periodof the time due to cold-draft prevention function.
FAN		In FAN operation mode, the unit will not operate in COOL or HEAT mode but only in FAN mode ,AUTO is not available in FAN mode.And temp.setting is disabled. When FAN is set to AUTO, the air conditioner automatically adjusts the fan speed according to room temperature. In FAN mode,SLEEP operation is not available.

Emergency operation and test operation

Emergency Operation:

- Use this operation only when the remote controller is defective or lost, and with function of emergency running, air conditioner can run automatically for a while.
- When the emergency operation switch is pressed, the "Pi" sound is heard once, which means the start of this operation.
- When power switch is turning on for the first time and emergency operation starts, the unit will run automatically in the following modes:

Room temperature	Designated temperature	Timer mode	Fan speed	Operation mode
Above 23°C	26°C	No	AUTO	COOL
Below 23°C	23°C	No	AUTO	HEAT

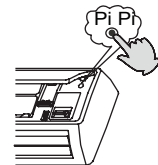


- It is impossible to change the settings of temp. and fan speed,It is also not possible to operate in timer or dry mode.

Test operation:

Test operation switch is the same as emergency switch.

- Use this switch in the test operation when the room temperature is below 16°C, do not use it in the normal operation.
- Continue to press the test operation switch for more than 5 seconds. After you hear the "Pi" sound twice, release your finger from the switch: the cooling operation starts with the air flow speed "Hi".
- Under this operation mode,the fan motor of indoor unit will run in high speed.



Air Flow Direction Adjustment

1. Status display of air flow

Press **EXTRA FUNCTION** button to enter additional options, when cycle display to , will flash. And then press **CONFIRM/CANCEL** enter to up and down air flow function.

Press button. For each press,changes as follows:

Remote controller:

COOL/DRY: → → → →

HEAT: → → → → Initial state

2. Left and right air flow adjustment

(This function is unavailable on some models.)

Press **EXTRA FUNCTION** button to enter additional options, when cycle display to , will flash. And then press **CONFIRM/CANCEL** enter to Left and right air flow function.

Press button. For each press,changes as follows:

Remote controller:

COOL/DRY/HEAT: → → → →





Cautions:

- When adjusting the flap by hand,turn off the unit.
- When humidity is high,condensate water might occur at air outlet if all vertical louvers are adjusted to left or right.
- It is advisable not to keep horizontal flap at downward position for a long time in COOLor DRY mode ,other wise, condensate water might occur.

Note:When restart after remote turning off, the remote controller will automatically memorize the previous set swing position.

Operation

■ Sleep Operation

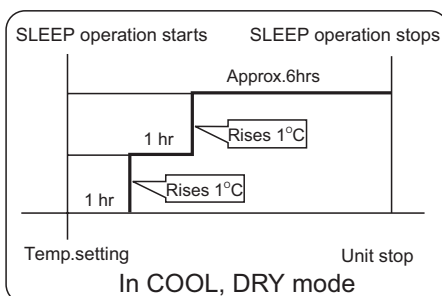
Press  button to enter additional options, when cycle display to  ,  will flash. And then press , enter to sleep function.



Operation Mode

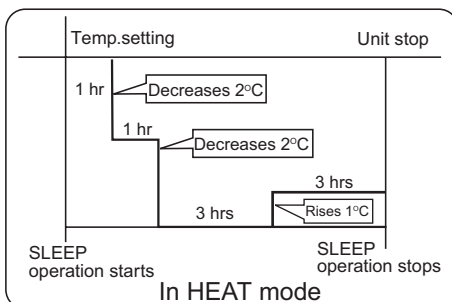
1. In COOL, DRY mode

1 hours after SLEEP mode starts, temp. will become 1°C higher than temp. setting. After another 1 hours, temp. rises by 1°C further. The unit will run for further 6 hours then stops. Temp. is higher than temp. setting so that room temperature won't be too low for your sleep.



2. In HEAT mode

1 hours after SLEEP mode starts, temp will become 2°C lower than temp. setting. After another 1 hours, temp decrease by 2°C further. After more another 3 hours, temp. rises by 1°C further. The unit will run for further 3 hours then stops. Temp. is lower than temp. setting so that room temperature won't be too high for your sleep.



3. In AUTO mode

The unit operates in corresponding sleep mode adapted to the automatically selected operation mode.

4. In FAN mode

It has no SLEEP function.

5. Set the wind speed change when sleeping

If the wind speed is high or middle before setting for the sleep, set for lowering the wind speed after sleeping. If it is low wind, no change.

Note





When TIMER function is set, the sleeping function can't be set up. After the sleeping function is set up, if user resets TIMER function, the sleeping function will be cancelled; the machine will be in the state of timing-on.

■ TURBO/QUIET Operation


(This function is unavailable on some models.)

(1) TURBO Operation

When you need rapid heating or cooling, you can use this function.

Press  button to enter additional options, when cycle display to  ,  will flash and then press , enter to turbo function. When cancel the function, please enter additional options again and to cancel turbo function.

(2) QUIET Operation

Press QUIET button, the remote controller will show  , and then achieve to the quiet function. Press again this QUIET button , the quiet function will be cancelled.

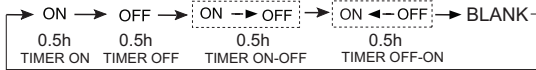
Note :

During TURBO operation, in rapid COOL mode , the room will show inhomogeneous temperature distribution. Long period QUIET operation will cause effect of not too cool or not too warm.

Operation

Timer On/Off On-Off Operation

1. After unit starts, select your desired operation mode.
2. Press TIMER button to change TIMER mode. Every time the button is pressed, display changes as follows:
Remote controller:



Then select your desired TIMER mode (TIMER ON or TIMER OFF or TIMER ON-OFF). " ON "or " OFF "will flash.

3. Press ▼ / ▲ button to set time.

- ▲ Press the button for each time, setting time in the first 12 hours increased by 0.5 hour every time, after 12 hours, increased by 1 hour every time.
- ▼ Press the button for each time, setting time in the first 12 hours decreased by 0.5 hour every time, after 12 hours, decreased by 1 hour every time. It can be adjusted within 24 hours.

4. Confirm timer setting

After adjust the time, press button and confirm the time ON or OFF button will not flash any more.

5. Cancel timer setting

Press the timer button by times until the time display eliminated.

Hints:

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

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

Healthy airflow Operation

1. Press to starting

Setting the comfort work conditions.

2. The setting of healthy airflow function

Press button to enter additional options, Press this button continuously, the louvers location will cycle between in the following three locations, to choose the swing location what you needed, and then press button to confirm.



3. The cancel of the healthy airflow function

Press button to enter additional options, Press this button continuously, the louvers location will cycle between in the following three locations again, and then press button to cancel.

Notice: Do not direct the flap by hand. Otherwise, the grille will run incorrectly. If the grille is not run correctly, stop for a minute and then start, adjusting by remote controller.

Note:

1. After setting the healthy airflow function, the position grill is fixed.
2. In heating, it is better to select the mode.
3. In cooling, it is better to select the mode.
4. In cooling and dry, using the air conditioner for a long time under the high air humidity, condensate water may occur at the grille.

EUROPEAN REGULATIONS CONFORMITY FOR THE MODELS

CE

All the products are in conformity with the following European provision:

- Low Voltage Directive 2006/95/EC
- Electromagnetic Compatibility 2004/108/EC

ROHS

The products are fulfilled with the requirements in the directive 2011/65/EU of the European parliament and of council on the Restriction of the use of Certain Hazardous Substances in Electrical and Electronic Equipment (EU RoHS Directive)

WEEE

In accordance with the directive 2012/19/EU of the European parliament, herewith we inform the consumer about the disposal requirements of the electrical and electronic products.

DISPOSAL REQUIREMENTS:



Your air conditioning product is marked with this symbol. This means that electrical and electronic products shall not be mixed with unsorted household waste. Do not try to dismantle the system yourself: the dismantling of the air conditioning system, treatment of the refrigerant, of oil and of other part must be done by a qualified installer in accordance with relevant local and national legislation. Air conditioners must be treated at a specialized treatment facility for reuse, recycling and recovery. By ensuring this product is disposed of correctly, you will help to prevent potential negative consequences for the environment and human health. Please contact the installer or local authority for more information. Battery must be removed from the remote controller and disposed of separately in accordance with relevant local and national legislation.

IMPORTANT INFORMATION REGARDING THE REFRIGERANT USED

Contains fluorinated greenhouse gases covered by the Kyoto Protocol		A
R410A	1 = <input type="text"/> kg	B
	2 = <input type="text"/> kg	C
	1+2 = <input type="text"/> kg	D
F	E	

This product contains fluorinated greenhouse gases covered by the Kyoto Protocol. Do not vent into the atmosphere.

Refrigerant type: R410A

GWP* value: 1975

GWP=global warming potential

Please fill in with indelible ink,

- 1 the factory refrigerant charge of the product
- 2 the additional refrigerant amount charged in the field and
- 1+2 the total refrigerant charge

on the refrigerant charge label supplied with the product.

The filled out label must be adhered in the proximity of the product charging port (e.g. onto the inside of the stop valve cover).

A contains fluorinated greenhouse gases covered by the Kyoto Protocol

B factory refrigerant charge of the product: see unit name plate

C additional refrigerant amount charged in the field

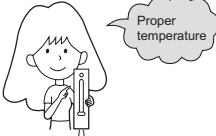
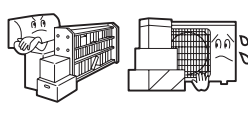



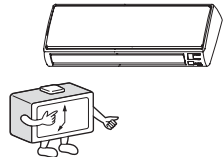




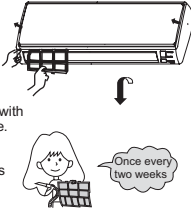
D total refrigerant charge

E outdoor unit

F refrigerant cylinder and manifold for charging


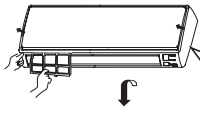

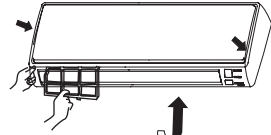
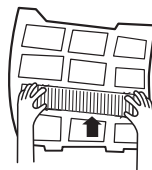
Maintenance

For Smart Use of The Air Conditioner

<p>Setting of proper room temperature</p> 	<p>Do not block the air inlet or outlet</p> 	<p>Remote Controller</p>  <p>Do not use water, wipe the controller with a dry cloth. Do not use glass cleaner or chemical cloth.</p>	<p>Indoor Body</p>  <p>Wipe the air conditioner by using a soft and dry cloth. For serious stains, use a neutral detergent diluted with water. Wring the water out of the cloth before wiping, then wipe off the detergent completely.</p>
<p>Close doors and windows during operation</p> 	<p>Use the timer effectively</p> 	<p>Do not use the following for cleaning</p>  <p>Gasoline, benzene, thinner or cleanser may damage the coating of the unit.</p>  <p>Hot water over 40°C (104°F) may cause discoloring or deformation.</p>	
<p>If the unit is not to be used for a long time, turn off the power supply main switch.</p> 	<p>Use the louvers effectively</p> 	<p>Air Filter cleaning</p> <ol style="list-style-type: none"> 1 Open the inlet grille by pulling it upward. 2 Remove the filter. Push up the filter's center tab slightly until it is released from the stopper, and remove the filter downward. 3 Clean the filter. Use a vacuum cleaner to remove dust, or wash the filter with water. After washing, dry the filter completely in the shade. 4 Attach the filter. Attach the filter correctly so that the "FRONT" indication is facing to the front. Make sure that the filter is completely fixed behind the stopper. If the right and left filters are not attached correctly, that may cause defects. 5 Close the inlet grille.  <p>Once every two weeks</p>	

Replacement of Air Purifying Filter

(NOTE: Air purifying filter is optional part)

<p>1. Open the Inlet Grille Prop up the inlet grille by using a small device named grille-support which located in the right side of the indoor unit.</p>  <p>2. Detach the standard air filter Slide the knob slightly upward to release the filter, then withdraw it.</p>  <p>Detach old Air Purifying Filter</p> 	<p>4. Attach the standard air filter (Necessary installation)</p>  <p>ATTENTION: The white side of the photocatalyst air purifying filter face outside, and the black side face the unit. The green side of the bacteria-killing medium air purifying filter face outside, and the white side face the unit.</p> <p>5. Close the Inlet Grille Close the Grille surely</p> <p>NOTE:</p> <ul style="list-style-type: none"> • The photocatalyst air purifying filter will be solarized in fixed time. In normal family, it will be solarized every 6 months. • The bacteria-killing medium air purifying filter will be used for a long time, no need for replacement. But in the period of using them, you should remove the dust frequently by using vacuum cleaner or flapping them lightly, otherwise, its performance will be affected. • Please keep the bacteria-killing medium air purifying filter in the cool and dry conditions avoid long time directly sunshine when you stop using it, or its ability of sterilization will be reduced.
<p>3. Attach Air Purifying Filter Put air purifying filter appliances into the right and left filter frames.</p> 	

Cautions

⚠ WARNING

Please call Sales/Service Shop for the Installation.
Do not attempt to install the air conditioner by yourself because improper works may cause electric shock, fire, water leakage.

⚠ WARNING

When abnormality such as burnt-small found, immediately stop the operation button and contact sales shop.



OFF



!
STRICT
ENFORCEMENT

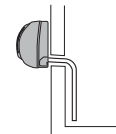
Use an exclusive power source with a circuit breaker



Check proper installation of the drainage securely



STRICT
ENFORCEMENT



Connect power supply cord to the outlet completely



STRICT
ENFORCEMENT

Use the proper voltage



STRICT
ENFORCEMENT

1. Do not use power supply cord extended or connected in halfway
2. Do not install in the place where there is any possibility of inflammable gas leakage around the unit.
3. Do not get the unit exposed to vapor or oil steam.



PROHIBITION

Do not use power supply cord in a bundle.



PROHIBITION

Take care not to damage the power supply cord.



PROHIBITION

Do not insert objects into the air inlet or outlet.



PROHIBITION

Do not start or stop the operation by disconnecting the power supply cord and so on.



PROHIBITION

Do not channel the air flow directly at people, especially at infants or the aged.

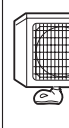


PROHIBITION

Do not try to repair or reconstruct by yourself.



Connect the earth cable.



earthing

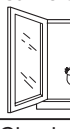
⚠ CAUTION

Do not use for the purpose of storage of food, art work, precise equipment, breeding, or cultivation.



PROHIBITION

Take fresh air occasionally especially when gas appliance is running at the same time.



STRICT
ENFORCEMENT

Do not operate the switch with wet hand.



PROHIBITION

Do not install the unit near a fireplace or other heating apparatus.



PROHIBITION

Check good condition of the installation stand



PROHIBITION

Do not pour water onto the unit for cleaning



PROHIBITION

Do not place animals or plants in the direct path of the air flow



PROHIBITION

Do not place any objects on or climb on the unit.



PROHIBITION

Do not place flower vase or water containers on the top of the unit.








PROHIBITION



Trouble shooting

Before asking for service, check the following first.

	Phenomenon	Cause or check points
Normal Performance inspection	The system does not restart immediately. 	<ul style="list-style-type: none"> When unit is stopped, it won't restart immediately until 3 minutes have elapsed to protect the system. When the electric plug is pulled out and reinserted, the protection circuit will work for 3 minutes to protect the air conditioner.
	Noise is heard 	<ul style="list-style-type: none"> During unit operation or at stop, a swishing or gurgling noise may be heard. At first 2-3 minutes after unit start, this noise is more noticeable. (This noise is generated by refrigerant flowing in the system.) During unit operation, a cracking noise may be heard. This noise is generated by the casing expanding or shrinking because of temperature changes. Should there be a big noise from air flow in unit operation, air filter may be too dirty.
	Smells are generated.	<ul style="list-style-type: none"> This is because the system circulates smells from the interior air such as the smell of furniture, paint, cigarettes.
	Mist or steam are blown out. 	<ul style="list-style-type: none"> During COOL or DRY operation, indoor unit may blow out mist. This is due to the sudden cooling of indoor air.
	In dry mode, fan speed can't be changed.	<ul style="list-style-type: none"> In DRY mode, when room temperature becomes lower than temp. setting+2 °C, unit will run intermittently at LOW speed regardless of FAN setting.
Multiple check		<ul style="list-style-type: none"> Is power plug inserted? Is there a power failure? Is fuse blownout?
	Poor cooling 	<ul style="list-style-type: none"> Is the air filter dirty? Normally it should be cleaned every 15 days. Are there any obstacles before inlet and outlet? Is temperature set correctly? Are there some doors or windows left open? Is there any direct sunlight through the window during the cooling operation? (Use curtain) Are there too much heat sources or too many people in the room during cooling operation?

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.
- This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of appliance by person responsible for their safety. Children should be supervised to ensure that they do not play with the appliance.

Specifications

- The refrigerating circuit is leak-proof.

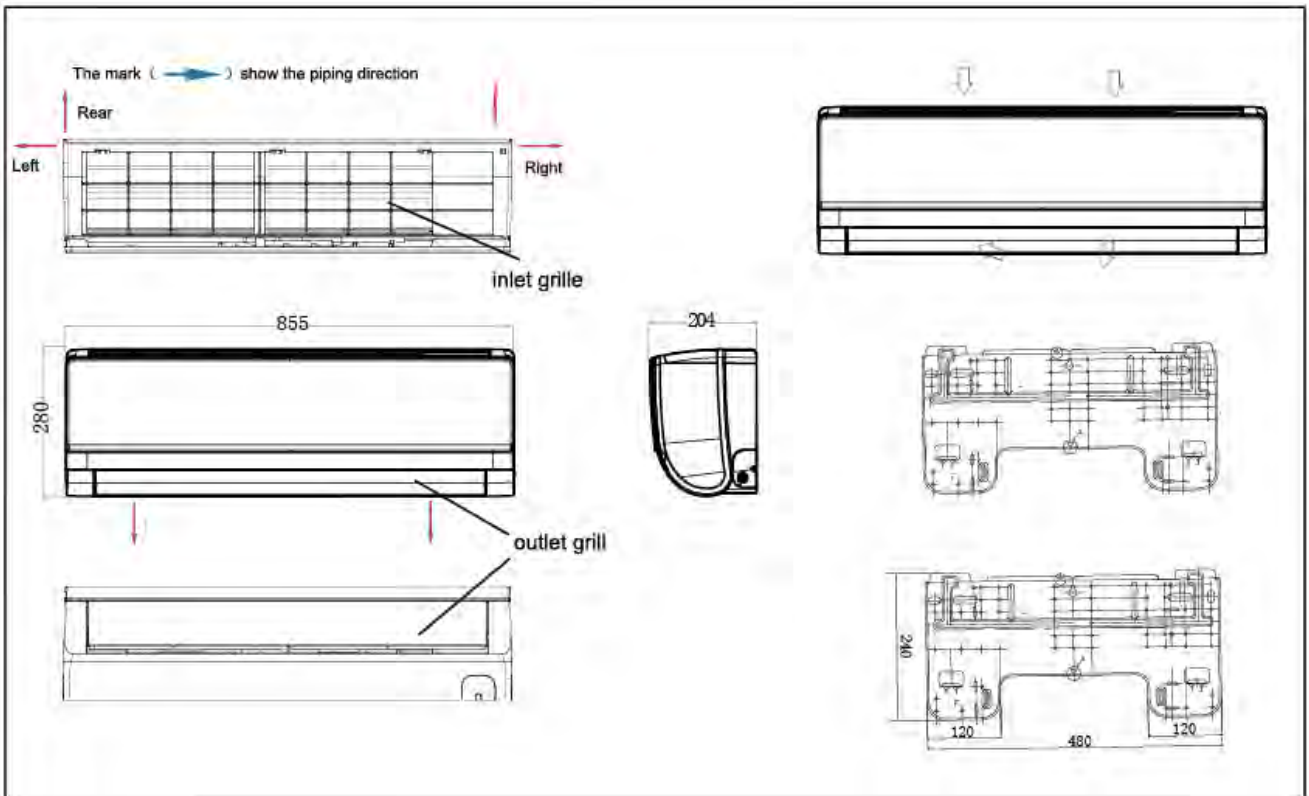
The machine is adaptive in following situation

1. Applicable ambient temperature range:

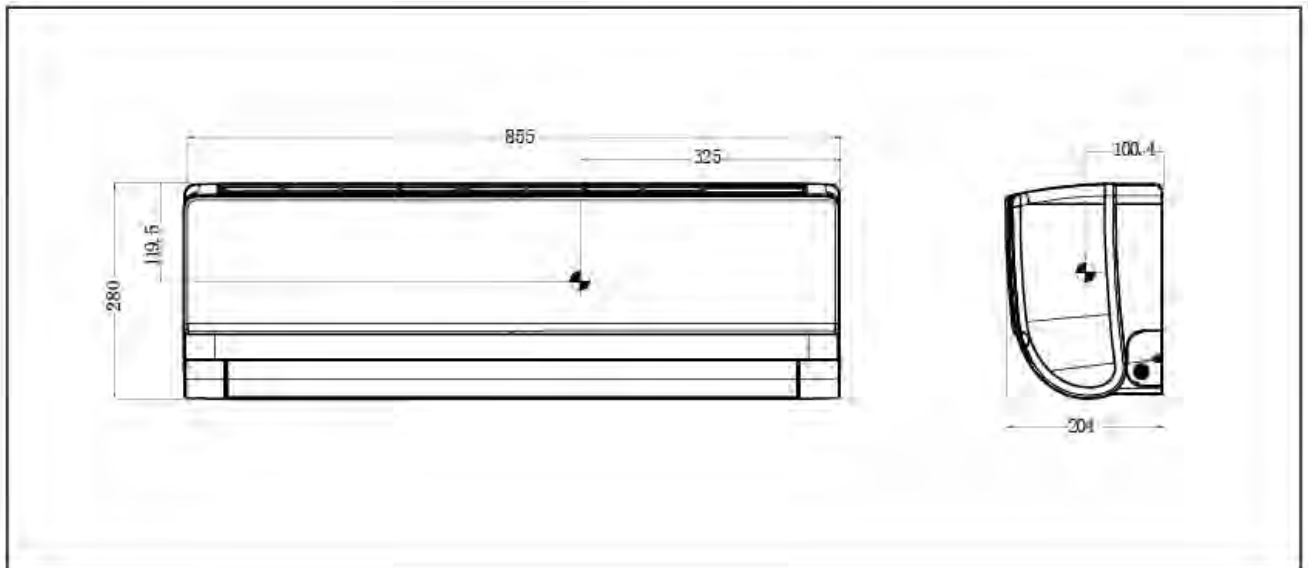
Cooling	Indoor	Maximum: D.B/W.B 32°C/23°C Minimum: D.B/W.B 21°C/15°C
	Outdoor	Maximum: D.B/W.B 46°C/26°C Minimum: D.B 18°C
Heating	Indoor	Maximum: D.B 27°C Minimum: D.B 15°C
	Outdoor	Maximum: D.B/W.B 24°C/18°C Minimum: D.B/W.B -7°C/-8°C
	Outdoor (INVERTER)	Maximum: D.B/W.B 24°C/18°C Minimum: D.B -15°C

- If the power supply cord is damaged, it must be replaced by the manufacturer or its service agent or a similar qualified person.
- If the fuse of indoor unit on PC board is broken, please change it with the type of T. 3.15A/ 250V. If the fuse of outdoor unit is broken, change it with the type of T.25A/250V
- The wiring method should be in line with the local wiring standard.
- After installation, the power plug should be easily reached.
- The waste battery should be disposed properly.
- The appliance is not intended for use by young children or infirm persons without supervision.
- Young children should be supervised to ensure that they do not play with the appliance.
- Please employ the proper power plug, which fit into the power supply cord.
- The power plug and connecting cable must have acquired the local attestation.
- In order to protect the units, please turn off the A/C first, and at least 30 seconds later, cutting off the power.

9. Dimensional drawings



10. Center of gravity



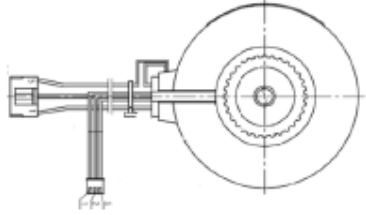
11 Service Diagnosis

11.1 Caution for Diagnosis

The operation lamp flashes when any of the following errors is detected.

1. When a protection device of the indoor or outdoor unit is activated or when the thermistor malfunctions, disabling equipment operation.
2. When a signal transmission error occurs between the indoor and outdoor units. In either case, conduct the diagnostic procedure described in the following pages.

11.2 Parameter of primary electronic appliance

name	parameter	picture
Fan motor	Rated voltage:220-230V Rated current:0.38A Rated frequency: 50/60HZ	

11.3 Problem Symptoms and Measures

Symptom	Check Item	Details of Measure
None of the units operates	Check the power supply.	Check to make sure that the rated voltage is supplied.
	Check the indoor PCB	Check to make sure that the indoor PCB is broken
Operation sometimes stops.	Check the power supply.	A power failure of 2 to 10 cycles can stop air conditioner operation.
Equipment operates but does not cool, or does not heat (only for heat pump)	Check for faulty operation of the electronic expansion valve.	Set the units to cooling operation, and compare the temperatures of the liquid side connection pipes of the connection section among rooms to check the opening and closing operation of the electronic expansion valves of the individual units.
	Diagnosis by service port pressure and operating current.	Check for insufficient gas.
Large operating noise and vibrations	Check the installation condition.	Check to make sure that the required spaces for installation (specified in the Technical Guide, etc.) are provided.

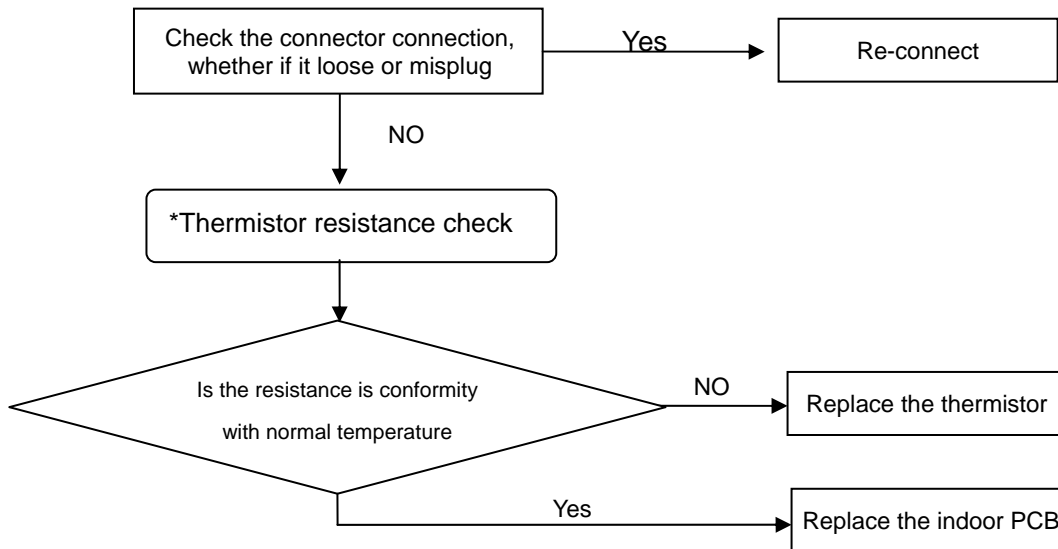
11.4 Error codes and description

	Code indication		fault description	Reference Page
	Indoor displaying panel code indication	Outdoor (LED1 flash times)		
Indoor and Outdoor	E7	15	Communication fault between indoor and outdoor units	Page46 .
Indoor Malfunction	E1	--	Room temperature sensor failure	Page36 .
	E2	--	Heat-exchange sensor failure	Page36 .
	E4	--	Indoor EEPROM error	Page45 .
	E14	--	Indoor fan motor malfunction	Page37 .
Outdoor Malfunction	F12	1	Outdoor EEPROM error	Page45 .
	F1	2	The protection of IPM	Page41 .
	F22	3	Overcurrent protection of AC electricity for the outdoor model	Page50 .
	F3	4	Communication fault between the IPM and outdoor PCB	Page43.
	F19	6	Power voltage is too high or low	Page48 .
	F27	7	Compressor is lock-rotor or stopped momentary	Page49
	F4	8	Overheat protection for Discharge temperature	Page44 .
	F8	9	Outdoor DC fan motor fault	Page40
	F21	10	Defrost temperature sensor failure	Page36 .
	F7	11	Suction temperature sensor failure	Page36 .
	F6	12	Ambient temperature sensor failure	Page36 .
	F25	13	Discharge temperature sensor failure	Page36
	F13	16	Short of refrigerant	Page52
	F11	18	deviate from the normal for the compressor	Page49 .
	F28	19	Loop of the station detect error	Page49 .
	/	21	Over load protection of indoor system	Page49 .
	F2	24	Overcurrent of the compressor	Page50.
	F23	25	Overcurrent protection for single-phase of the compressor	Page50.
E9	21	High work-intense protection	Page52 .	

11.4.1 Thermistor or Related Abnormality

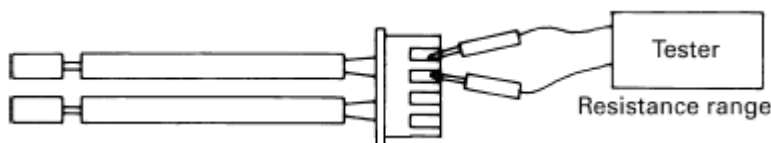
Indoor display	E1: Room temperature sensor failure E2: Heat-exchange sensor failure
Outdoor display	LED1 flash 10 times: Defrost temperature sensor failure LED1 flash 11 times: Suction temperature sensor failure LED1 flash 12 times: Ambient temperature sensor failure LED1 flash 13 times: Discharge temperature sensor failure

Method of malfunction detection	The temperatures detected by the thermistors are used to determine thermistor errors
Malfunction detection conditions	when the thermistor input is more than 4.92V or less than 0.08V during compressor operation. ● Note: The values vary slightly in some models
Supposed causes	<ul style="list-style-type: none"> ■ Faulty connector connection ■ Faulty thermistor ■ Faulty PCB
Troubleshooting	* Caution Be sure to turn off power switch before connect or disconnect connector, or else parts damage may be occurred.



Thermistor resistance check method:

Remove the connector of the thermistor on the PCB, and measure the resistance of thermistor using tester. The relationship between normal temperature and resistance is shown in the value of indoor thermistor.



11.4.2 EEPROM abnormal

Indoor Display E4: indoor EEPROM error
 outdoor display F12: Outdoor EEPROM error; Outdoor LED1 flash 1 times

Method of malfunction detection

The Data detected by the EEPROM are used to determine MCU

Malfunction detection conditions

when the data of EEPROM is error or the EEPROM is damaged

Supposed causes

- Faulty EEPROM data
- Faulty EEPROM
- Faulty PCB

Troubleshooting

* Caution Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.

Replace the indoor or outdoor mainboard

11.4.3 Indoor AC fan motor malfunction

Indoor Display

E14

Method of malfunction detection

The fan speed detected by the Hall IC during fan motor running which is used to determine the fan motor operating

Malfunction detection conditions

When there is no fan speed feedback signal within 2 minutes

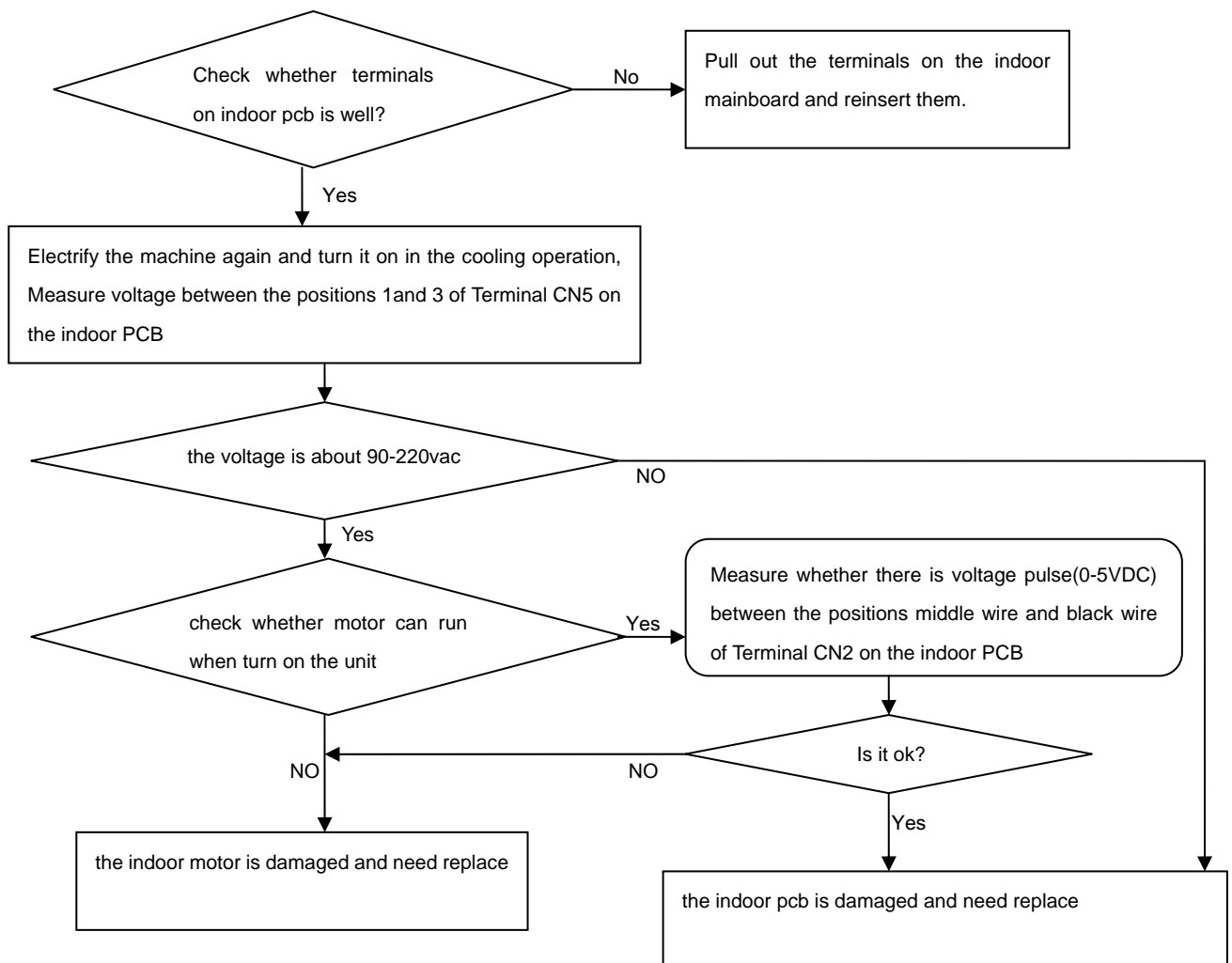
Supposed causes

- Operation halt due to breaking of wire inside the fan motor.
- Fan motor overheat protection
- Operation halt due to breaking of the fan motor lead wires
- Detection error due to faulty indoor unit PCB

Troubleshooting

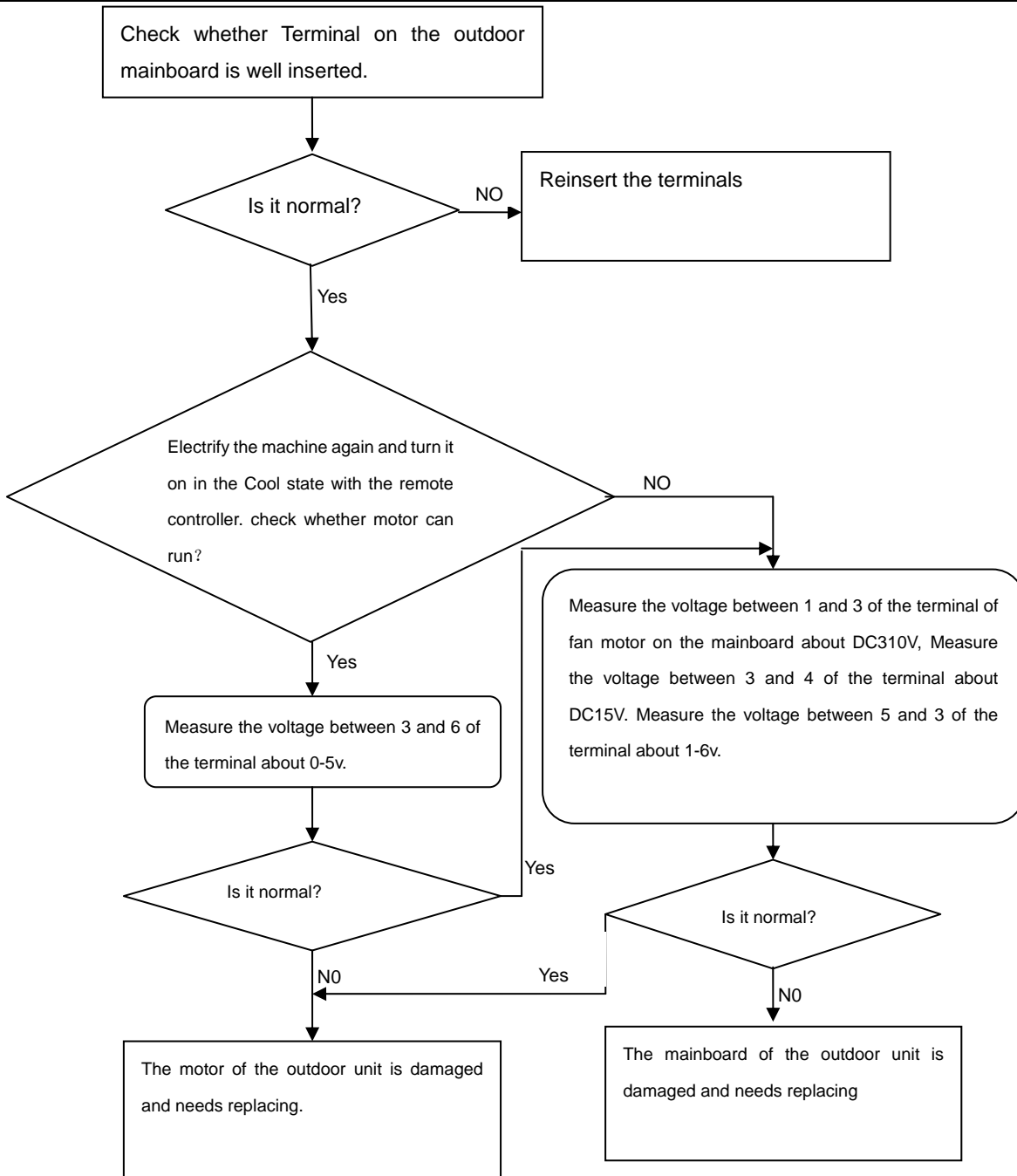
*** Caution**

Be sure to turn off power switch before connect or disconnect connector, or else parts damage may be caused



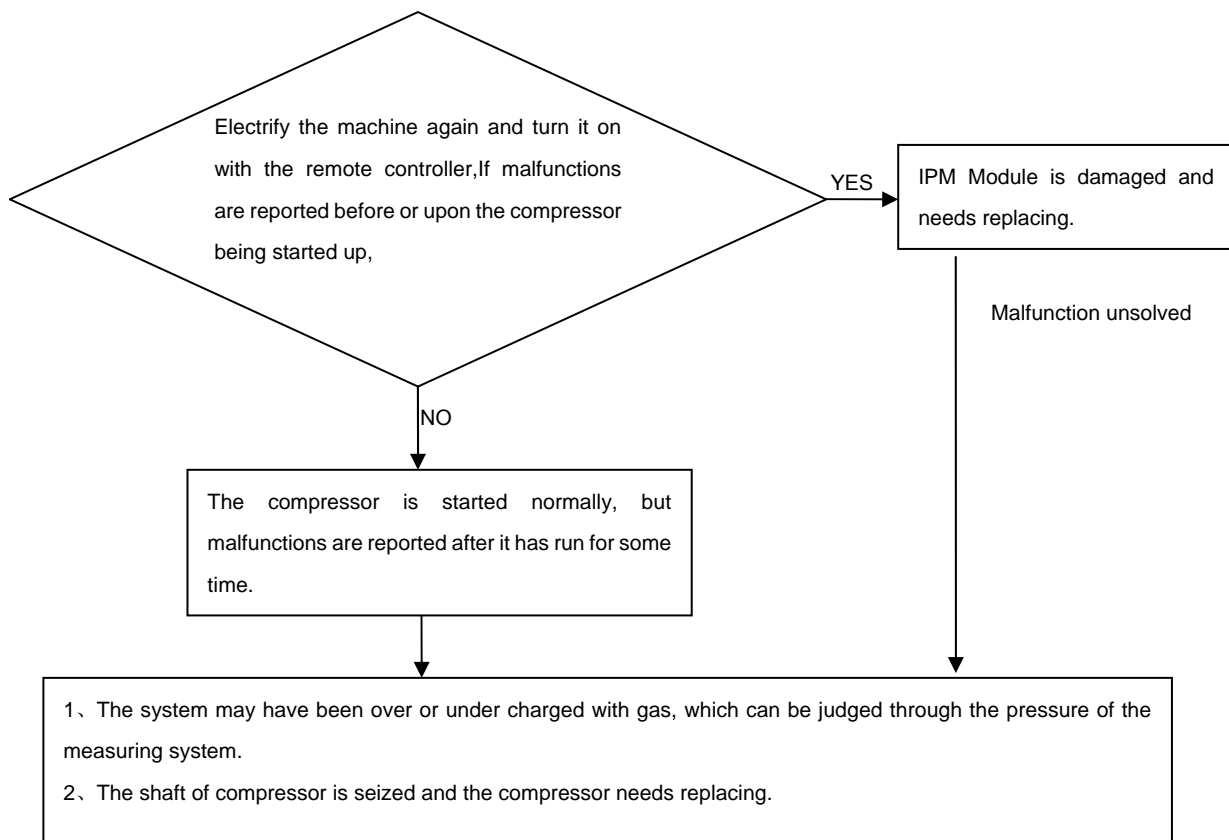
11.4.4 Outdoor DC fan motor fault

Outdoor display	LED1 flash 9 times
Method of malfunction detection	DC fan motor is detected by checking the fan running condition and so on
Malfunction detection conditions	when the data of EEPROM is error or the EEPROM is damaged
Supposed causes	<ul style="list-style-type: none">■DC fan motor protection dues to the DC fan motor faulty■DC fan motor protection dues to faulty PCB
Troubleshooting	<p>* Caution</p> <p>Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.</p>



11.4.5 IPM protection

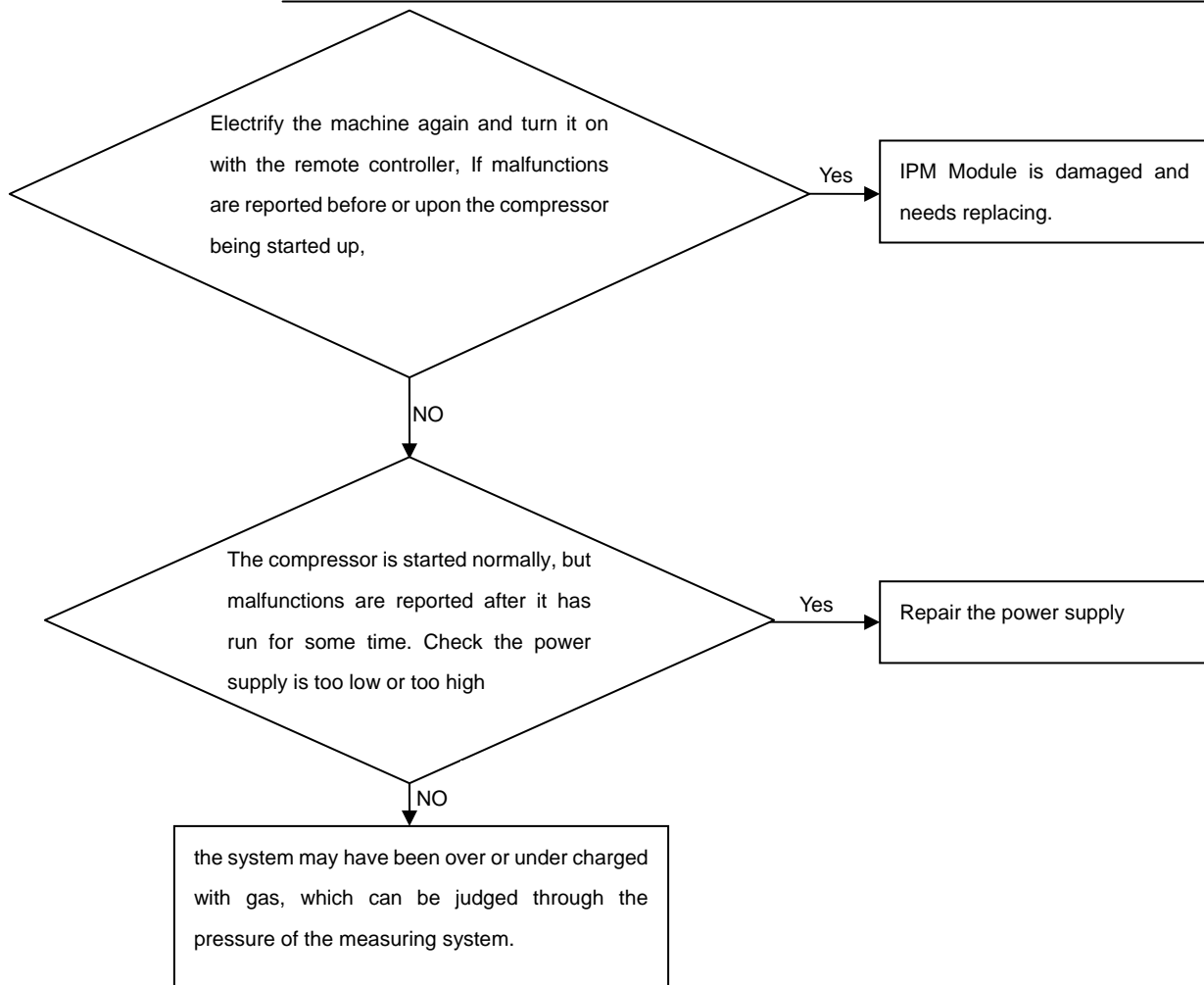
Outdoor display	LED1 flash 2 times
Method of malfunction detection	IPM protection is detected by checking the compressor running condition and so on
Malfunction detection conditions	<ul style="list-style-type: none"> ■The system leads to IPM protection due to over current ■The compressor faulty leads to IPM protection ■circuit component of IPM is broken and led to IPM protection
Supposed causes	<ul style="list-style-type: none"> ■IPM protection dues to the compressor faulty ■IPM protection dues to faulty PCB of IPM module ■Compressor wiring disconnected
Troubleshooting	<p>* Caution</p> <p>Be sure to turn off power switch before connect or disconnect connector, or else parts damage may be occurred..</p>



11.4.6 Over-current of the compressor

Outdoor display LED1 flash 3 or 24 or 25 times

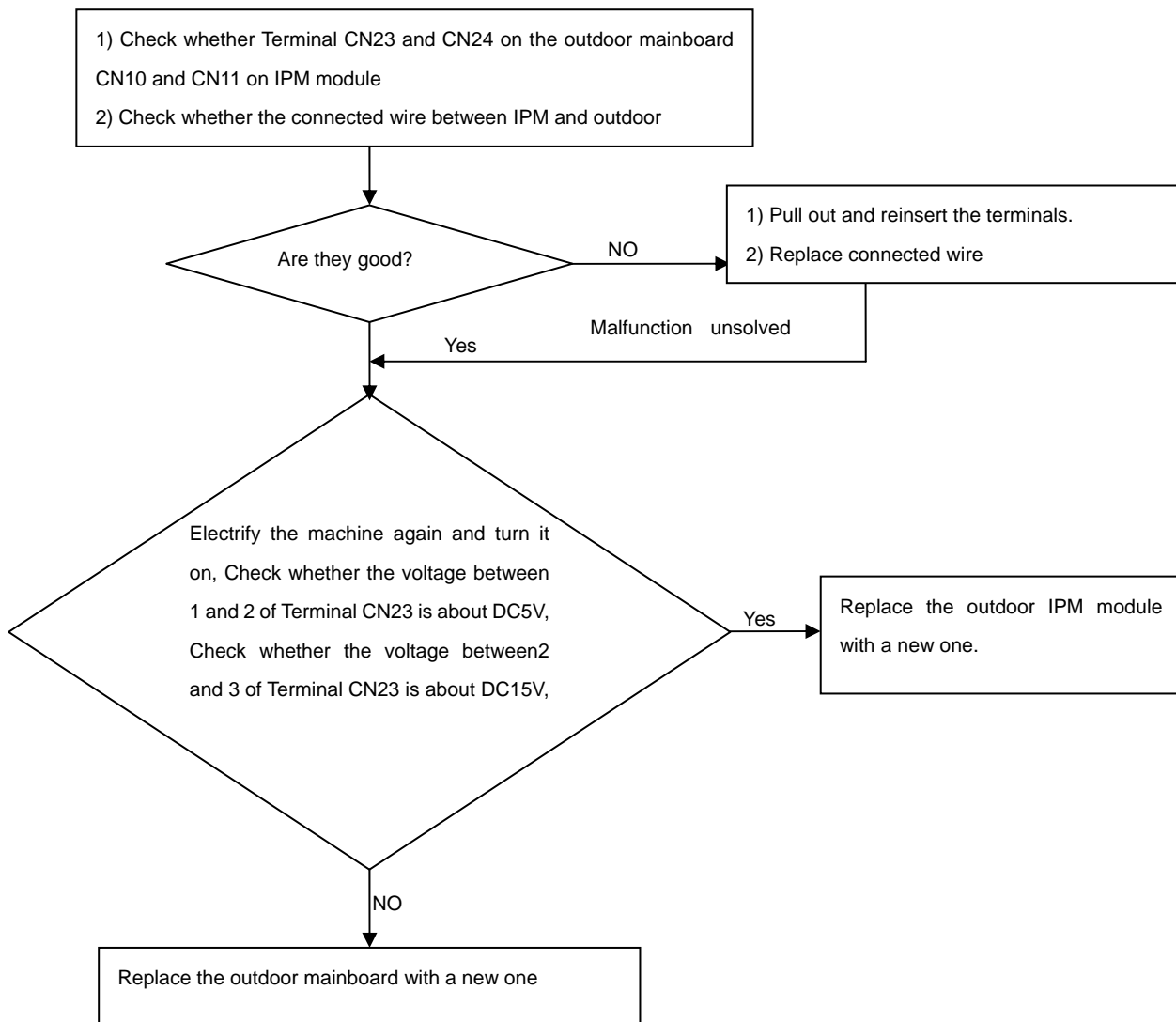
Method of malfunction detection	the current of the compressor is too high
Malfunction detection conditions	when the IPM Module is damaged or the compressor is damaged. power supply voltage is too low or too high
Supposed causes	<ul style="list-style-type: none"> ■ Faulty IPM Module ■ Faulty compressor ■ Faulty power supply
Troubleshooting	<p>* Caution</p> <p>Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred...</p>



11.4.7 The communication fault between IPM and outdoor PCB

Outdoor display LED1 flash 4 times

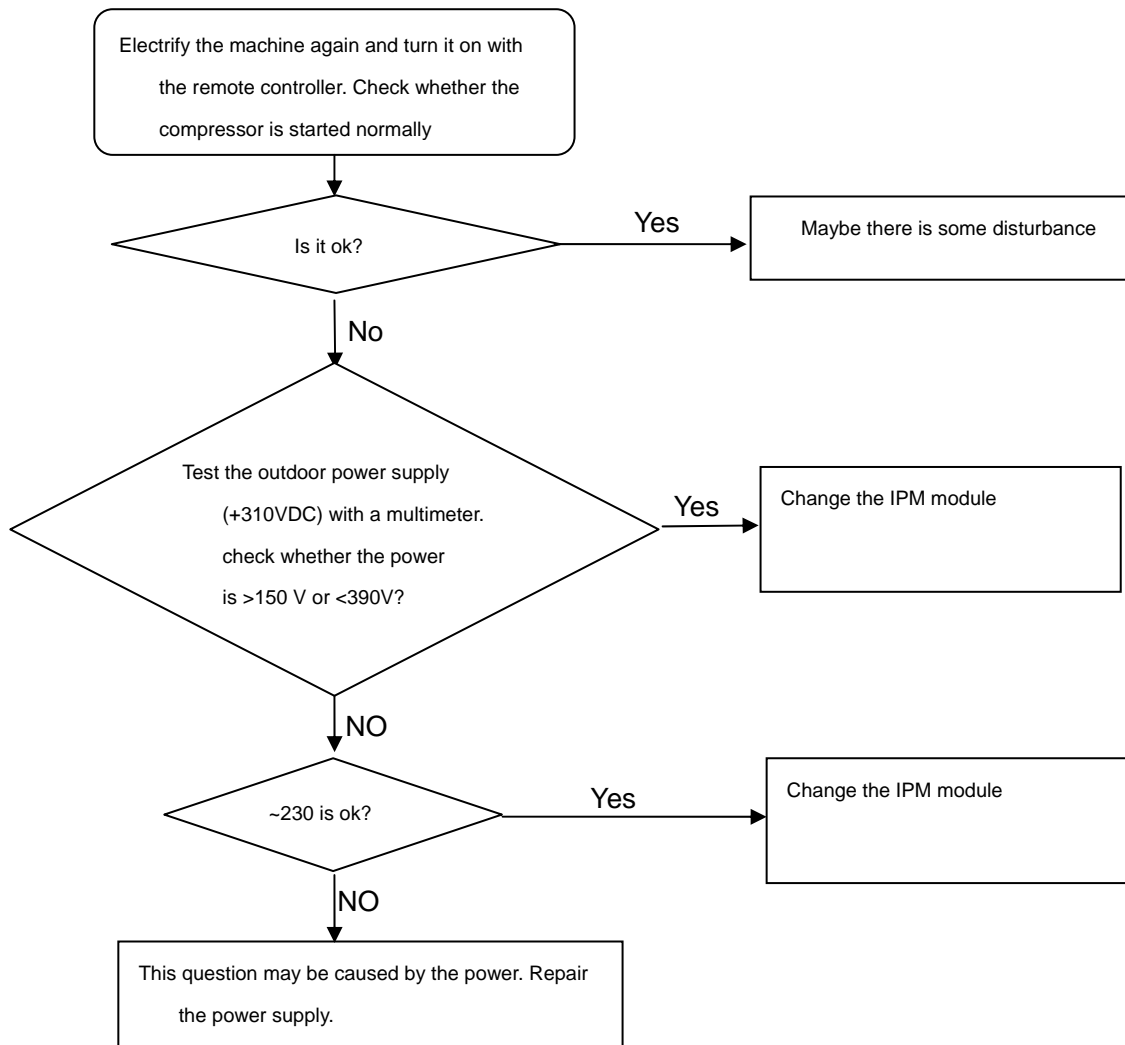
Method of malfunction detection	Communication is detected by checking the IPM module and the outdoor PCB
Malfunction detection conditions	<ul style="list-style-type: none"> ■The outdoor PCB broken leads to communication fault ■The IPM module broken leads to communication fault
Supposed causes	<ul style="list-style-type: none"> ■The outdoor PCB is broken ■The IPM module is broken ■Communication wiring disconnected
Troubleshooting	<p>* Caution</p> <p>Be sure to turn off power switch before connect or disconnect connector, or else parts damage may be occurred</p>



11.4.8 Power Supply Over or under voltage fault

Outdoor display LED1 flash 21 times The power supply is over voltage

Method of malfunction detection	An abnormal voltage rise or fall is detected by checking the specified voltage detection
Malfunction detection conditions	An voltage signal is fed from the voltage detection circuit to the microcomputer
Supposed causes	<ul style="list-style-type: none"> ■Supply voltage not as specified. ■The IPM module is broken. ■The outdoor PCB is broken.
Troubleshooting	<p>* Caution</p> <p>Be sure to turn off power switch before connect or disconnect connector, or else parts damage may be occurred.</p>

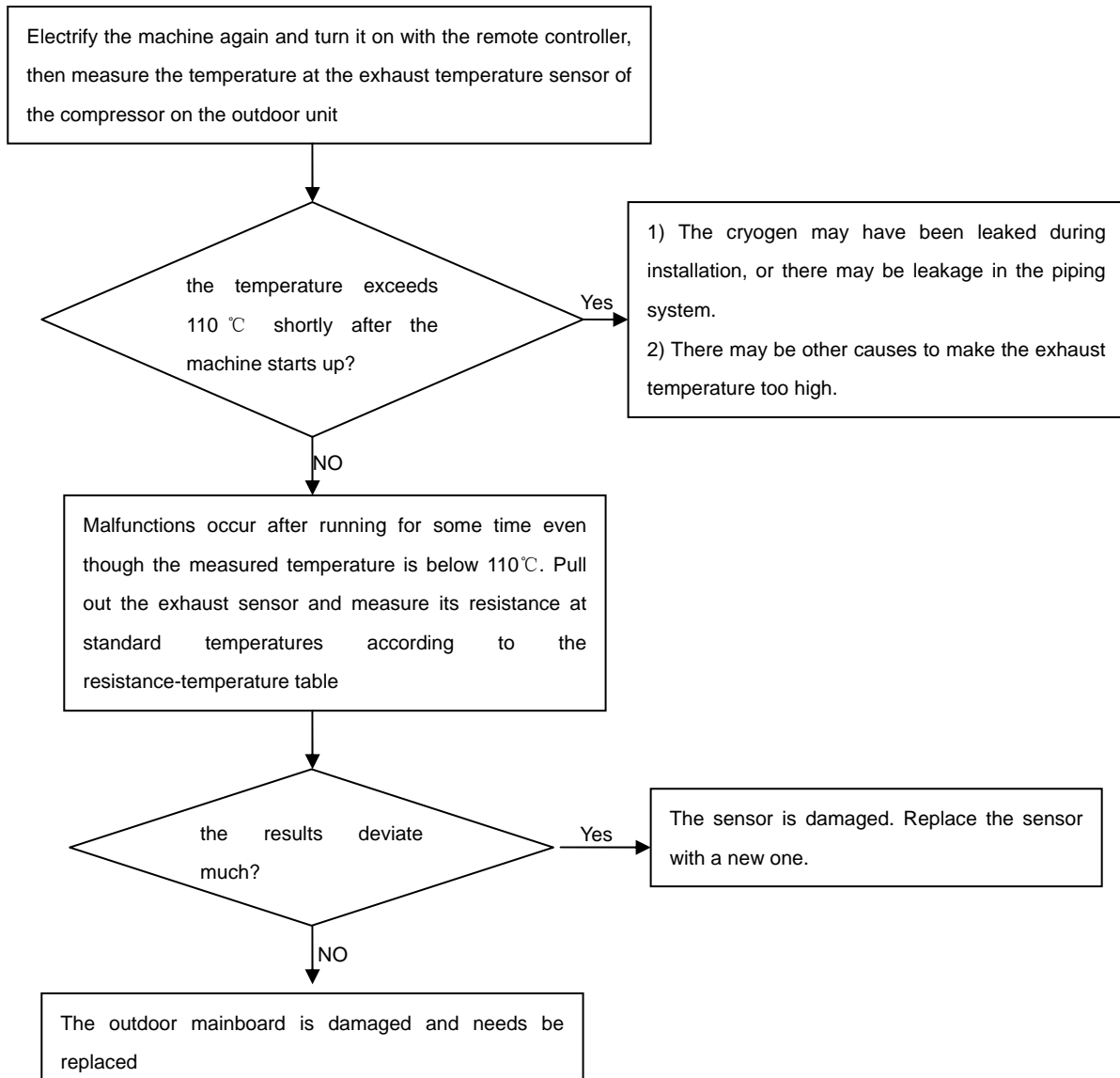


11.4.9 Overheat Protection For Discharge Temperature

Outdoor display

LED1 flash 8 times

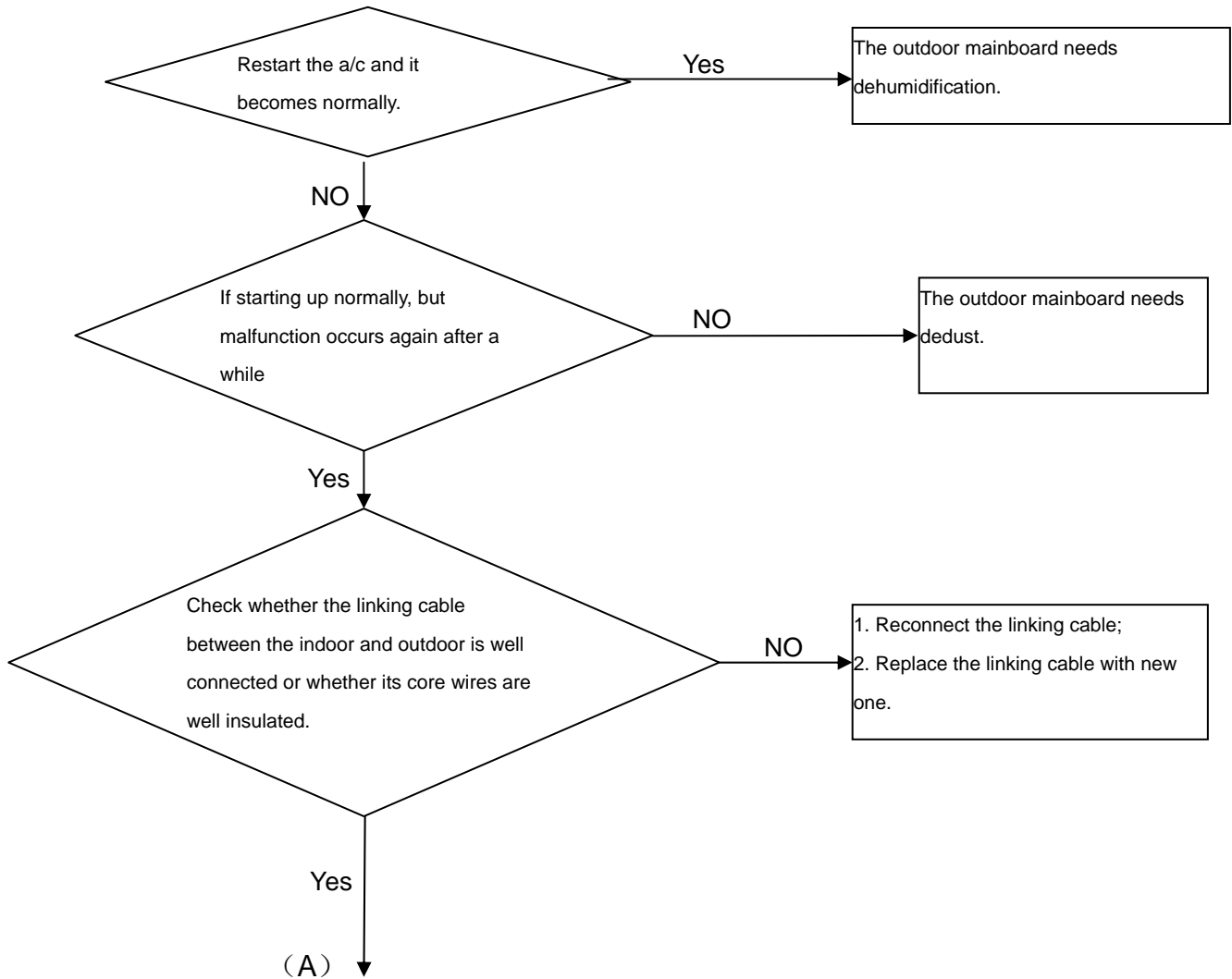
Method of malfunction detection	The Discharge temperature control is checked with the temperature being detected by the Discharge pipe thermistor
Malfunction detection conditions	when the compressor discharge temperature is above 110°C
Supposed causes	<ul style="list-style-type: none"> ■ Electronic expansion valve defective ■ Faulty thermistor ■ Faulty PCB
Troubleshooting	<p>* Caution</p> <p>Be sure to turn off power switch before connect or disconnect connector, or else parts damage may be occurred.</p>

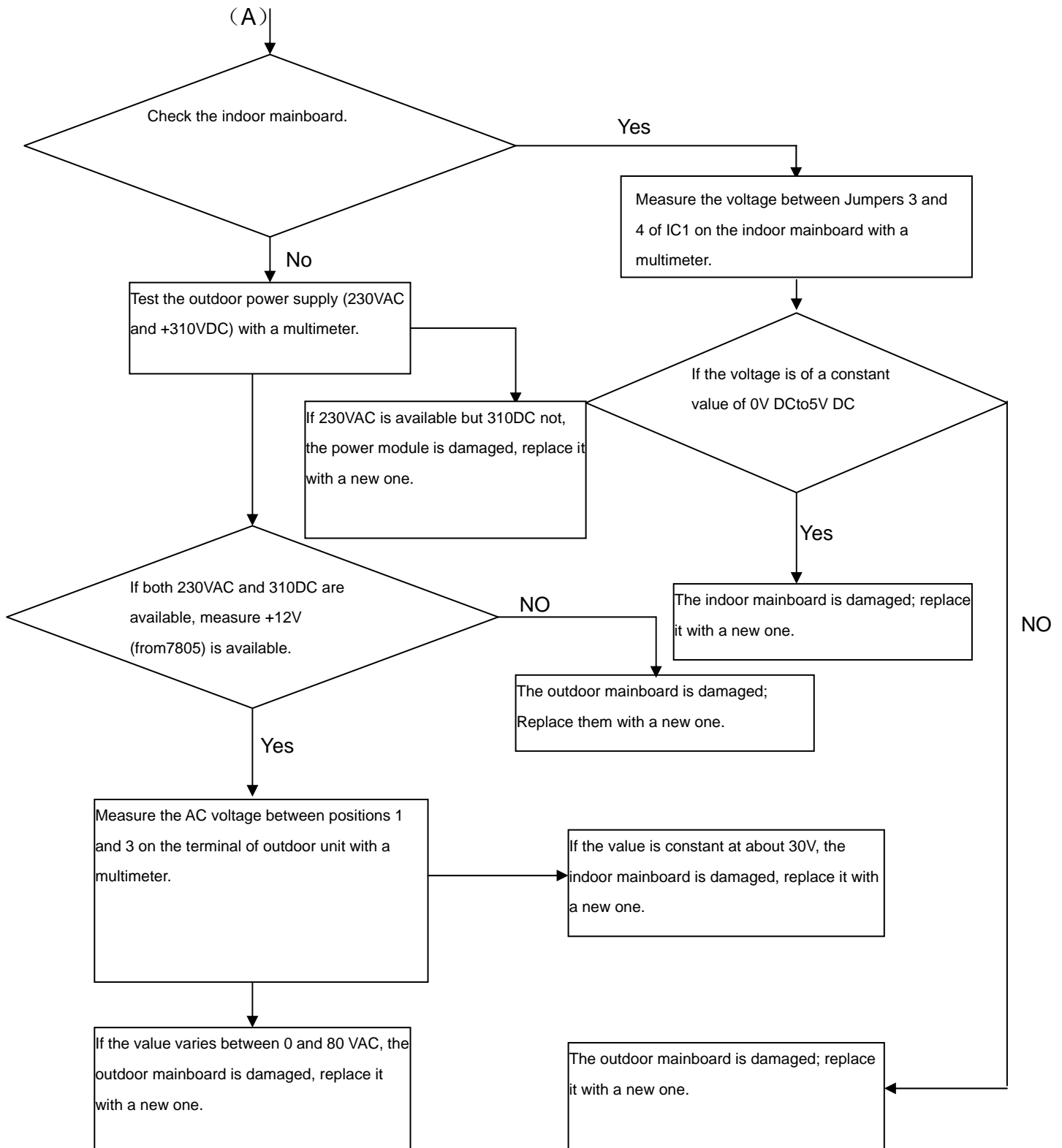


11.4.10 The communication fault between indoor and outdoor

indoor display: E7
 Outdoor display: LED1 flash 15 times

Method of malfunction detection	Communication is detected by checking the indoor PCB and the outdoor PCB
Malfunction detection conditions	<ul style="list-style-type: none"> ■ The outdoor PCB broken leads to communication fault ■ The indoor PCB broken leads to communication fault
Supposed causes	<ul style="list-style-type: none"> ■ Communication wiring disconnected ■ The indoor PCB is broken ■ The outdoor PCB is broken ■ The module PCB is broken
Troubleshooting	<p>* Caution</p> <p>Be sure to turn off power switch before connect or disconnect connector, or else parts damage may be occurred.</p>



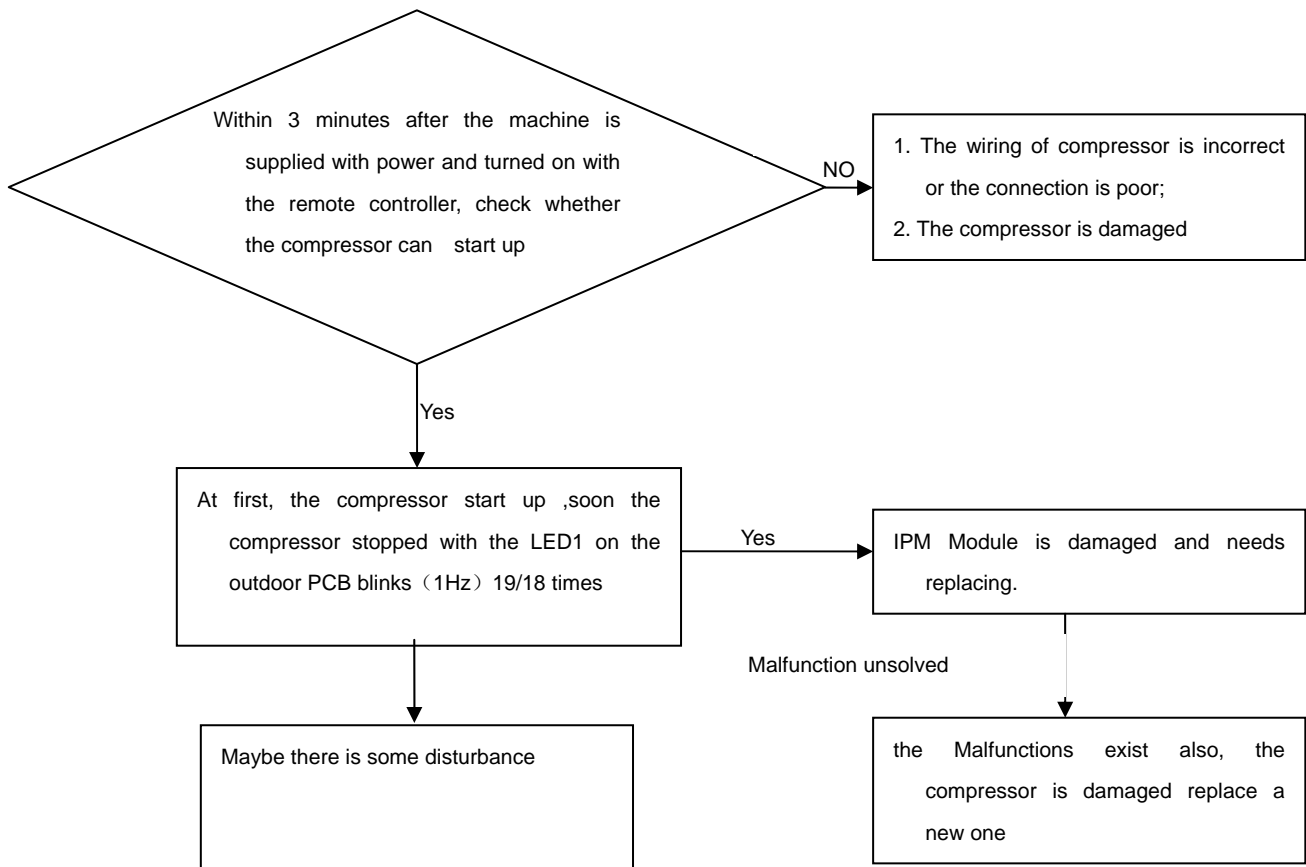


11.4.11 Loss of synchronism detection

Inverter side current detection is abnormal

Outdoor display LED1 flash 18 times
 LED1 flash 19 times

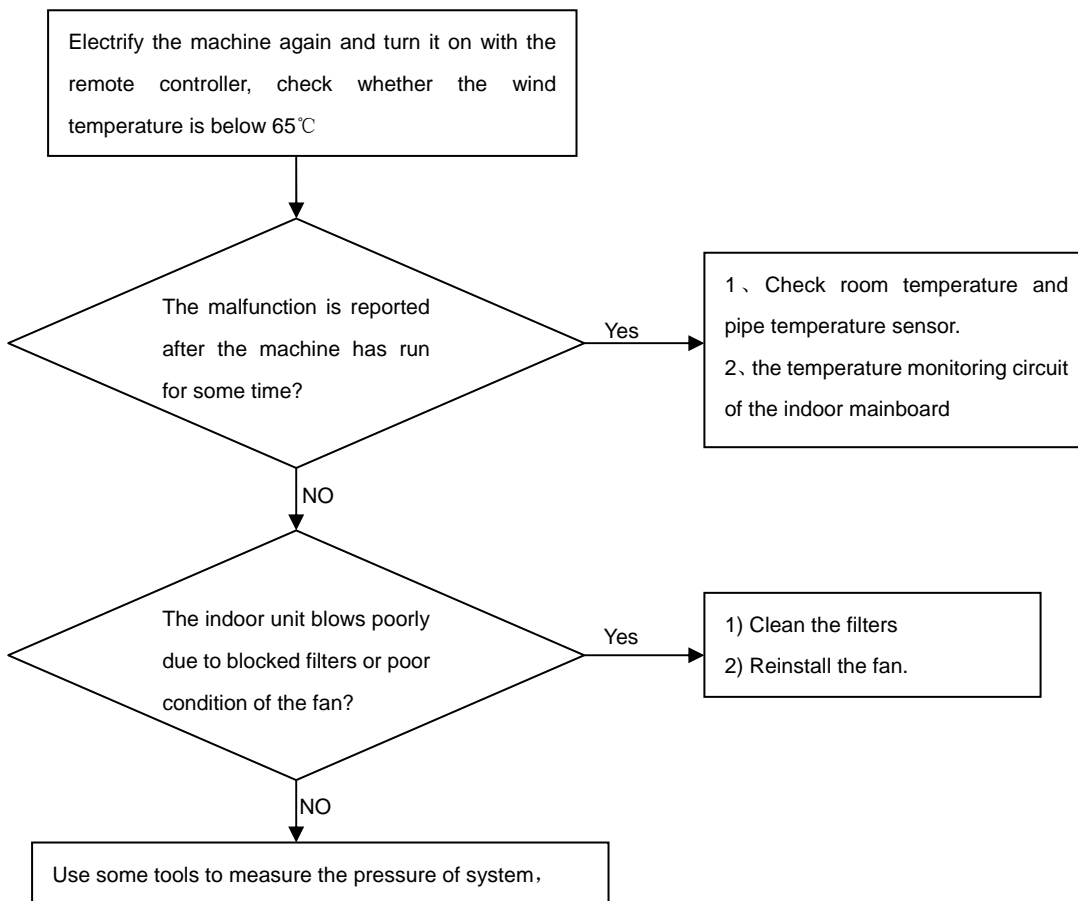
Method of malfunction detection	The position of the compressor rotor can not detected normally
Malfunction detection conditions	when the wiring of compressor is wrong or the connection is poor; or the compressor is damaged
Supposed causes	<ul style="list-style-type: none"> ■Faulty The wiring of compressor ■Faulty compressor ■Faulty PCB
Troubleshooting	<p>* Caution</p> <p>Be sure to turn off power switch before connect or disconnect connector, or else parts damage may be occurred.</p>



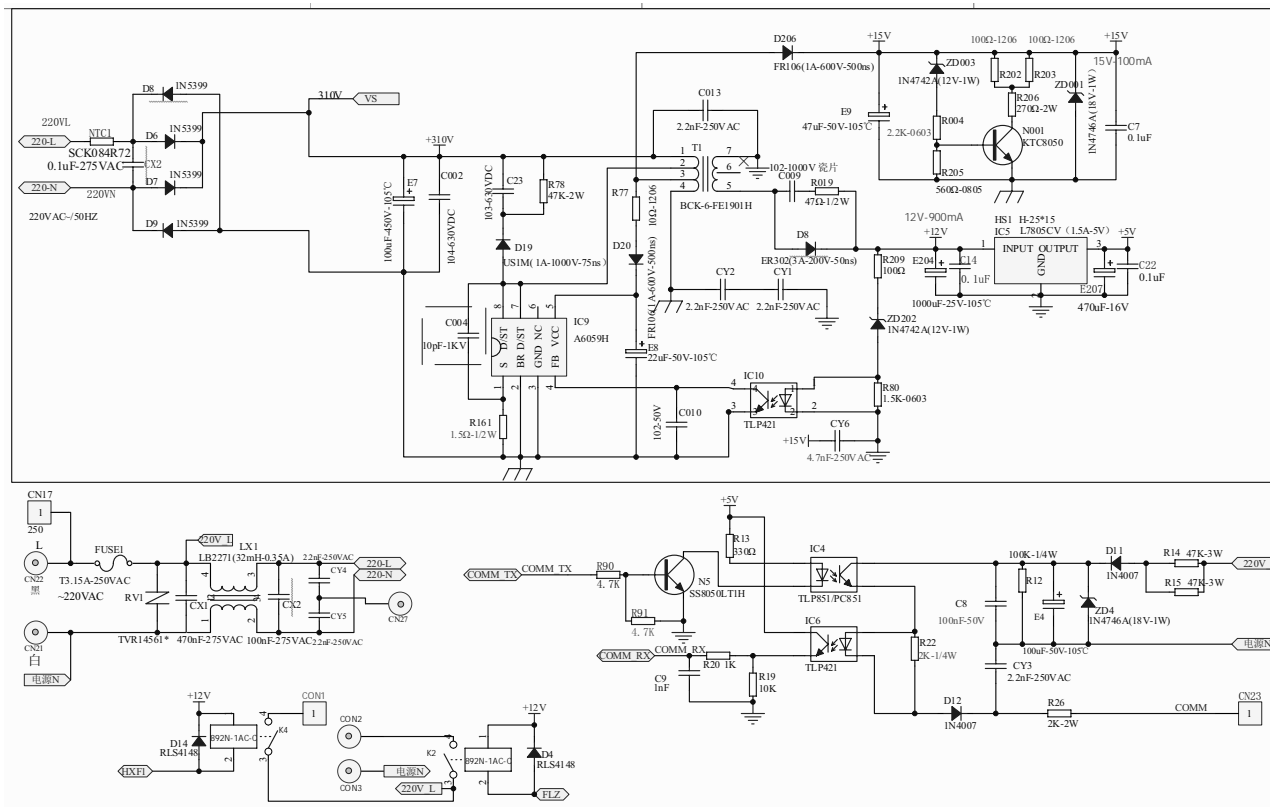
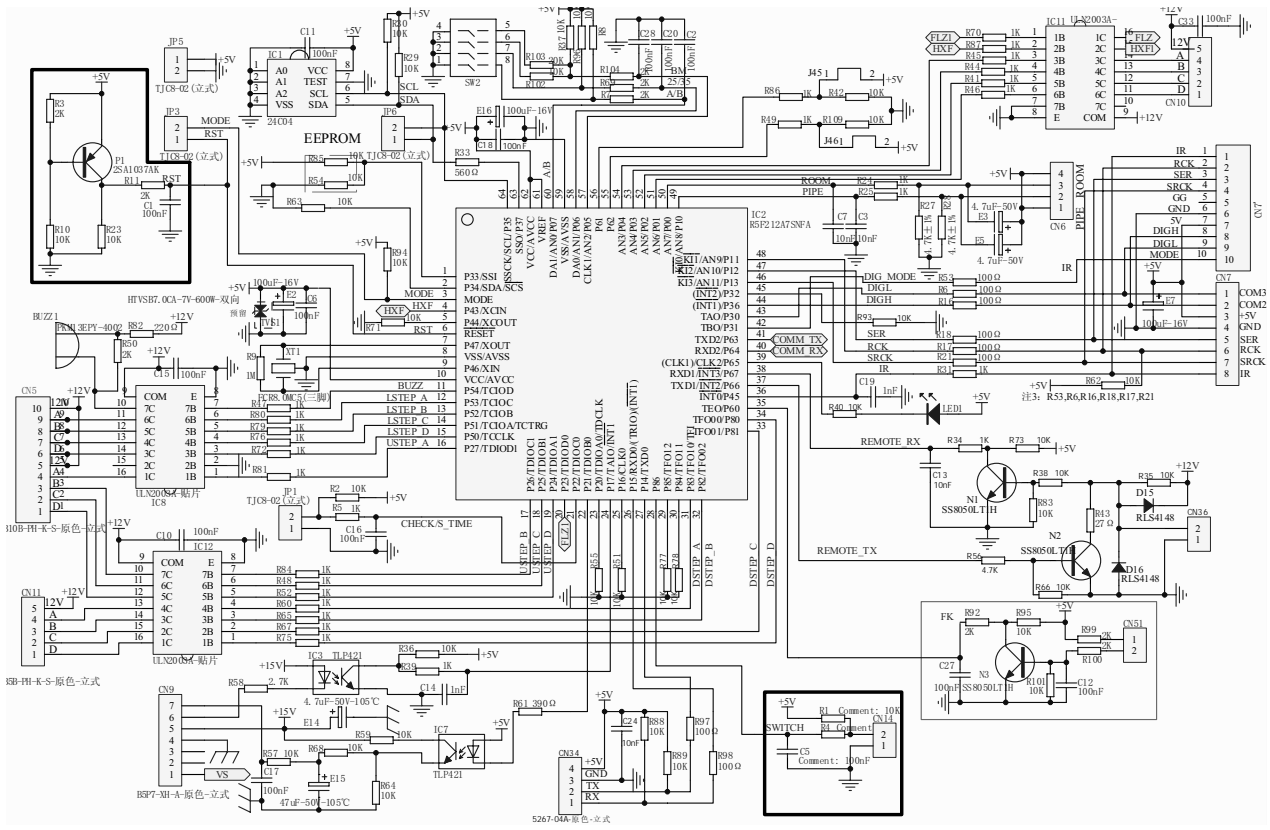
11.4.12 High work-intense protection

Outdoor display LED1 flash 21 times

Method of malfunction detection	High work-intense control is activated in the heating mode if the temperature being sensed by the heat exchanger thermistor exceeds the limit.
Malfunction detection conditions	Activated when the temperature being sensed by the heat exchanger rises above 65°C twice in 30 minutes.
Supposed causes	<ul style="list-style-type: none"> ■ Faulty electronic expansion valve ■ Dirty heat exchanger ■ Faulty heat-exchange sensor ■ Insufficient gas
Troubleshooting	<p>* Caution</p> <p>Be sure to turn off power switch before connect or disconnect connector, or else parts damage may be occurred.</p>

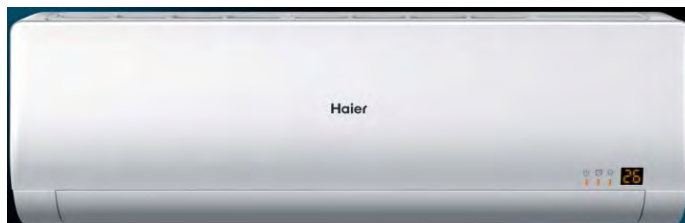


12. Circuit diagrams



Haier SERVICE MANUAL

Wall Mounted Type DC Inverter FREE MATCH N-Series Model No. AS15NS3HRA



WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or Repair the product or products dealt with in this service information by anyone else could result in serious injury or death

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Version: V1

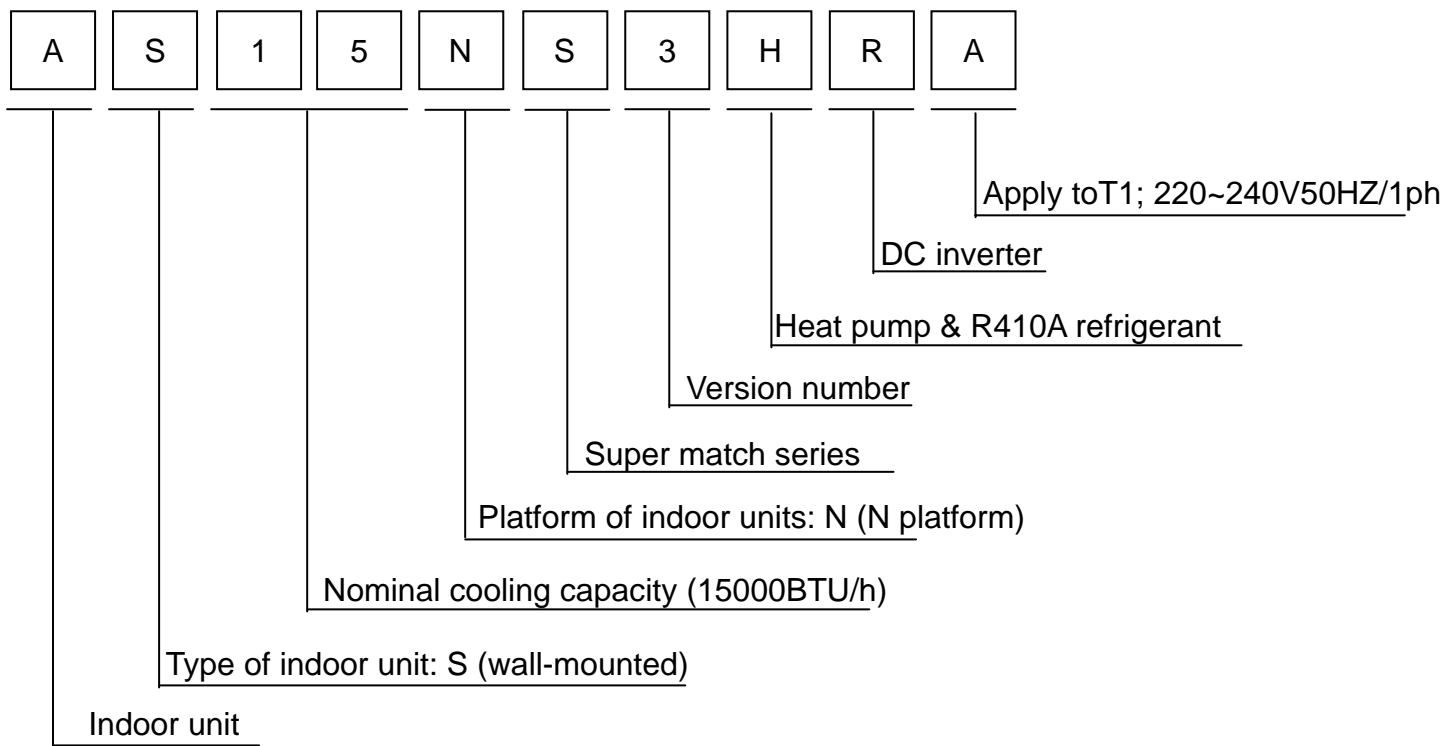
Date: 2014-12-26

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1 Introduction

1.1 Model name explanation



1.2 Safety Cautions

Be sure to read the following safety cautions before conducting repair work.






The caution items are classified into “Warning” and “Caution”. The “Warning” items are especially important since they can lead to death or serious injury if they are not followed closely. The “Caution” items can also lead to serious accidents under some conditions if they are not followed. Therefore, be sure to observe all the safety caution items described below.




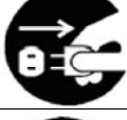


About the pictograms

- △ This symbol indicates an item for which caution must be exercised.
The pictogram shows the item to which attention must be paid.
- This symbol indicates a prohibited action.
The prohibited item or action is shown inside or near the symbol.
- This symbol indicates an action that must be taken, or an instruction.
The instruction is shown inside or near the symbol.

After the repair work is complete, be sure to conduct a test operation to ensure that the equipment operates Normally, and explain the cautions for operating the product to the customer.



1.2.1 Caution in Repair


Warning	
<p>Be sure to disconnect the power cable plug from the plug socket before disassembling the equipment for a repair.</p> <p>Working on the equipment that is connected to a power supply can cause an electrical shock.</p> <p>If it is necessary to supply power to the equipment to conduct the repair or inspecting the circuits, do not touch any electrically charged sections of the equipment.</p>	
<p>If the refrigerant gas discharges during the repair work, do not touch the discharging refrigerant gas .The refrigerant gas can cause frostbite.</p>	
<p>When disconnecting the suction or discharge pipe of the compressor at the welded section, release the refrigerant gas completely at a well-ventilated place first.</p> <p>If there is a gas remaining inside the compressor , the refrigerant gas or refrigerating machine oil discharges when the pipe is disconnected, and it can cause injury.</p>	
<p>If the refrigerant gas leaks during the repair work, ventilate the area. The refrigerant gas can generate toxic gases when it contacts flames.</p>	
<p>The step-up capacitor supplies high-voltage electricity to the electrical components of the outdoor unit. Be sure to discharge the capacitor completely before conducting repair work . A charged capacitor can cause an electrical shock.</p>	
<p>Do not start or stop the air conditioner operation by plugging or unplugging the power cable plug.</p> <p>Plugging or unplugging the power cable plug to operate the equipment can cause an electrical shock or fire.</p>	

Warning	
Do not repair the electrical components with wet hands . Working on the equipment with wet hands can cause an electrical shock	
Do not clean the air conditioner by splashing water. Washing the unit with water can cause an electrical shock.	
Be sure to provide the grounding when repairing the equipment in a humid or wet place, to avoid electrical shock.	
Be sure to turn off the power switch and unplug the power cable when cleaning the equipment. The internal fan rotates at a high speed, and cause injury.	
Do not tilt the unit when removing it. The water inside the unit can spill and wet the furniture and floor.	
Be sure to check that the refrigerating cycle section has cooled down sufficiently before conducting repair work. Working on the unit when the refrigerating cycle section is hot can cause burns.	
Use the welder in a well-ventilated place. Using the welder in an enclosed room can cause oxygen deficiency.	



1.2.2 Cautions Regarding Products after Repair


Warning	
Be sure to use parts listed in the service parts list of the applicable model and appropriate tools to conduct repair work. Never attempt to modify the equipment. The use of inappropriate parts or tools can cause an electrical shock, excessive heat generation or fire.	
When relocating the equipment, make sure that the new installation site has sufficient strength to withstand the weight of the equipment. If the installation site does not have sufficient strength and if the installation work is not conducted securely, the equipment can fall and cause injury.	
Be sure to install the product correctly by using the provided standard installation frame. Incorrect use of the installation frame and improper installation can cause the equipment to fall, resulting in injury.	For integral units only
Be sure to install the product securely in the installation frame mounted on a window frame. If the unit is not securely mounted, it can fall and cause injury.	For integral units only


Warning	
<p>Be sure to use an exclusive power circuit for the equipment, and follow the technical standards related to the electrical equipment, the internal wiring regulations and the instruction manual for installation when conducting electrical work.</p> <p>Insufficient power circuit capacity and improper electrical work can cause an electrical shock or fire.</p>	
<p>Be sure to use the specified cable to connect between the indoor and outdoor units. Make the connections securely and route the cable properly so that there is no force pulling the cable at the connection terminals.</p> <p>Improper connections can cause excessive heat generation or fire.</p>	
<p>When connecting the cable between the indoor and outdoor units, make sure that the terminal cover does not lift off or dismount because of the cable.</p> <p>If the cover is not mounted properly, the terminal connection section can cause an electrical shock, excessive heat generation or fire.</p>	
<p>Do not damage or modify the power cable.</p> <p>Damaged or modified power cable can cause an electrical shock or fire. Placing heavy items on the power cable, and heating or pulling the power cable can damage the cable.</p>	
<p>Do not mix air or gas other than the specified refrigerant (R-410A / R22) in the refrigerant system.</p> <p>If air enters the refrigerating system, an excessively high pressure results, causing equipment damage and injury.</p>	
<p>If the refrigerant gas leaks, be sure to locate the leak and repair it before charging the refrigerant. After charging refrigerant, make sure that there is no refrigerant leak.</p> <p>If the leak cannot be located and the repair work must be stopped, be sure to perform pump-down and close the service valve, to prevent the refrigerant gas from leaking into the room. The refrigerant gas itself is harmless, but it can generate toxic gases when it contacts flames, such as fan and other heaters, stoves and ranges.</p>	
<p>When replacing the coin battery in the remote controller, be sure to disposed of the old battery to prevent children from swallowing it.</p> <p>If a child swallows the coin battery, see a doctor immediately.</p>	

Caution	
Installation of a leakage breaker is necessary in some cases depending on the conditions of the installation site, to prevent electrical shocks.	
Do not install the equipment in a place where there is a possibility of combustible gas leaks. If a combustible gas leaks and remains around the unit, it can cause a fire.	
Be sure to install the packing and seal on the installation frame properly. If the packing and seal are not installed properly, water can enter the room and wet the furniture and floor.	

1.2.3 Inspection after Repair

Warning	
Check to make sure that the power cable plug is not dirty or loose, then insert the plug into a power outlet all the way. If the plug has dust or loose connection, it can cause an electrical shock or fire.	
If the power cable and lead wires have scratches or deteriorated, be sure to replace them. Damaged cable and wires can cause an electrical shock, excessive heat generation or fire.	





Warning	
Do not use a joined power cable or extension cable, or share the same power outlet with other electrical appliances since it can cause an electrical shock, excessive heat generation or fire.	

Caution	
Check to see if the parts and wires are mounted and connected properly, and if the connections at the soldered or crimped terminals are secure. Improper installation and connections can cause excessive heat generation, fire or an electrical shock.	
If the installation platform or frame has corroded, replace it. Corroded installation platform or frame can cause the unit to fall, resulting in injury.	
Check the grounding, and repair it if the equipment is not properly grounded. Improper grounding can cause an electrical shock.	
Be sure to measure the insulation resistance after the repair, and make sure that the resistance is 1 M ohm or higher. Faulty insulation can cause an electrical shock.	
Be sure to check the drainage of the indoor unit after the repair. Faulty drainage can cause the water to enter the room and wet the furniture and floor.	

1.2.4 Using Icons

Icons are used to attract the attention of the reader to specific information. The meaning of each icon is described in the table below:

1.2.5 Using Icons List

Icon	Type of Information	Description
 Note	Note	A “note” provides information that is not indispensable, but may nevertheless be valuable to the reader, such as tips and tricks.
 Caution	Caution	A “caution” is used when there is danger that the reader, through incorrect manipulation, may damage equipment, loose data, get an unexpected result or has to restart (part of) a procedure.
 Warning	Warning	A “warning” is used when there is danger of personal injury.
	Reference	A “reference” guides the reader to other places in this binder or in this manual, where he/she will find additional information on a specific topic.

2.Features



Super quiet: Lower noise operation condition



A-PAM DC inverter:With adoption of S-TYPE,S-PAM and PHASE control technology to works more stably at low-frequency,and is more energy-saving,mor powerful at high frequency.



Long distance air supplying:



-15°C Heating: When -15°C can still heating natural



10°C heating maintenance:Heating Holding 10°C temperature



Comfortable sleep: The setting temperature and the indoor noise can be adjusted to a more comfortable level when you set the “sleep mode” during night sleep.



Super match:One outdoor unit can match two or more indoor unit.



DIY auto mode: Adjust the last fixed operation mode automatically.



Turbo mode: Quick cooling or heating



Auto restart: Automatic return to previous operation conditions after sudden power blackout



24 hours timer: Use the timer function to set on,or off,or from on to off,or from off to on.



Intergrative valve cover:The valve cover is Intergrative.



2-way piping design: The pipe can shoot out both from left or right side.



Easy clean design: The panel is easy to wash and the airflow vents can be detached easily



Double 8 display:The display is Double 8 mode.

3 Specifications

NOMINAL DISTRIBUTION SYSTEM VOLTAGE		
Phase	/	1
Frequency	Hz	50
Voltage	V	230

NOMINAL CAPACITY and NOMINAL INPUT			
		cooling	heating
Capacity rated	KW	4.4(1.3-5.0)	5.4(1.7-6.0)
	Btu/h	15010(4430-17060)	18430(5800-20480)
Power Consumption(Rated)	KW	1.16	1.35
SEER/SCOP	W/W	6.9	4.2
Annual energy consumption	KWh	223	1333
Moisture Removal	m ³ /h	1.8*10 ⁻³	

TECHNICAL SPECIFICATIONS			
Dimensions	H*W*D	mm	900×210×310
Packaged Dimensions	H*W*D	mm	991×313×399
Weight	/	KG	11.5
Gross weight	/	KG	14
Color	/	/	White
Sound level	Sound pressure(high/medium/low)	dB	43/39/33
	Sound power(high)	dB(A)	56

TECHNICAL SPECIFICATIONS-PARTS				
			cooling	heating
Fan	Type		Cross flow fan	
	Motor output	W	40	40
	Air flow rate(high)	m ³ /h	800	800
	Speed(high/middle/low)	rpm	1100/950/800	1000/850/700
Heat exchanger	Type		ML fin- ϕ 7HI-HX tube	
	Segment *stage*fitch		3*14*1.4	
Air direction control			Right,Left,Horizontal,Downward	
Air filter			Removable/Washable/Mildew Proof	
Temperature control			Microcomputer Control	
Remote controller model			YR-HG	

Note: the data are based on the conditions shown in the table below

cooling	heating	Piping length
Indoor: 27°CDB/19°CWB Outdoor: 35°CDB/24°CWB	Indoor:20°CDB Outdoor: 7°CDB/6°CWB	5m

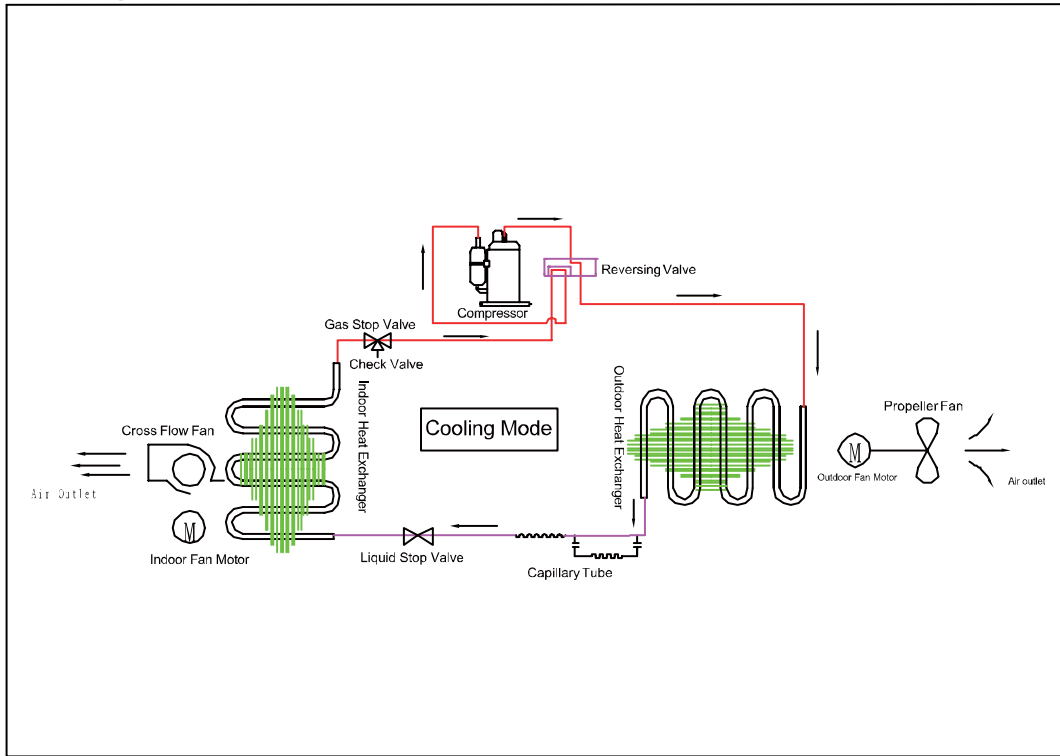
Conversation formulae
Kcal/h= KW×860
Btu/h= KW×3414
cfm=m ³ /min×35.3

4. Sensors list

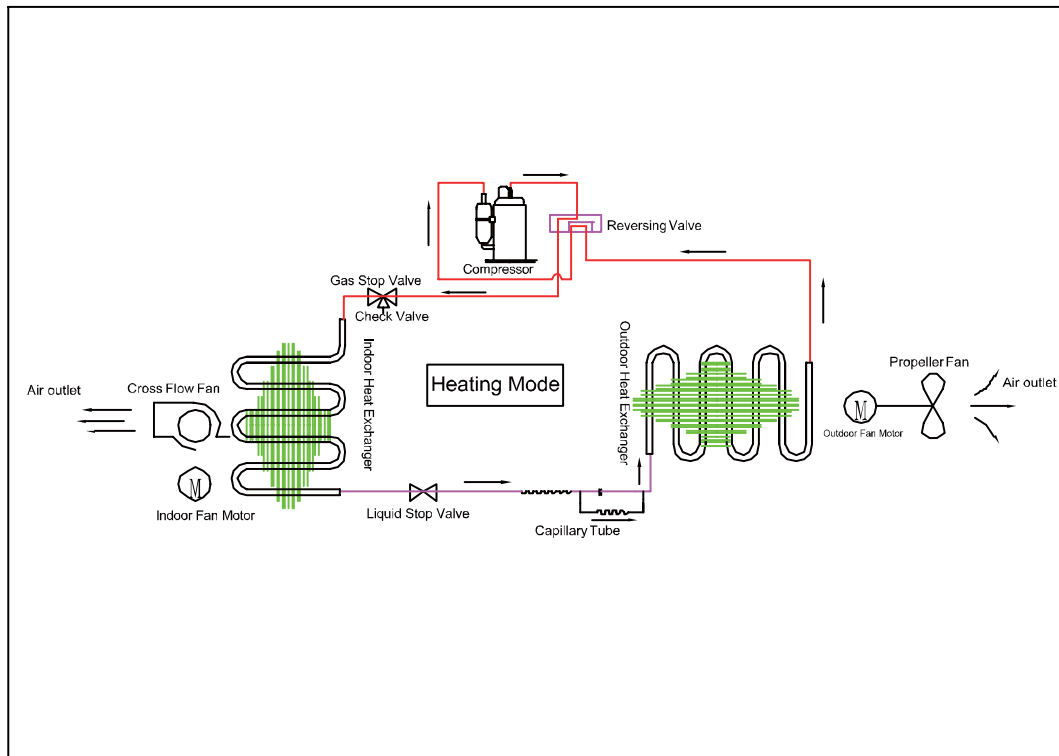
type	Description	Qty
Room sensor	Its used for detecting room temperature	1
Pipe sensor	Its used for detecting temperature of evaporator	1

5. Piping diagrams

Cooling mode



Heating mode



6. Printed Circuit Board Connector Wiring Diagram

Connectors

PCB(1) (Control PCB)

series	PCB connector	Connect with load
1	CN9	Connector for fan motor
2	CN6	Connector for heat exchanger thermistor and Room temperature thermistor
3	CN5	Connector for UP&DOWN STEP motor
4	CN21	Connector for power N wire
5	CN52	Connector for power L
6	CN27	Connector for power GRN
7	CN7	Connector for display board
8	CN23	Connector for communicate between the indoor board and the outdoor board
9	CN34	Connector for long-range control

Note: Other designations

PCB(1) (Indoor Control PCB)

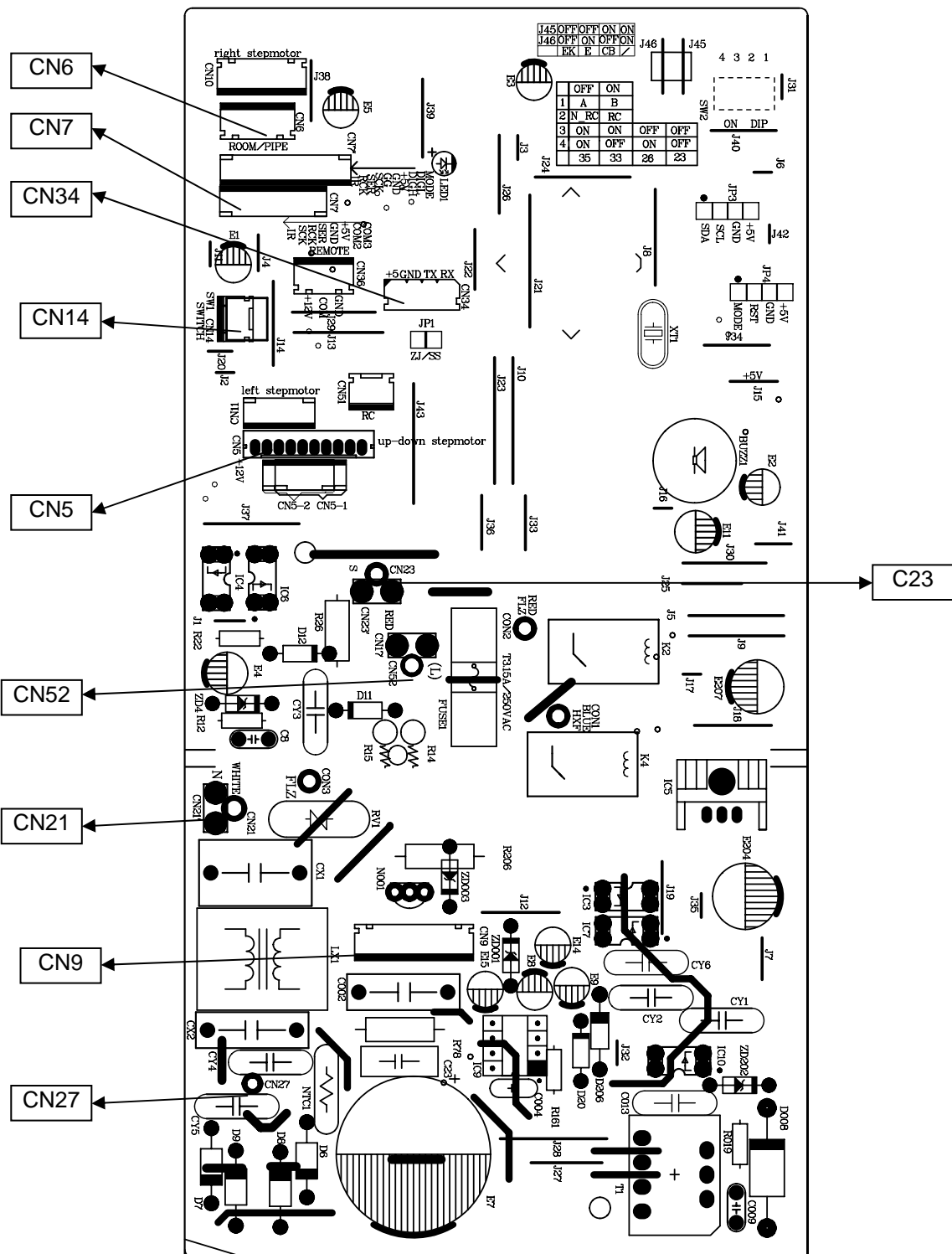
1) CN14 Connector for Forced operation ON / OFF switch

2) SW2 1 Select remote code A or B, 2 Select room card able or disable , 3-4 Select 23,26,33, or 35

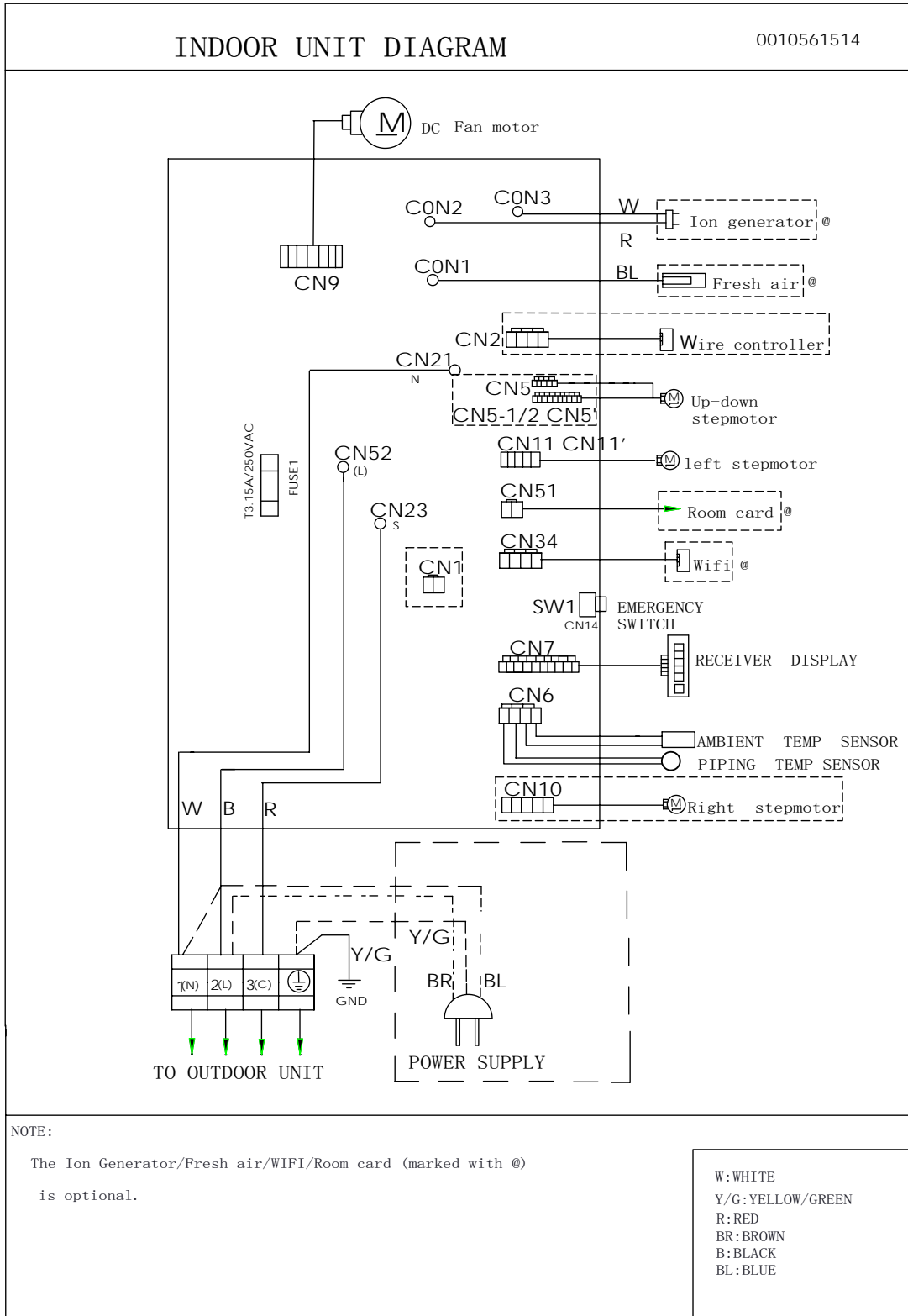
3) RV1 Varistor

4) FUSE1 Fuse 3.15A/250VAC

PCB(1)



Wiring diagrams



7.Functions and Control

7.1 Main functions and control specification

7.1.1 Automatic operation

When the running mode is turned to automation after starting the system, the system will first determine the running mode according to the current room temperature and then will run according to the determined mode. Tr in the following selection conditions means room temperature, Ts means setting temperature, Tp means temperature of indoor coil pipe

$Tr \geq 23^{\circ}\text{C}$ Choose Cooling Mode

$Tr < 23^{\circ}\text{C}$ Choose Heating Mode

After turning to the automation mode, the running mode can be switched between cooling mode, fan mode and heating mode according to the change of the indoor ambient temperature. But the automatic conversion between cooling mode and heating mode must be conducted after 15 minutes.

7.1.2 Cooling operation mode

Temperature control range: $16^{\circ}\text{C} \text{---} 30^{\circ}\text{C}$

Temperature difference: $\pm 1^{\circ}\text{C}$

* Control features: When $Tr(\text{input airflow}) > Ts(\text{set temperature})^{\circ}\text{C}$, the compressor will be opened, the indoor fan will operate at the set speed and the mode signal will be sent to the outdoor system. When $Tr(\text{input airflow}) < Ts(\text{set temperature})^{\circ}\text{C}$, the compressor will be opened, the indoor fan will operate at the set speed and the mode signal will be sent to the outdoor system. The system will keep the original status if $Tr = Ts$.

Airflow speed control: (temperature difference 1°C)

Automatic: When $Tr \geq Ts + 3^{\circ}\text{C}$, high speed.

When $Ts + 1^{\circ}\text{C} \leq Tr < Ts + 3^{\circ}\text{C}$, medium speed

When $Tr < Ts + 1^{\circ}\text{C}$, low speed

When the sensor is off, low speed

When the airflow speed has no delay from the high to low switching, the speed should be delayed for 3 minutes (remain at high speed for 3 minutes.) before the next switch.

Manus: When the system is operating, you can set the high, medium or low speed manually. (When the sensor is on or off, the system will change the speed 2 seconds after receiving the signal.)

* Airgate location control: the location for the airgate can be set according to your needs.

* Defrosting function: preventing the frosting on the indoor heat exchanger (when cooling or dehumidifying). When the compressor works continuously for 1/6 minutes (adaptable in EEPROM) and the temperature of the indoor coils has been below zero centigrade for 10 seconds, the compressor will be stopped and the malfunction will be recorded in the malfunction list. The indoor system will continue to run. When the temperature of the indoor coil is raised to 7°C , the compressor will be restarted again (the requirement of 3 minutes' delay should be satisfied.)

* timing system on/off function.

* Dormant control function.

7.1.3 Demoisture mode.

* temperature control range: 16---30°C

* temperature difference: $\pm 1^\circ\text{C}$

Control feature: send the demoisture signal to the outdoor system.

When $T_r > T_s + 2^\circ\text{C}$, the compressor will be turned on, the indoor fan will operate at the set speed.

When T_r is between the T_s and $T_s + 2^\circ\text{C}$, the outdoor system will operate at the high demoisture frequency for 10 minutes and then at the low demoisture mode for six minutes. The indoor fan will operate at low speed.

When $T_r < T_s$, the outsystem will be stopped, the indoor fan will be stopped for 3 minutes and then turned to the low speed option.

All the frequency converses have a $\pm 1^\circ\text{C}$ difference.

* Wind speed control: Automatic:

When $T_r \geq T_s + 5^\circ\text{C}$, high speed.

When $T_s + 3^\circ\text{C} \leq T_r < T_s + 5^\circ\text{C}$, medium speed.

When $T_s + 2^\circ\text{C} \leq T_r < T_s + 3^\circ\text{C}$, low speed.

When $T_r < T_s + 2^\circ\text{C}$, light speed.

If the outdoor fan stopped, the indoor fan will be paused for 3 minutes.

If the outdoor fan stopped for more than 3 minutes and the outdoor system still operates, the system will be changed into light speed mode.

When the airflow speed has no delay from the high to low switching, the speed should be delayed for 3 minutes (remain at high speed for 3 minutes.) before the next switch.

Manual: When the sensor is off or $T_r < T_s + 3^\circ\text{C}$, the manual operation can not be made. (obligatory automatic operation.)

* Airgate location control: the location for the airgate can be set according to your needs.

* Defrosting function: preventing the frosting on the indoor heat exchanger (when cooling or demoisture). When the compressor works continuously for 1/6 minutes (adaptable in EEPROM) and the temperature of the indoor coils has been below zero centigrade for 10 seconds, the compressor will be stopped and the malfunction will be recorded in the malfunction list. The indoor system will continue to run. When the temperature of the indoor coil is raised to 7°C , the compressor will be restarted again (the prerequisite of 3 minutes' delay should be satisfied.)

* coil protection (synchronic overheating protection) are installed for the four directions latch malfunctions when demoisturing.

* timing system on/off function.

* Dormant control function.

7.1.4 Heating operation mode.

* temperature control range: 16---30°C

* temperature difference: $\pm 1^\circ\text{C}$

* control feature: the temperature compensation is automatically added and the system will send the heating signals to the outdoor system.

If $T_r \leq T_s$, the outdoor compressor is turned on, the indoor fan will be at the cold air proof mode.

If $T_r > T_s$, the outdoor system is turned off, the indoor fan will be at the heat residue sending mode.

If $T_r < T_s$, the outdoor system will be turned on again, the indoor fan will be at the cold air proof mode.

*Indoor fan control

manual control: You can choose high, medium, low and automatic speed control.

Automatic: When $T_r < T_s$, high speed.

When $T_s \leq T_r \leq T_s + 2^\circ\text{C}$, medium speed.

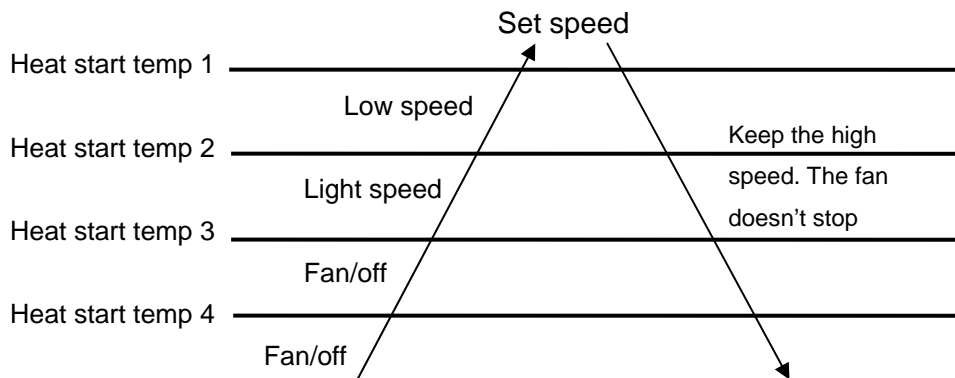
When $T_r > T_s + 2^\circ\text{C}$, low speed.

When the airflow speed has no delay from the high to low switching, the speed should be delayed for 3 minutes (remain at high speed for 3 minutes.) before the next switch.

*Airgate location control: the location for the airgate can be set according to your needs.

Coldair proof operation

1. The indoor operation within 4 minutes after the start up is as the following diagram, the air speed can be raised only after the speed has reached a certain level.



2. 4 minutes after the start up of the indoor fan, the light airflow and the low airflow will be turned to the set speed airflow.

3. In the cold air proof operation, the fan won't stop after the start up.

4. During the cold air proof operation, the indoor system will continuously send 'indoor high speed' signals to the outdoor system.

* Residue heat sending. The indoor fan will send the residue heat at a low speed for 12 seconds.

If other conditions are satisfied, when the compressor stops, the indoor system will operate at a light speed. The indoor fan will stop when the coil temperature is below the 'heat start temp 4'.

* Defrosting. When the system receives the defrosting signal from outdoors, the indoor fan will stop and the indoor temperature display won't change. At the time, any indoor coil malfunctions will be neglected. When the outdoor defrosting finishes, the coil malfunction will still be neglected until the compressor has been started up for 30 seconds. The indoor temperature display will not change and the system operates at the cold air proof mode.

* Automatic heating temperature compensation: when the system enters the heating mode, the temperature compensation (4) will be added. When the status is switched off, the compensation will be erased.

7.1.5 Strength operation

The system enters the mode after receiving the 'strength signal'.

Send strength operation signal to the outdoor system.

The mode change finishes the strength operation.

Entering 'mute', you can have normal operation or signal control such as timing to finish the strength operation.

When the system is at the automatic option with the strength/ mute function, if the system enters the cooling mode, the cooling strength/ mute function will be offered; if the system enters the heating mode, then the heating strength/ mute function will be offered; if the system enters the airflow mode, there will be no strength/ mute function.

7.1.6 Mute operation

The system enters the mode after receiving the 'mute signal'.

- a. Mute heating: the airflow speed is slight, the system sends the mute signal to the outdoor system.
- b. mute cooling: the airflow speed is slight, the system sends the mute signal to the outdoor system.

When the compressor operates, the airflow speed is mute speed. EEPROM is adaptable.

Mute operation can not work under the dehumidifying and airflow-sending operation.

7.1.7 Air refreshing

After receiving the signal from the remote control, (HV series: the background light of the 'health' logo is green. HS series: the 'health' indicator will be lighted). If the fan operates, the Nano-Aqua operates to realize the ions sending function.

If the indoor fan stops, the Nano-Aqua is turned off.

When the Nano-Aqua is turned off, if the air refreshing system is turned on, the Nano-Aqua will be turned on when the fan operates.

7.1.8 Timing

You can set 24 hours' on/off timing accordingly. After the setting, the timing indicator will be lightened. Also, the light will be turning off after the timing is finished. The followings are several timing methods.

1.system /on timing: The timing indicator will be lightened and the indoor system is under the waiting mode. The light will be turned off when the timing is finished and the rest of the system will operate under a normal condition. The timing starts since the last reception of the timing signal.

2.system /off timing: When the system is turned on, the timing indicator is lightened, the rest of the system will operated under a normal condition. When set time comes, the indicator light will be turned off and the system will be turned off. If you have set the dormant functions, the order of your settings will be operated according to the timing settings.

3 .system /on and off timing: The settings will be completed according to the orders..

7.1.9 Dormant operation

The dormant timing is an eight hours unadaptable one. The timing signs are shown on the V series board. (RC series show the dormant signal, the timing light is lighted on the 6 lights board).

2.1 Under the cooling/ dehumidifying operation, after the setting of the dormant operation, the set temperature will be raised for 1 centigrade after 1 hour's operation and will be raised for 1 centigrade 1 hour later. The system will keep this status for 6 hours and then close.

2.2 Under the heating mode, after the setting of the dormant operation, the setting temperature will fall 2 centigrade after 1 hour's operation and will fall 2 centigrade 1 hour later. 3 hours after the preceding operations, the set temperature will be raised for 1 centigrade and the system will keep this status for 3 hours

and then close down.

2.3 During the dormant time, except the change of the system mode or a new press on the dormant setting keys, the timing of the 8 hours dormancy will take the first timing as the start time, any presses on other keys will not affect the original timing.

2.4 Indoor fan control under the dormant operation.

If the indoor fan is at the high speed before the dormant operation setting, the speed will be turned to medium after the setting. If the fan is at the medium speed before the dormant setting, the speed will be turned to low after the setting. If the fan is at the low speed before the dormant setting, the speed will not change.

7.1.10 Urgent on/off input

Press the urgency button the buzzer will ring. The system will enter the automatic mode if you don't press the button for more than 5 seconds.

Under the system off mode, if you press the urgency key for 5 to 10 seconds, the system will start the test operation.

Under the system off mode, if you press the urgency key for 10 to 15 seconds, the display screen will show the resume of the last malfunction.

If the system is under operation, the press on the urgency key will stop it.

Under the system off mode, the display screen will show automatic running sign.

Under the system off mode, the system will not receive the remote control signal if the press on the urgency key doesn't last for 15 seconds or if the key is loosened.

Urgency operation: If you press the urgency key for less than 5 seconds, the buzzer will ring when you press the on/off key. The system will enter the urgency operation when the urgency key is loosened. The urgency operation is fully automatic.

Test operation.

The inlet temperature sensor doesn't work, the indoor fan and the indoor air direction board motor works synchronically. High speed airflow, cooling, outdoor system on, etc, will send the ambient temperature 30 centigrade and coil temperature 16 centigrade information to the outdoor system.

Test operation

The defrost protection of the evaporator doesn't work.

The temperature control doesn't work.

The test operation will be finished in 30 minutes.

The test operation can be stopped by the relative commands from the remote control.

7.1.11 Low load protection control

In order to prevent the frosting of the indoor heat interaction device, the outdoor system will be stopped if the indoor heat interaction temperature is below zero centigrade for 5 minutes, but the fan will continue to operate. The outdoor system will be started again when the heat interaction temperature is above 7 centigrade and the system has been stopped for 3 minutes. The malfunction will be stored in the malfunction resume and will not be revealed.

7.1.12 High load protection control

The outdoor system will be stopped if the coil temperature is above 65°C for 2 minutes. The indoor fan will be

controlled by the thermostat. The outdoor system can be restarted when the coil temperature is below 42°C and the system has been stopped for 3 minutes. The malfunction will be stored in the malfunction resume and will not be revealed.

7.1.13 Abnormal operation of indoor system

When the outdoor system operates, if the indoor system operation differs from the outdoor system, the abnormal operation malfunction will be reported. 10s after the report, the indoor system will be closed.

Outdoor system mode	Indoor system mode	conflicts
cooling	heating	yes
cooling	cooling	no
cooling	airflow	no
heating	heating	no
heating	airflow	yes
heating	cooling	yes

7.1.14 Malfunction list resume.

Nothing is presented if there is no code list.

The malfunction display will automatically finish in 10 seconds.

The remote control only receives the signals for stop. According to the signals, the malfunction resume presentation finishes.

The resume restores after the power supply restores.

7.1.15 Abnormality confirmation approaches

1. indoor temperature sensor abnormality:

Under the operation, the normal temperature ranges from 120 degree to -30 degree. When the temperature goes beyond this range, the abnormality can be confirmed. If the temperature goes back into the range, the system will automatically resume.

2 .indoor heat interaction sensor abnormality:

Under the operation, the normal temperature ranges from 120 degree to -30 degree. When the temperature goes beyond this range, the abnormality can be confirmed. If the temperature goes back into the range, the system will automatically resume.

3 .indoor malfunction:

Outdoor malfunction: When the indoor system receives the outdoor malfunction codes, it will store the code into E2 for the malfunction list resume. The indoor system will continue to operate according to the original status, the malfunction code will not be revealed or processed.

4. transmission abnormality:

If the indoor system can't receive the outdoor system for 8 minutes, the communication abnormality can be confirmed and reported and the outdoor system will be stopped.

7.1.16 Single indoor system operation

* Enter condition: First, set the high speed airflow and 30 centigrade set temperature, then press the dormant

keys for 6 times within 7 seconds, the system will feedback with 6 rings.

* After the system enters the separate indoor system operation mode, the indoor system will operate according to the set mode and neglect the communication signals of the outdoor system. However, it has to send signals to the outdoor system.

* Quitting condition: This mode can be quitted after receiving the quitting signal from the remote control or urgency system. The indoor system thus can quit the single operation mode.

7.1.17 Power cut compensation

* Entering condition: Press dormant button 10 times within 7 second, the buzzer will ring 4 times and the present system status will be stored into the EEPROM of the indoor system.

* After entering the power cut compensation mode, the processing of the indoor system should be as the followings:

Remote control urgency signal: operate according to the remote control and the urgent conditions, the present status will be stored into the EEPROM of the indoor system.

* Quitting conditions: Press dormant button 10 times within 7 seconds and the buzzer will ring twice.

7.1.18 Fixed frequency operation

1. Fixed cooling: a. under G code condition: high speed cooling, set 16°C, press temperature '-' key and the set key at the same time. The system will enter the fixed frequency operation after the buzzer rings twice.

b. The proceeding programs are as the follows:

Entering the fixed frequency operation, you can set the fixed strength location 1 and send the cooling signal to the outdoor system. Meanwhile, you can fix the indoor system at high speed mode, the location of the airflow direction board can be switched to the maximal position.

c. Quitting condition: The fixed frequency cooling can be quitted after receiving the remote signal, and the system will enter the remote setting status.

2. Fixed heating: a. under G code condition: high speed heating, set 30°C, press temperature '+' key and the set key at the same time. The system will enter the fixed frequency operation after the buzzer rings twice.

b. The proceeding programs are as the follows:

Entering the fixed frequency operation, you can set the fixed strength location 1 and send the heating signal to the outdoor system. Meanwhile, you can fix the indoor system at high speed mode, the location of the airflow direction board can be switched to the maximal position.

c. Quitting condition: The fixed frequency heating can be quitted after receiving the remote signal, and the system will enter the remote setting status.

7.1.19 Test program

First, connect the test program terminal on the mainboard. Then connect the system to the power circuit. The test program will operate as follows.

HV series display: The buzzer rings for one time—the signal will be sent to outdoor system for 0.5 second—the violet is sent for 0.5-- the background light turns to white—the back ground light turns to white—the background light turns to white—the background light is fully lighted for 0.5 second—LED screen lights for 0.5 second—the step-in motor fully output for 0.5 second—then the motor doesn't output for 0.5 second—the motor fully output again for 0.5 second. The test program finishes.

7.1.20 Time cutting function:

Connect the test program terminal on the mainboard after connecting the system to the power circuit. The CPU of the main control will be 60 times faster.

7.2 Value of thermistor

Room sensor and Pipe Sensor

R25°C=10KΩ ±3%

B25°C/50°C=3700K±3%

Temp.(°C)	Max.(KΩ)	Normal(KΩ)	Min.(KΩ)	Tolerance(°C)	
-30	165.2170	147.9497	132.3678	-1.94	1.75
-29	155.5754	139.5600	125.0806	-1.93	1.74
-28	146.5609	131.7022	118.2434	-1.91	1.73
-27	138.1285	124.3392	111.8256	-1.89	1.71
-26	130.2371	117.4366	105.7989	-1.87	1.70
-25	122.8484	110.9627	100.1367	-1.85	1.69
-24	115.9272	104.8882	94.8149	-1.83	1.67
-23	109.4410	99.1858	89.8106	-1.81	1.66
-22	103.3598	93.8305	85.1031	-1.80	1.64
-21	97.6556	88.7989	80.6728	-1.78	1.63
-20	92.3028	84.0695	76.5017	-1.76	1.62
-19	87.2775	79.6222	72.5729	-1.74	1.60
-18	82.5577	75.4384	68.8710	-1.72	1.59
-17	78.1230	71.5010	65.3815	-1.70	1.57
-16	73.9543	67.7939	62.0907	-1.68	1.55
-15	70.0342	64.3023	58.9863	-1.66	1.54
-14	66.3463	61.0123	56.0565	-1.64	1.52
-13	62.8755	57.9110	53.2905	-1.62	1.51
-12	59.6076	54.9866	50.6781	-1.60	1.49
-11	56.5296	52.2278	48.2099	-1.58	1.47
-10	53.6294	49.6244	45.8771	-1.56	1.46
-9	50.8956	47.1666	43.6714	-1.54	1.44
-8	48.3178	44.8454	41.5851	-1.51	1.42
-7	45.8860	42.6525	39.6112	-1.49	1.40

-6	43.5912	40.5800	37.7429	-1.47	1.39
-5	41.4249	38.6207	35.9739	-1.45	1.37
-4	39.3792	36.7676	34.2983	-1.43	1.35
-3	37.4465	35.0144	32.7108	-1.41	1.33
-2	35.6202	33.3552	31.2062	-1.38	1.31
-1	33.8936	31.7844	29.7796	-1.36	1.29
0	32.2608	30.2968	28.4267	-1.34	1.28
1	30.7162	28.8875	27.1431	-1.32	1.26
2	29.2545	27.5519	25.9250	-1.29	1.24
3	27.8708	26.2858	24.7686	-1.27	1.22
4	26.5605	25.0851	23.6704	-1.25	1.20
5	25.3193	23.9462	22.6273	-1.23	1.18
6	24.1432	22.8656	21.6361	-1.20	1.16
7	23.0284	21.8398	20.6939	-1.18	1.14
8	21.9714	20.8659	19.7982	-1.15	1.12
9	20.9688	19.9409	18.9463	-1.13	1.09
10	20.0176	19.0621	18.1358	-1.11	1.07
11	19.1149	18.2270	17.3646	-1.08	1.05
12	18.2580	17.4331	16.6305	-1.06	1.03
13	17.4442	16.6782	15.9315	-1.03	1.01
14	16.6711	15.9601	15.2657	-1.01	0.99
15	15.9366	15.2770	14.6315	-0.98	0.96
16	15.2385	14.6268	14.0271	-0.96	0.94
17	14.5748	14.0079	13.4510	-0.93	0.92
18	13.9436	13.4185	12.9017	-0.91	0.90
19	13.3431	12.8572	12.3778	-0.88	0.87
20	12.7718	12.3223	11.8780	-0.86	0.85
21	12.2280	11.8126	11.4011	-0.83	0.83
22	11.7102	11.3267	10.9459	-0.81	0.80
23	11.2172	10.8634	10.5114	-0.78	0.78
24	10.7475	10.4216	10.0964	-0.75	0.75
25	10.3000	10.0000	9.7000	-0.75	0.75
26	9.8975	9.5974	9.2980	-0.76	0.76
27	9.5129	9.2132	8.9148	-0.80	0.80
28	9.1454	8.8465	8.5496	-0.84	0.83
29	8.7942	8.4964	8.2013	-0.87	0.86
30	8.4583	8.1621	7.8691	-0.91	0.90
31	8.1371	7.8428	7.5522	-0.95	0.93
32	7.8299	7.5377	7.2498	-0.98	0.97
33	7.5359	7.2461	6.9611	-1.02	1.00
34	7.2546	6.9673	6.6854	-1.06	1.04
35	6.9852	6.7008	6.4222	-1.10	1.07
36	6.7273	6.4459	6.1707	-1.13	1.11
37	6.4803	6.2021	5.9304	-1.17	1.14
38	6.2437	5.9687	5.7007	-1.21	1.18

39	6.0170	5.7454	5.4812	-1.25	1.22
40	5.7997	5.5316	5.2712	-1.29	1.25
41	5.5914	5.3269	5.0704	-1.33	1.29
42	5.3916	5.1308	4.8783	-1.37	1.33
43	5.2001	4.9430	4.6944	-1.41	1.36
44	5.0163	4.7630	4.5185	-1.45	1.40
45	4.8400	4.5905	4.3500	-1.49	1.44
46	4.6708	4.4252	4.1887	-1.53	1.47
47	4.5083	4.2666	4.0342	-1.57	1.51
48	4.3524	4.1145	3.8862	-1.61	1.55
49	4.2026	3.9686	3.7443	-1.65	1.59
50	4.0588	3.8287	3.6084	-1.70	1.62
51	3.9206	3.6943	3.4780	-1.74	1.66
52	3.7878	3.5654	3.3531	-1.78	1.70
53	3.6601	3.4416	3.2332	-1.82	1.74
54	3.5374	3.3227	3.1183	-1.87	1.78
55	3.4195	3.2085	3.0079	-1.91	1.82
56	3.3060	3.0989	2.9021	-1.95	1.85
57	3.1969	2.9935	2.8005	-2.00	1.89
58	3.0919	2.8922	2.7029	-2.04	1.93
59	2.9909	2.7948	2.6092	-2.08	1.97
60	2.8936	2.7012	2.5193	-2.13	2.01
61	2.8000	2.6112	2.4328	-2.17	2.05
62	2.7099	2.5246	2.3498	-2.22	2.09
63	2.6232	2.4413	2.2700	-2.26	2.13
64	2.5396	2.3611	2.1932	-2.31	2.17
65	2.4591	2.2840	2.1195	-2.36	2.21
66	2.3815	2.2098	2.0486	-2.40	2.25
67	2.3068	2.1383	1.9803	-2.45	2.29
68	2.2347	2.0695	1.9147	-2.49	2.34
69	2.1652	2.0032	1.8516	-2.54	2.38
70	2.0983	1.9393	1.7908	-2.59	2.42
71	2.0337	1.8778	1.7324	-2.63	2.46
72	1.9714	1.8186	1.6761	-2.68	2.50
73	1.9113	1.7614	1.6219	-2.73	2.54
74	1.8533	1.7064	1.5697	-2.78	2.58
75	1.7974	1.6533	1.5194	-2.83	2.63
76	1.7434	1.6021	1.4710	-2.88	2.67
77	1.6913	1.5528	1.4243	-2.92	2.71
78	1.6409	1.5051	1.3794	-2.97	2.75
79	1.5923	1.4592	1.3360	-3.02	2.80
80	1.5454	1.4149	1.2942	-3.07	2.84
81	1.5000	1.3721	1.2540	-3.12	2.88
82	1.4562	1.3308	1.2151	-3.17	2.93
83	1.4139	1.2910	1.1776	-3.22	2.97

84	1.3730	1.2525	1.1415	-3.27	3.01
85	1.3335	1.2153	1.1066	-3.32	3.06
86	1.2953	1.1794	1.0730	-3.38	3.10
87	1.2583	1.1448	1.0405	-3.43	3.15
88	1.2226	1.1113	1.0092	-3.48	3.19
89	1.1880	1.0789	0.9789	-3.53	3.24
90	1.1546	1.0476	0.9497	-3.58	3.28
91	1.1223	1.0174	0.9215	-3.64	3.33
92	1.0910	0.9882	0.8942	-3.69	3.37
93	1.0607	0.9599	0.8679	-3.74	3.42
94	1.0314	0.9326	0.8424	-3.80	3.46
95	1.0030	0.9061	0.8179	-3.85	3.51
96	0.9756	0.8806	0.7941	-3.90	3.55
97	0.9490	0.8558	0.7711	-3.96	3.60
98	0.9232	0.8319	0.7489	-4.01	3.64
99	0.8983	0.8088	0.7275	-4.07	3.69
100	0.8741	0.7863	0.7067	-4.12	3.74
101	0.8507	0.7646	0.6867	-4.18	3.78
102	0.8281	0.7436	0.6672	-4.23	3.83
103	0.8061	0.7233	0.6484	-4.29	3.88
104	0.7848	0.7036	0.6303	-4.34	3.92
105	0.7641	0.6845	0.6127	-4.40	3.97
106	0.7441	0.6661	0.5957	-4.46	4.02
107	0.7247	0.6482	0.5792	-4.51	4.07
108	0.7059	0.6308	0.5632	-4.57	4.12
109	0.6877	0.6140	0.5478	-4.63	4.16
110	0.6700	0.5977	0.5328	-4.69	4.21
111	0.6528	0.5820	0.5183	-4.74	4.26
112	0.6361	0.5667	0.5043	-4.80	4.31
113	0.6200	0.5518	0.4907	-4.86	4.36
114	0.6043	0.5374	0.4775	-4.92	4.41
115	0.5891	0.5235	0.4648	-4.98	4.45
116	0.5743	0.5100	0.4524	-5.04	4.50
117	0.5600	0.4968	0.4404	-5.10	4.55
118	0.5460	0.4841	0.4288	-5.16	4.60
119	0.5325	0.4717	0.4175	-5.22	4.65
120	0.5194	0.4597	0.4066	-5.28	4.70

8 System configuration

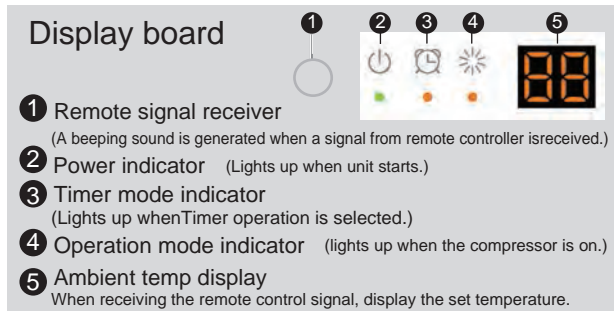
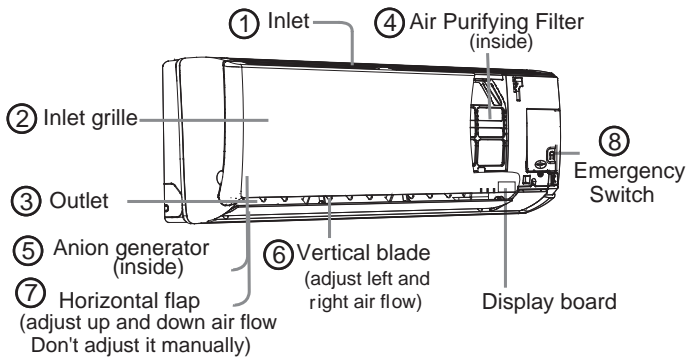
8.1 System configuration

After the installation and test operation of the room air conditioner have been completed, it should be operated and handled as described below. Every user would like to know the correct method of operation of the room air conditioner, to check if it is capable of cooling(or heating) well, and to know a clever method of using it. In order to meet this expectation of the users, giving sufficient explanations taking enough time can be said to reduce about 80% of the requests for servicing. However good the installation work is and however good the functions are, the customer may blame either the room air conditioner or its installation work because of improper handling. The installation work and handing over of the unit can only be considered to have been completed when its handling has been explained to the user without using technical terms but giving full knowledge of the equipment.

8.2 Instruction

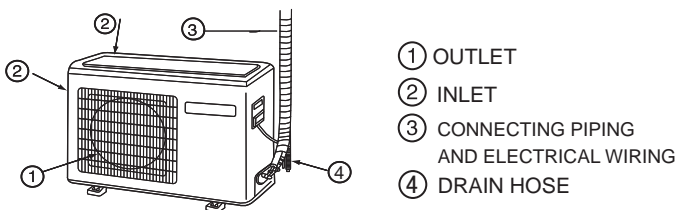
Parts and Functions

Indoor Unit

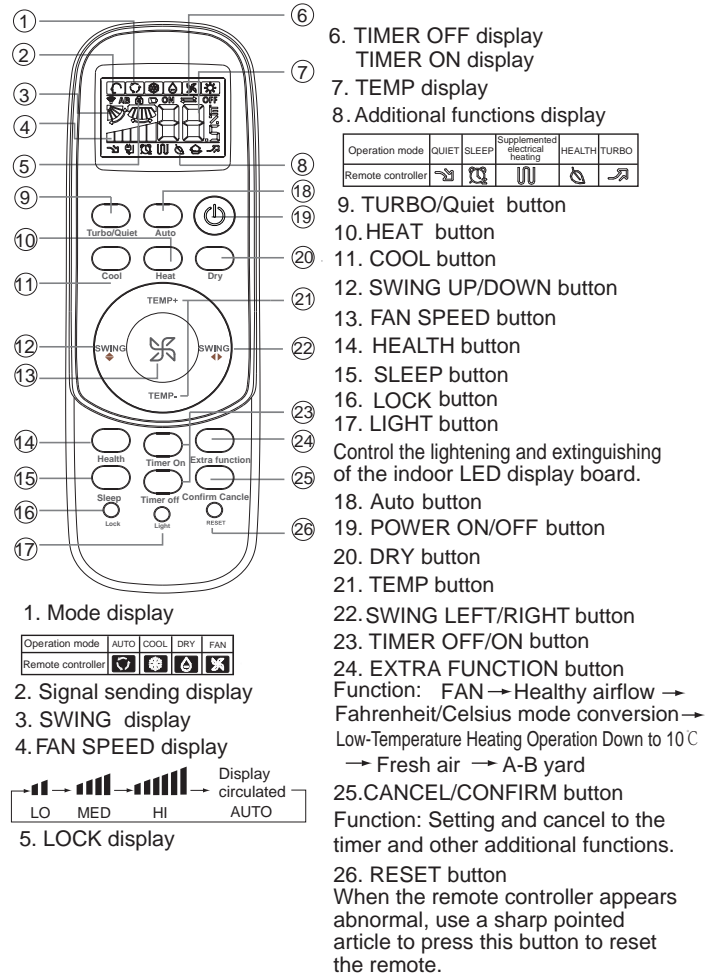


Actual inlet grille may vary from the one shown in the manual according to the product purchased

Outdoor Unit



Remote controller

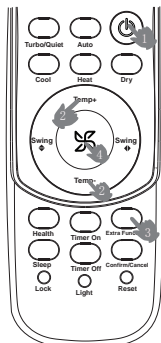


Healthy function is not available for some units.

Operation

Base Operation

Remote controller



1. Unit start

Press ON/OFF on the remote controller, unit starts.

2. Select temp. setting

Press TEMP+ / TEMP- button

TEMP+ Every time the button is pressed, temp.setting increase 1°C,if kept depressed, it will increase rapidly

TEMP- Every time the button is pressed, temp.setting decrease 1°C,if kept depressed, it will decrease rapidly

Select a desired temperature.

3. Fan function

Press EXTRA FUNCTION button to enter additional options, when cycle display to , will flash. And then press CONFIRM/CANCEL enter to FAN function.

For each press button fan speed changes as follows:

Remote controller:



Air conditioner is running under displayed fan speed. When FAN is set to AUTO, the air conditioner automatically adjusts the fan speed according to room temperature.

Operation Mode	Remote Controller	Note
AUTO		Under the mode of auto operation, air conditioner will automatically select Cool or Heat operation according to room temperature. When FAN is set to AUTO, the air conditioner automatically adjusts the fan speed according to room temperature.
COOL		Cooling only unit do not have displays and functions related with heating
DRY		In DRY mode, when room temperature becomes lower than temp.setting+2°C,unit will run intermittently at LOW speed regardless of FAN setting.
HEAT		In HEAT mode,warm air will blow out after a short periodof the time due to cold-draft prevention function.
FAN		In FAN operation mode, the unit will not operate in COOL or HEAT mode but only in FAN mode ,AUTO is not available in FAN mode.And temp.setting is disabled. When FAN is set to AUTO, the air conditioner automatically adjusts the fan speed according to room temperature. In FAN mode,SLEEP operation is not available.

Emergency operation and test operation

Emergency Operation:

- Use this operation only when the remote controller is defective or lost, and with function of emergency running, air conditioner can run automatically for a while.
- When the emergency operation switch is pressed, the " Pi " sound is heard once, which means the start of this operation.
- When power switch is turning on for the first time and emergency operation starts, the unit will run automatically in the following modes:

Room temperature	Designated temperature	Timer mode	Fan speed	Operation mode
Above 23°C	26°C	No	AUTO	COOL

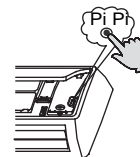


- It is impossible to change the settings of temp. and fan speed,It is also not possible to operate in timer or dry mode.

Test operation:

Test operation switch is the same as emergency switch.

- Use this switch in the test operation when the room temperature is below 16°C, do not use it in the normal operation.
- Continue to press the test operation switch for more than 5 seconds. After you hear the "Pi" sound twice, release your finger from the switch: the cooling operation starts with the air flow speed "Hi".
- Under this operation mode,the fan motor of indoor unit will run in high speed.

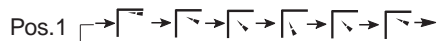


Air Flow Direction Adjustment

1. Status display of air flow Vertical flap

For each press of SWING button, remote controller displays as follows :

remote controller:



Initial state

Pos.2 No initial state displayed on remote controller, the vertical flap will be fixed on the current position

2. Left and right air flow adjustment

For each press of SWING button, remote controller displays as follows :

remote controller:



Cautions:


- When adjusting the flap by hand,turn off the unit.
- When humidity is high,condensate water might occur adjusted to left or at air outlet if all vertical louvers are right.
- It is advisable not to keep horizontal flap at downward position for a long time in COOL or DRY mode , otherwise, condensate water might occur.

Note:

When restart after remote turning off, the remote controller will automatically memorize the previous set swing position.

Operation

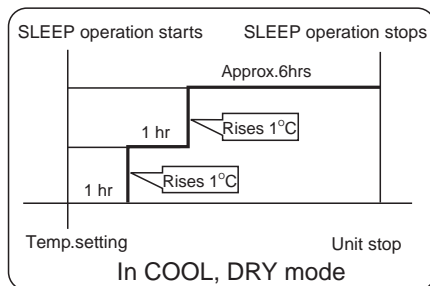
Comfortable SLEEP

Press **SLEEP** button, the remote controller will show , and then achieve to the sleep function. Press again this **SLEEP** button, the sleep function will be cancelled.

Operation Mode

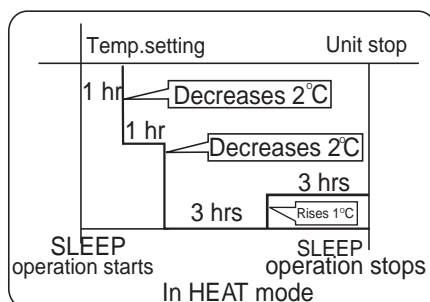
1. In COOL, DRY mode

1 hours after SLEEP mode starts, temp. will become 1°C higher than temp. setting. After another 1 hours, temp. rises by 1°C further. The unit will run for further 6 hours then stops. Temp. is higher than temp. setting so that room temperature won't be too low for your sleep.



2. In HEAT mode

1 hours after SLEEP mode starts, temp will become 2°C lower than temp. setting. After another 1 hours, temp decrease by 2°C further. After more another 3 hours, temp. rises by 1°C further. The unit will run for further 3 hours then stops. Temp. is lower than temp. setting so that room temperature won't be too high for your sleep.



3. In AUTO mode

The unit operates in corresponding sleep mode corresponding sleep mode adapted to the automatically selected operation mode.

4. In FAN mode

It has no SLEEP function.

5. When quiet sleeping function is set to 8 hours the quiet sleeping time can not be adjusted. When TIMER function is set, the quiet sleeping function can't be set up. After the sleeping function is set up, if user resets TIMER function, the sleeping function will be cancelled; the machine will be in the state of timing-on, if the two modes are set up at the same time, either of their operation time is ended first, the unit will stop automatically, and the other mode will be cancelled.

Note

When TIMER function is set, the sleeping function can't be set up. After the sleeping function is set up, if user resets TIMER function, the sleeping function will be cancelled; the machine will be in the state of timing-on.

Note to the power failure resume:

Press the sleep button ten times in five seconds and enter function after hearing four sounds. And press the sleep button ten times within five seconds and leave this function after hearing two sounds.

Power Failure Resume Function

If the unit is started for the first time, the compressor will not start running unless 3 minutes have elapsed. When the power resumes after power failure, the unit will run automatically, and 3 minutes later the compressor starts running.

Healthy airflow Operation

1. Press to starting

Setting the comfort work conditions.

2. The setting of healthy airflow function

Press **EXTRA FUNCTION** button to enter additional options, Press this button continuously, the louvers location will cycle between in the following three locations, to choose the swing location what you needed, and then press **CONFIRM/CANCEL** button to confirm.




3. The cancel of the healthy airflow function

Press **EXTRA FUNCTION** button to enter additional options, Press this button continuously, the louvers location will cycle between in the following three locations again, and then press **CONFIRM/CANCEL** button to cancel.

Notice: Do not direct the flap by hand. Otherwise, the grille will run incorrectly. If the grille is not run correctly, stop for a minute and then start, adjusting by remote controller.

Note:


1. After setting the healthy airflow function, the position grill is fixed.
2. In cooling, it is better to select the  mode.
3. In cooling and dry, using the air conditioner for a long time under the high air humidity, condensate water may occur at the grille.


Operation

Timer On/Off On-Off Operation

1. After unit starts, select your desired operation mode.

2. Press  /  button to change TIMER mode.

Press  button "ON 0.5 " will appear ,after 10 seconds the time display will be blank.

Press  button "OFF 0.5 " will appear ,after 10 seconds the time display will be blank.

Then select your desired TIMER mode (TIMER ON or TIMER OFF). " ON "or " OFF "will flash.

3. Press  /  button to set time.

Press the button for each time, setting time in the first 12 hours increased by 0.5 hour every time, after 12 hours,increased by 1 hour every time.

4. Confirm timer setting

After adjust the time,press  button and confirm the time ON or OFF button will not flash any more.

5. Cancel timer setting

Press the  button the time display eliminated.


Hints:

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

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

HEALTH Operation

(This function is unavailable on some models.)

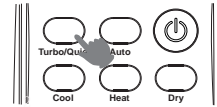
Press HEALTH button , the remote controller will show  and then achieve to the health function.

Press again this HEALTH button , the health function will be cancelled.


The anion generator in the airconditioner can generate a lot of anion effectively balance the quantity of position and anion in the air and also to kill bacteria and speed up the dust sediment in the room and finally clean the air in the room.

TURBO Operation

(This function is unavailable on some models.)



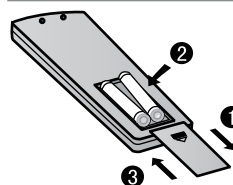
When you need fast cool or fast dehumidification,you can choose the Turob function; when you sleep, read, you can choose Quiet function

Press the  button, you can switch the "Turbo" and "Quiet" function easily. Eevery press,the remote controller will swith as below



When running in Turbo , the fan speed is the highest, when running in Quiet, the fan speed is super slow

Loading of the battery



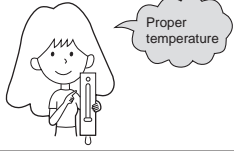

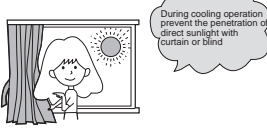
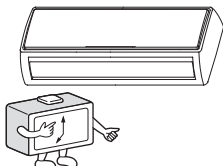


- 1 Remove the battery cover;
- 2 Load the batteries as illustrated. 2 R-03 batteries, resetting key (cylinder);
- 3 Be sure that the loading is in line with the " + " / " - " ;
- 4 Load the battery,then put on the cover again.

Note:


- The distance between the signal transmission head and the receiver hole should be within 7m without any obstacle as well.
- When electronic-started type fluorescent lamp or change-over type fluorescent lamp or wireless telephone is installed in the room, the receiver is apt to be disturbed in receiving the signals, so the distance to the indoor unit should be shorter.
- Full display or unclear display during operation indicates the batteries have been used up. Please change batteries.
- If the remote controller can't run normally during operation, please remove the batteries and reload several minutes later.

Maintenance

For Smart Use of The Air Conditioner


<p>Setting of proper room temperature</p> 	<p>Do not block the air inlet or outlet</p> 
<p>Close doors and windows during operation</p> 	<p>Use the timer effectively</p> 
<p>If the unit is not to be used for a long time, turn off the power supply main switch.</p> 	<p>Use the louvers effectively</p> 

Remote Controller




Do not use water, wipe the controller with a dry cloth. Do not use glass cleaner or chemical cloth.

Indoor Body




Wipe the air conditioner by using a soft and dry cloth. For serious stains, use a neutral detergent diluted with water. Wring the water out of the cloth before wiping, then wipe off the detergent completely.

Do not use the following for cleaning



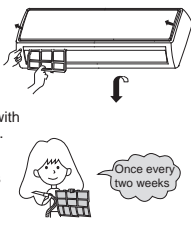
Gasoline, benzene, thinner or cleanser may damage the coating of the unit.



Hot water over 40°C (104°F) may cause discoloring or deformation.

Air Filter cleaning

- 1 Open the inlet grille by pulling it upward.
- 2 Remove the filter.
Push up the filter's center tab slightly until it is released from the stopper, and remove the filter downward.
- 3 Clean the filter.
Use a vacuum cleaner to remove dust, or wash the filter with water. After washing, dry the filter completely in the shade.
- 4 Attach the filter.
Attach the filter correctly so that the "FRONT" indication is facing to the front. Make sure that the filter is completely fixed behind the stopper. If the right and left filters are not attached correctly, that may cause defects.
- 5 Close the inlet grille.

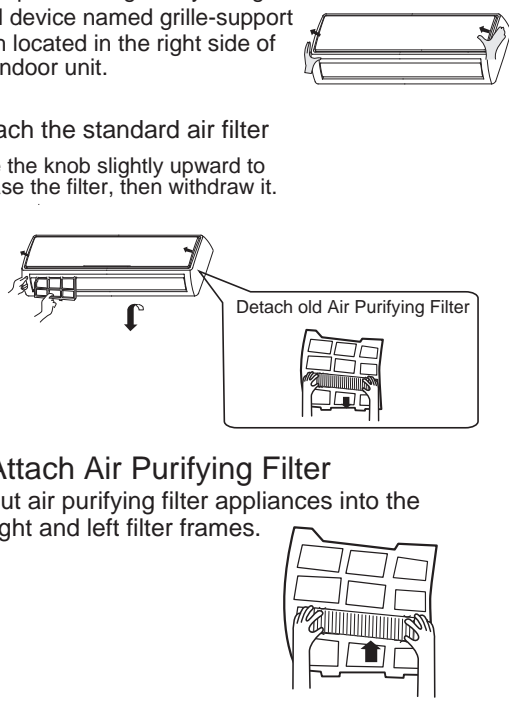


Once every two weeks

Replacement of Air Purifying Filter

(NOTE: Air purifying filter is optional part)

1. Open the Inlet Grille
Prop up the inlet grille by using a small device named grille-support which located in the right side of the indoor unit.
2. Detach the standard air filter
Slide the knob slightly upward to release the filter, then withdraw it.
3. Attach Air Purifying Filter
Put air purifying filter appliances into the right and left filter frames.



4. Attach the standard air filter
(Necessary installation)
5. Close the Inlet Grille
Close the Grille surely

ATTENTION:
The white side of the photocatalyst air purifying filter face outside, and the black side face the unit.
The green side of the bacteria-killing medium air purifying filter face outside, and the white side face the unit.

NOTE:

- The photocatalyst air purifying filter will be solarized in fixed time. In normal family, it will be solarized every 6 months.
- The bacteria-killing medium air purifying filter will be used for a long time, no need for replacement. But in the period of using them, you should remove the dust frequently by using vacuum cleaner or flapping them lightly, otherwise, its performance will be affected.
- Please keep the bacteria-killing medium air purifying filter in the cool and dry conditions avoid long time directly sunshine when you stop using it, or its ability of sterilization will be reduced.

Cautions

⚠ WARNING

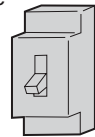
Please call Sales/Service Shop for the Installation.
Do not attempt to install the air conditioner by yourself because improper works may cause electric shock, fire, water leakage.

⚠ WARNING

When abnormality such as burnt-smell found, immediately stop the operation button and contact sales shop.



Use an exclusive power source with a circuit breaker



Check proper installation of the drainage securely



Connect power supply cord to the outlet completely



Use the proper voltage



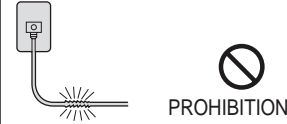
1. Do not use power supply cord extended or connected in halfway
2. Do not install in the place where there is any possibility of inflammable gas leakage around the unit.
3. Do not get the unit exposed to vapor or oil steam.



Do not use power supply cord in a bundle.



Take care not to damage the power supply cord.



Do not insert objects into the air inlet or outlet.



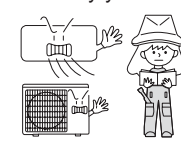
Do not start or stop the operation by disconnecting the power supply cord and so on.



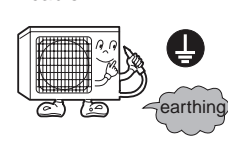
Do not channel the air flow directly at people, especially at infants or the aged.



Do not try to repair or reconstruct by yourself.



Connect the earth cable.



⚠ CAUTION

Do not use for the purpose of storage of food, art work, precise equipment, breeding, or cultivation.



Take fresh air occasionally especially when gas appliance is running at the same time.



Do not operate the switch with wet hand.



Do not install the unit near a fireplace or other heating apparatus.



Check good condition of the installation stand



Do not pour water onto the unit for cleaning



Do not place animals or plants in the direct path of the air flow



Do not place any objects on or climb on the unit.








Do not place flower vase or water containers on the top of the unit.



Trouble shooting

Before asking for service, check the following first.

	Phenomenon	Cause or check points
Normal Performance inspection	The system does not restart immediately. 	<ul style="list-style-type: none"> When unit is stopped, it won't restart immediately until 3 minutes have elapsed to protect the system. When the electric plug is pulled out and reinserted, the protection circuit will work for 3 minutes to protect the air conditioner.
	Noise is heard 	<ul style="list-style-type: none"> During unit operation or at stop, a swishing or gurgling noise may be heard. At first 2-3 minutes after unit start, this noise is more noticeable. (This noise is generated by refrigerant flowing in the system.) During unit operation, a cracking noise may be heard. This noise is generated by the casing expanding or shrinking because of temperature changes. Should there be a big noise from air flow in unit operation, air filter may be too dirty.
	Smells are generated.	<ul style="list-style-type: none"> This is because the system circulates smells from the interior air such as the smell of furniture, paint, cigarettes.
	Mist or steam are blown out. 	<ul style="list-style-type: none"> During COOL or DRY operation, indoor unit may blow out mist. This is due to the sudden cooling of indoor air.
	In dry mode, fan speed can't be changed.	<ul style="list-style-type: none"> In DRY mode, when room temperature becomes lower than temp. setting+2 °C, unit will run intermittently at LOW speed regardless of FAN setting.
Multiple check		<ul style="list-style-type: none"> Is power plug inserted? Is there a power failure? Is fuse blownout?
	Poor cooling 	<ul style="list-style-type: none"> Is the air filter dirty? Normally it should be cleaned every 15 days. Are there any obstacles before inlet and outlet? Is temperature set correctly? Are there some doors or windows left open? Is there any direct sunlight through the window during the cooling operation?(Use curtain) Are there too much heat sources or too many people in the room during cooling operation?

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.
- This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of appliance by person responsible for their safety. Children should be supervised to ensure that they do not play with the appliance.

Specifications

- The refrigerating circuit is leak-proof.

The machine is adaptive in following situation

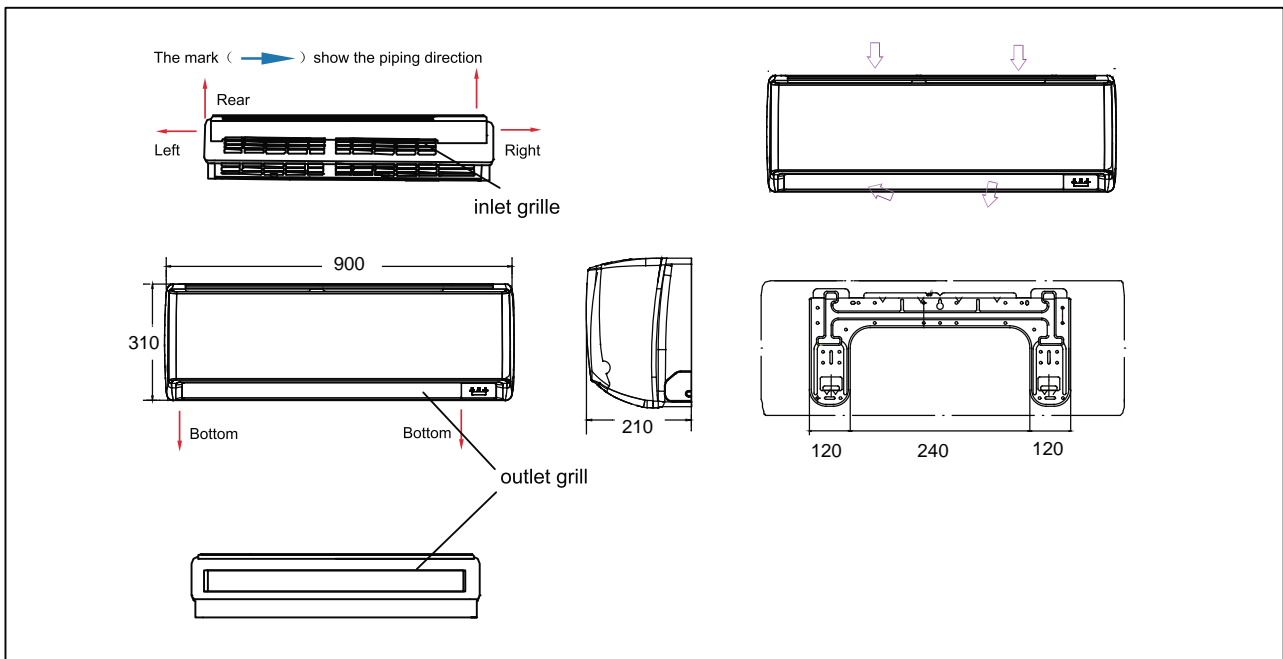
1. Applicable ambient temperature range:

Cooling	Indoor	Maximum:D.B/W.B 32°C/23°C Minimum:D.B/W.B 21°C/15°C
	Outdoor	Maximum:D.B/W.B 43°C/26°C Minimum: D.B 18°C
Heating	Indoor	Maximum:D.B 27°C Minimum: D.B 15°C
	Outdoor	Maximum:D.B/W.B 24°C/18°C Minimum:D.B/W.B -7°C/-8°C
	Outdoor (INVERTER)	Maximum:D.B/W.B 24°C/18°C Minimum:D.B -15°C

- If the power supply cord is damaged, it must be replaced by the manufacturer or its service agent or a similar qualified person.
- If the fuse of indoor unit on PC board is broken, please change it with the type of T. 3.15A/ 250V. If the fuse of outdoor unit is broken, change it with the type of T.25A/250V
- The wiring method should be in line with the local wiring standard.
- After installation, the power plug should be easily reached.
- The waste battery should be disposed properly.
- Please employ the proper power plug, which fit into the power supply cord.
- The power plug and connecting cable must have acquired the local attestation.
- In order to protect the units, please turn off the A/C first, and at least 30 seconds later, cutting off the power.
- Please check the installation instruction of WiFi in the WiFi module

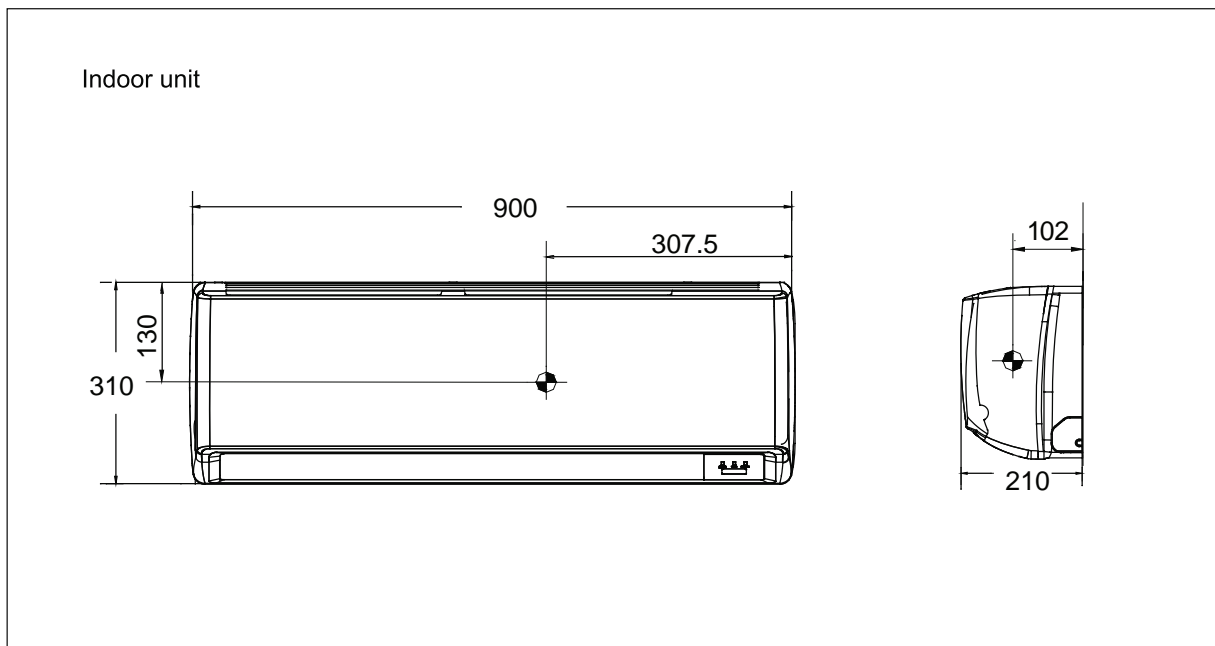
9. Dimensional drawings

unit:mm



10. Center of gravity

unit:mm



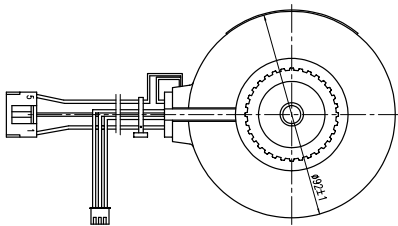
11 Service Diagnosis

11.1 Caution for Diagnosis

The operation lamp flashes when any of the following errors is detected.

1. When a protection device of the indoor or outdoor unit is activated or when the thermistor malfunctions, disabling equipment operation.
2. When a signal transmission error occurs between the indoor and outdoor units. In either case, conduct the diagnostic procedure described in the following pages.

11.2 Parameter of primary electronic appliance

NO	Name	Parameter	Picture
1	Fan motor	Rated voltage: DC310V Rated current: 0.38A Rated frequency: –	

11.3 Problem Symptoms and Measures

Symptom	Check Item	Details of Measure
None of the units operates	Check the power supply.	Check to make sure that the rated voltage is supplied.
	Check the indoor PCB.	Check to make sure that the indoor PCB is broken.
Operation sometimes stops	Check the power supply.	A power failure of 2 to 10 cycles can stop air conditioner operation.
Equipment operates but does not cool, or does not heat (only for heat pump)	Check for faulty operation of the electronic expansion valve.	Set the units to cooling operation, and compare the temperatures of the liquid side connection pipes of the connection section among rooms to check the opening and closing operation of the electronic expansion valves of the individual units.
	Diagnosis by service port pressure and operating current.	Check for insufficient gas.
Large operating noise and vibrations	Check the installation condition.	Check to make sure that the required spaces for installation (specified in the Technical Guide, etc.) are provided.

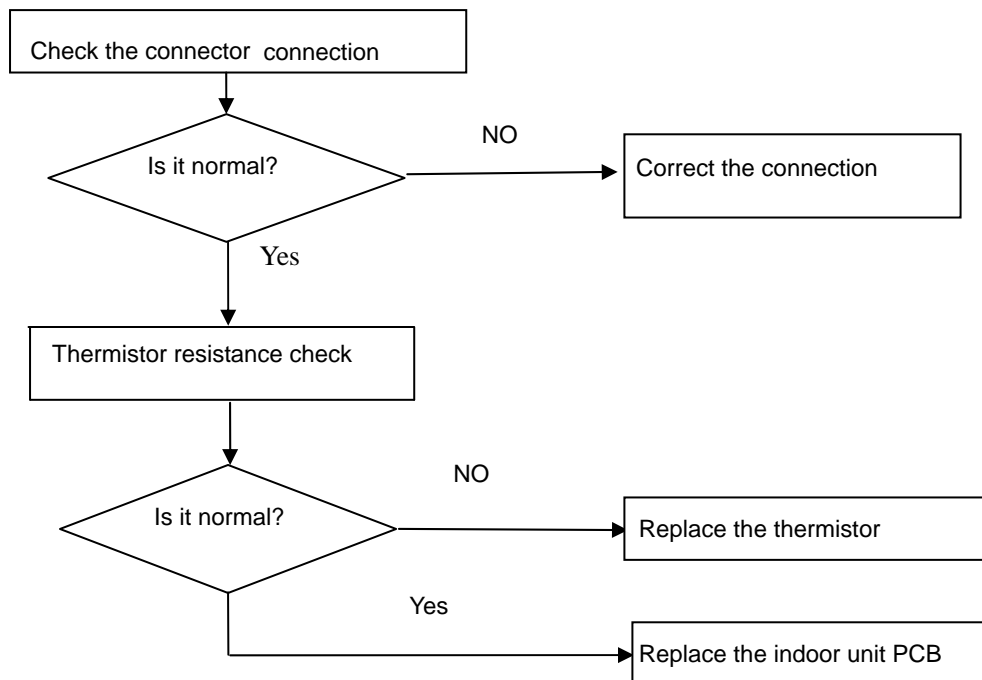
11.4 Error Codes and Description indoor display

	Code indication		fault description	Reference Page
	Indoor displaying panel code indication	Outdoor (LED1 flash times)		
Indoor and Outdoor	E7	15	Communication fault between indoor and outdoor units	Page .45
Indoor Malfunction	E1	--	Room temperature sensor failure	Page .36
	E2	--	Heat-exchange sensor failure	Page .36
	E4	--	Indoor EEPROM error	Page .37
	E14	--	Indoor fan motor malfunction	Page .38
Outdoor Malfunction	F12	1	Outdoor EEPROM error	Page .37
	F1	2	The protection of IPM	Page .41
	F22	3	Overcurrent protection of AC electricity for the outdoor model	Page .42
	F3	4	Communication fault between the IPM and outdoor PCB	Page.43
	F19	6	Power voltage is too high or low	Page .44
	F4	8	Overheat protection for Discharge temperature	Page .45
	F8	9	Outdoor DC fan motor fault	Page .40
	F21	10	Defrost temperature sensor failure	Page .36
	F7	11	Suction temperature sensor failure	Page .36
	F6	12	Ambient temperature sensor failure	Page .36
	F25	13	Discharge temperature sensor failure	Page .36
	F11	18	deviate from the normal for the compressor	Page .48
	F28	19	Loop of the station detect error	Page .48
	F2	24	Overcurrent of the compressor	Page .42
	F23	25	Overcurrent protection for single-phase of the compressor	Page .42
	E9	21	High work-intense protection	Page .49

11.4.1 Thermistor or Related Abnormality

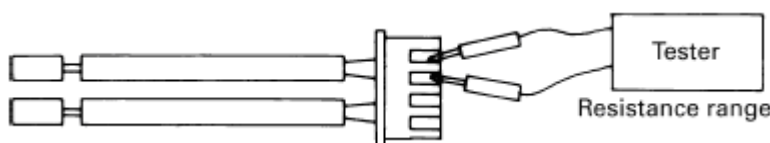
Indoor display	E1: Room temperature sensor failure E2: Heat-exchange sensor failure
Outdoor display	LED1 flash 10 times: Defrost temperature sensor failure LED1 flash 11 times: Suction temperature sensor failure LED1 flash 12 times: Ambient temperature sensor failure LED1 flash 13 times: Discharge temperature sensor failure

Method of malfunction detection	The temperatures detected by the thermistors are used to determine thermistor errors
Malfunction detection conditions	when the thermistor input is more than 4.92V or less than 0.08V during compressor operation. ● Note: The values vary slightly in some models
*Thermistor resistance check	<ul style="list-style-type: none"> ■ Faulty connector connection ■ Faulty thermistor ■ Faulty PCB
Troubleshooting	* Caution Be sure to turn off power switch before connect or disconnect connector, or else parts damage may be occurred.



Thermistor resistance check method:

Remove the connector of the thermistor on the PCB, and measure the resistance of thermistor using tester. The relationship between normal temperature and resistance is shown in the value of indoor thermistor.



11.4.2 EEPROM abnormal

Indoor Display E4: indoor EEPROM error
 outdoor display F12: Outdoor EEPROM error; Outdoor LED1 flash 1 times

Method of
malfunction
detection

The Data detected by the EEPROM are used to determine MCU

Malfunction
detection
conditions

when the data of EEPROM is error or the EEPROM is damaged

Supposed
causes

- Faulty EEPROM data
- Faulty EEPROM
- Faulty PCB

Troubleshooting

* Caution Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.

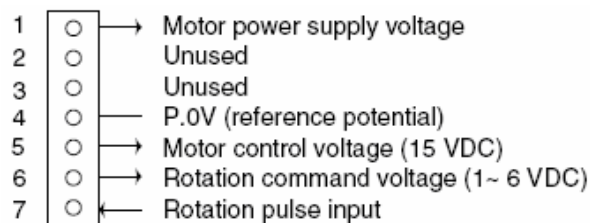
Replace the indoor or outdoor mainboard

11.4.3 Indoor fan motor malfunction

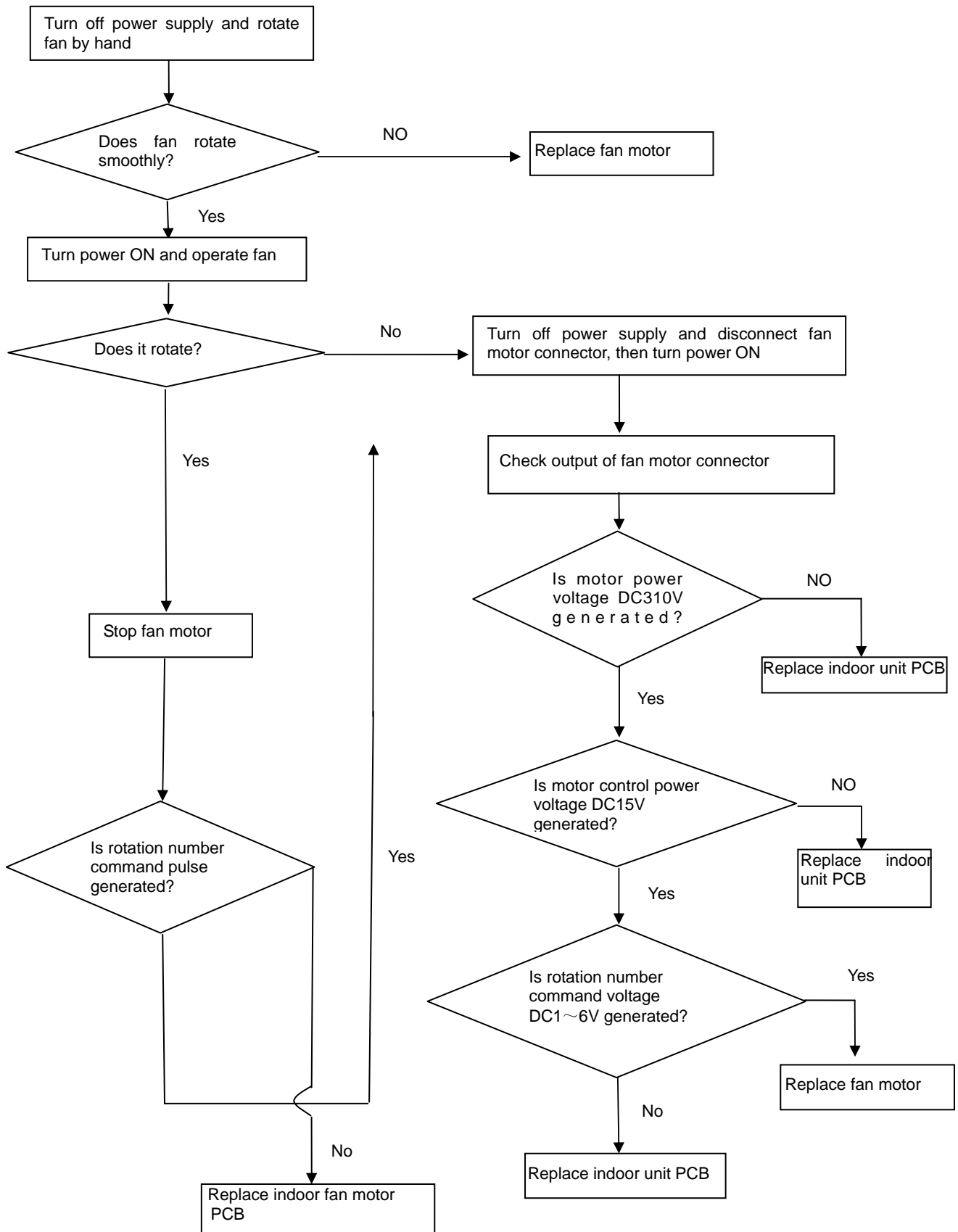
Indoor Display	E14
Method of Malfunction Detection	The rotation speed detected by the Hall IC during fan motor operation is used to determine abnormal fan motor operation
Malfunction Decision Conditions	when the detected rotation feedback signal don't received in 2 minutes
Supposed Causes	<ul style="list-style-type: none"> ■ Operation halt due to breaking of wire inside the fan motor . ■ Fan motor overheat protection ■ Operation halt due to breaking of the fan motor lead wires ■ Detection error due to faulty indoor unit PCB
Troubleshooting	<p>* Caution Be sure to turn off power switch before connect or disconnect connector, or else parts damage may be occurred.</p>

How to check Fan Motor (DC)

1. Check connector connection.
2. Check motor power supply voltage output (pins 1-4).
3. Check motor control voltage (pins 4-5).
4. Check rotation command voltage output (pins 4-6).
5. Check rotation pulse input (pins 4-7).

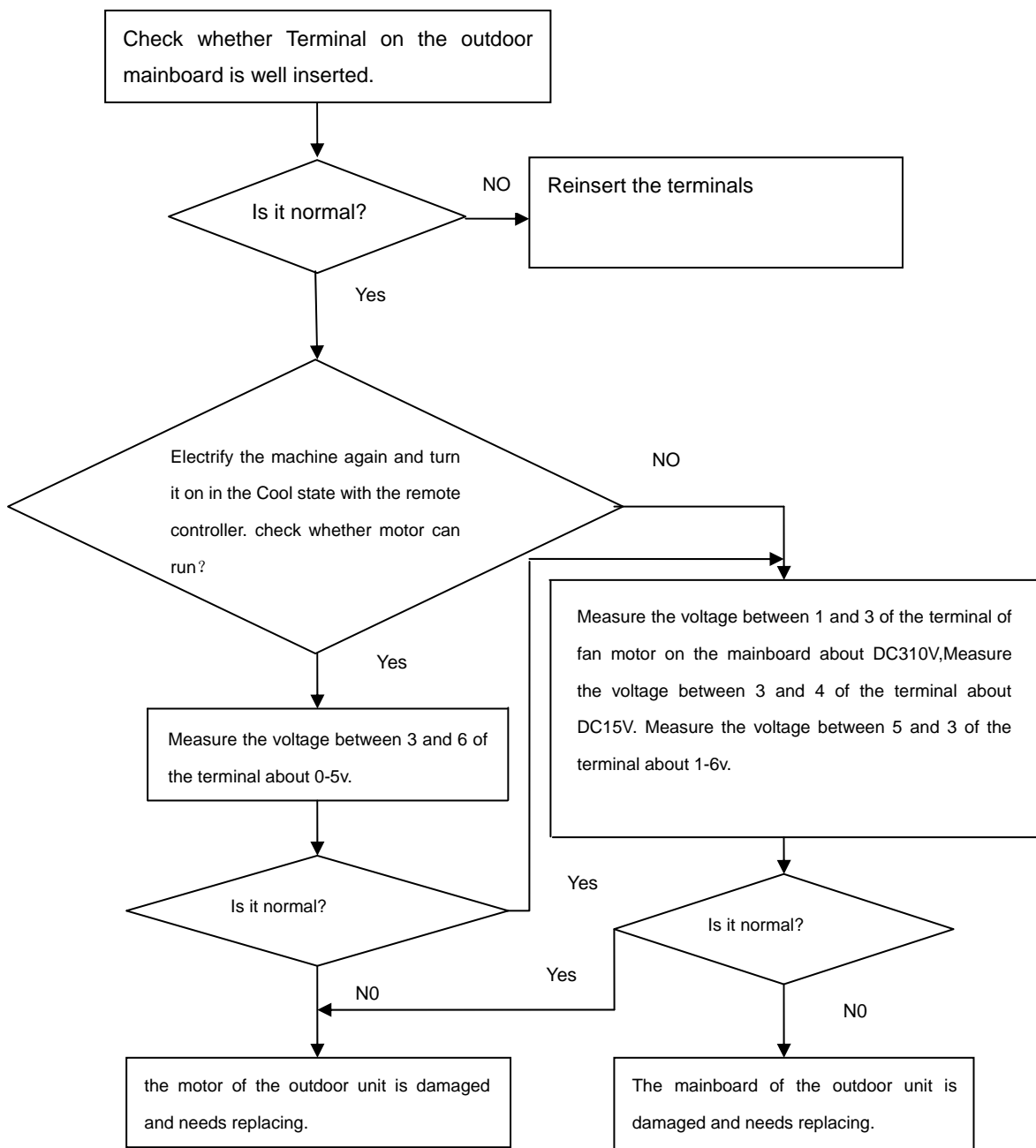


Notes: the a/c is electrifying, don't pull out or insert the terminals of the motor, else the motor would be damaged.



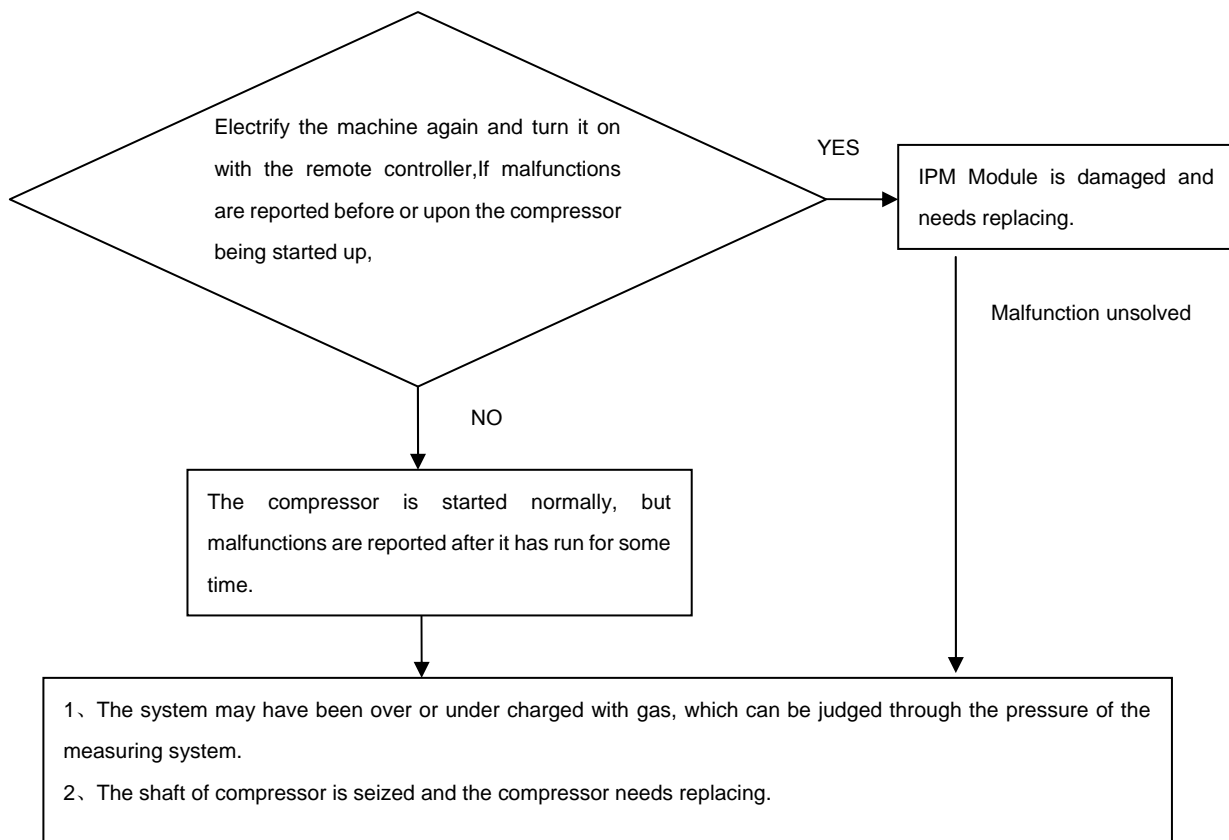
11.4.4 Outdoor DC fan motor fault

Outdoor display	LED1 flash 9 times
Method of malfunction detection	DC fan motor is detected by checking the fan running condition and so on
Malfunction detection conditions	when the data of EEPROM is error or the EEPROM is damaged
Supposed causes	<ul style="list-style-type: none"> ■DC fan motor protection dues to the DC fan motor faulty ■DC fan motor protection dues to faulty PCB
Troubleshooting	<p>* Caution</p> <p>Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.</p>



11.4.5 IPM protection

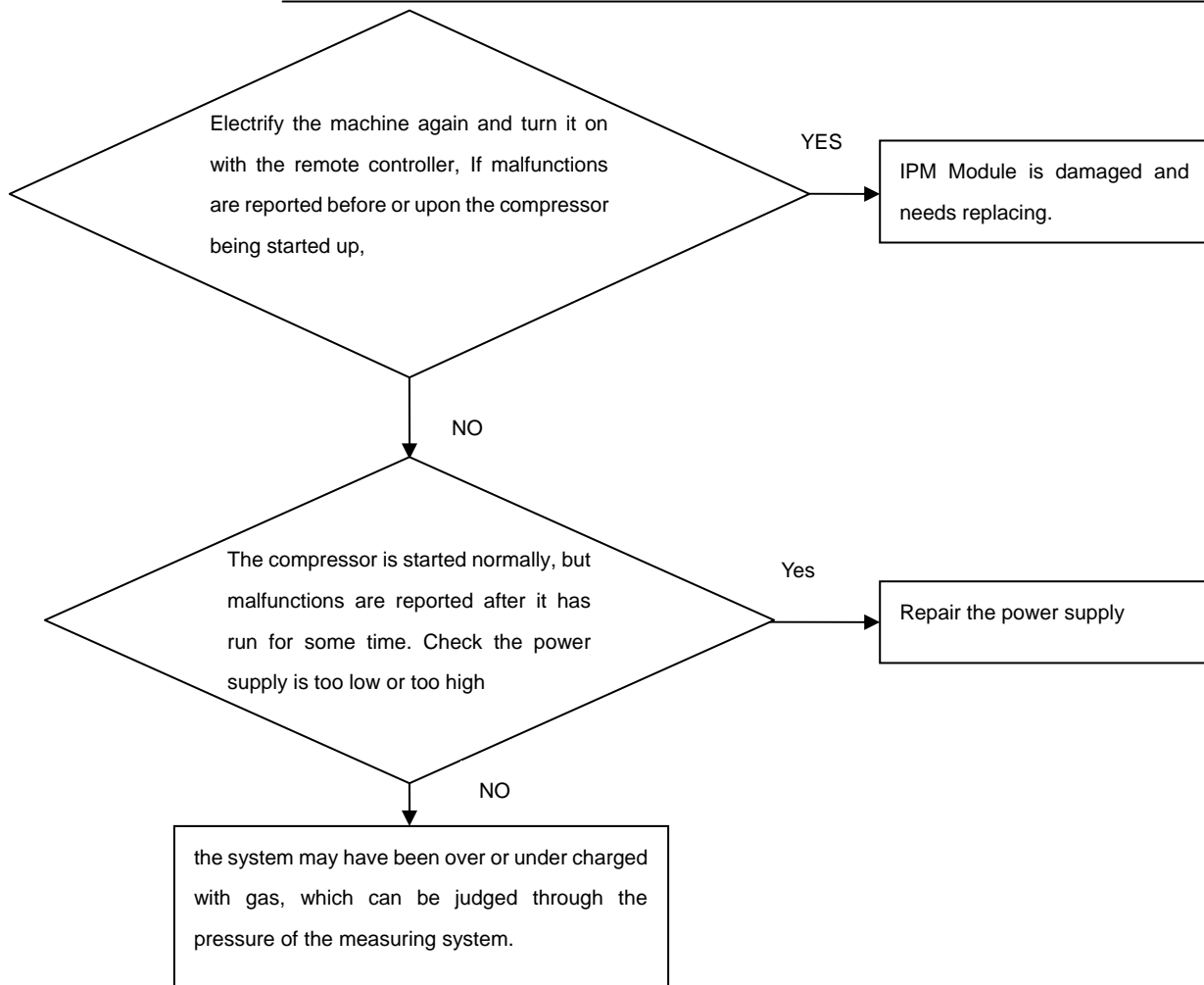
Outdoor display	LED1 flash 2 times
Method of malfunction detection	IPM protection is detected by checking the compressor running condition and so on
Malfunction detection conditions	<ul style="list-style-type: none"> ■The system leads to IPM protection due to over current ■The compressor faulty leads to IPM protection ■circuit component of IPM is broken and led to IPM protection
Supposed causes	<ul style="list-style-type: none"> ■IPM protection dues to the compressor faulty ■IPM protection dues to faulty PCB of IPM module ■Compressor wiring disconnected
Troubleshooting	<p>* Caution</p> <p>Be sure to turn off power switch before connect or disconnect connector, or else parts damage may be occurred..</p>



11.4.6 Over-current of the compressor

Outdoor display LED1 flash 3 or 24 or 25 times

Method of malfunction detection	the current of the compressor is too high
Malfunction detection conditions	when the IPM Module is damaged or the compressor is damaged. power supply voltage is too low or too high
Supposed causes	<ul style="list-style-type: none"> ■ Faulty IPM Module ■ Faulty compressor ■ Faulty power supply
Troubleshooting	<p>* Caution</p> <p>Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred...</p>

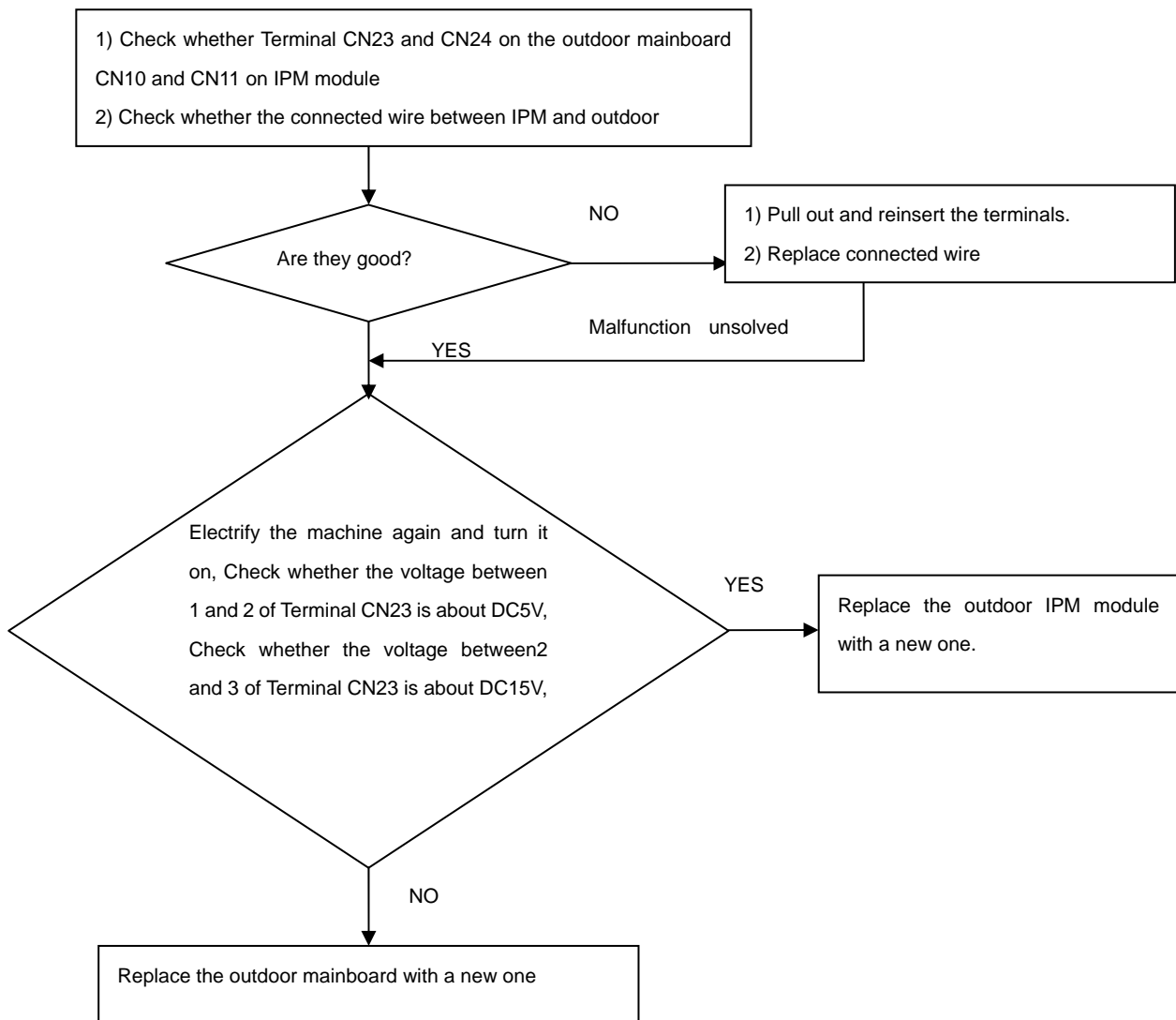


11.4.7 The communication fault between IPM and outdoor PCB

Outdoor display

LED1 flash 4 times

Method of malfunction detection	Communication is detected by checking the IPM module and the outdoor PCB
Malfunction detection conditions	<ul style="list-style-type: none"> ■The outdoor PCB broken leads to communication fault ■The IPM module broken leads to communication fault
Supposed causes	<ul style="list-style-type: none"> ■The outdoor PCB is broken ■The IPM module is broken ■Communication wiring disconnected
Troubleshooting	<p>* Caution</p> <p>Be sure to turn off power switch before connect or disconnect connector, or else parts damage may be occurred</p>

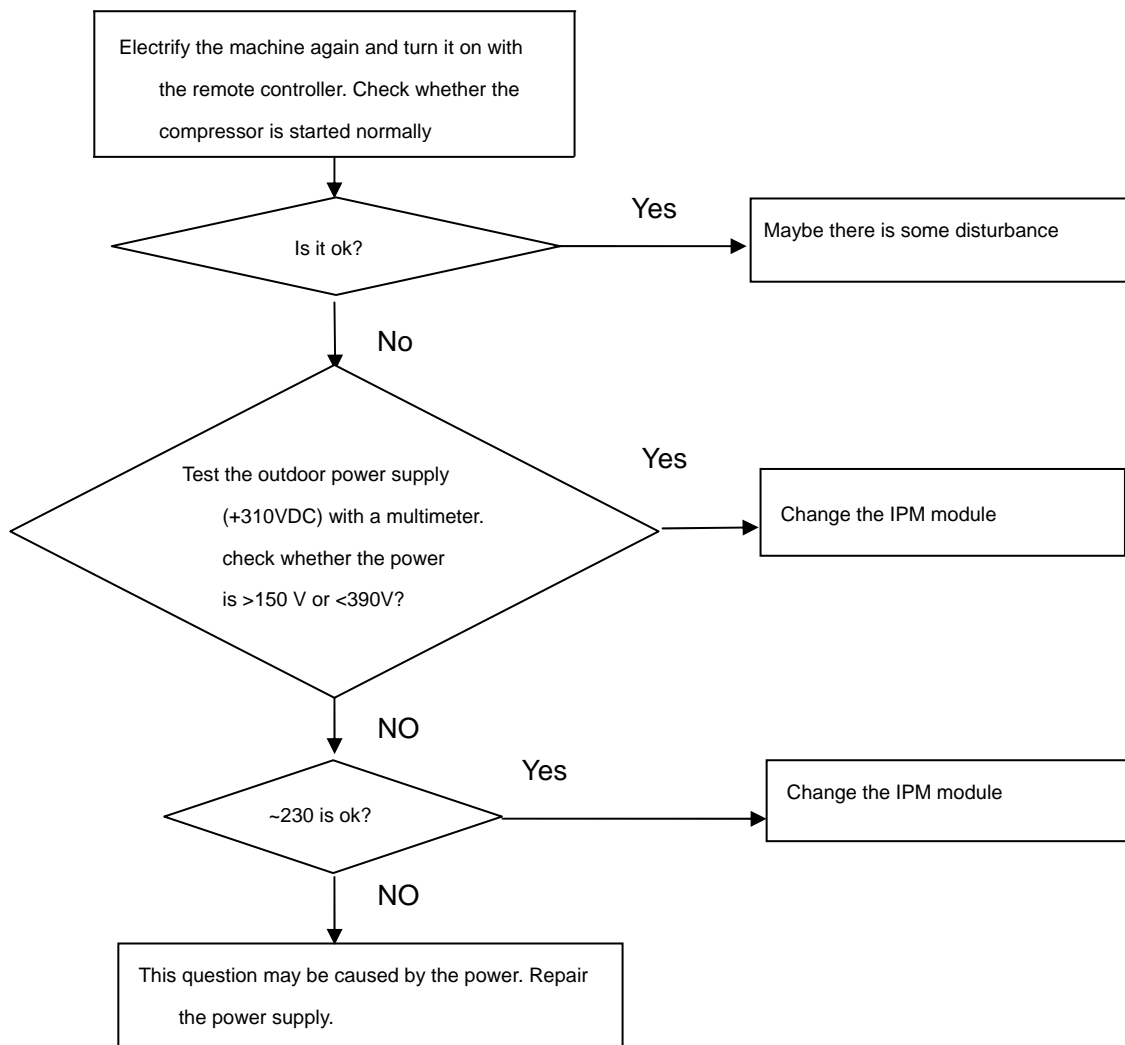


11.4.8 Power Supply Over or under voltage fault

Outdoor display

LED1 flash 6 times The power supply is over voltage

Method of malfunction detection	An abnormal voltage rise or fall is detected by checking the specified voltage detection
Malfunction detection conditions	An voltage signal is fed from the voltage detection circuit to the microcomputer
Supposed causes	<ul style="list-style-type: none"> ■Supply voltage not as specified. ■The IPM module is broken. ■The outdoor PCB is broken.
Troubleshooting	<p>* Caution</p> <p>Be sure to turn off power switch before connect or disconnect connector, or else parts damage may be occurred.</p>

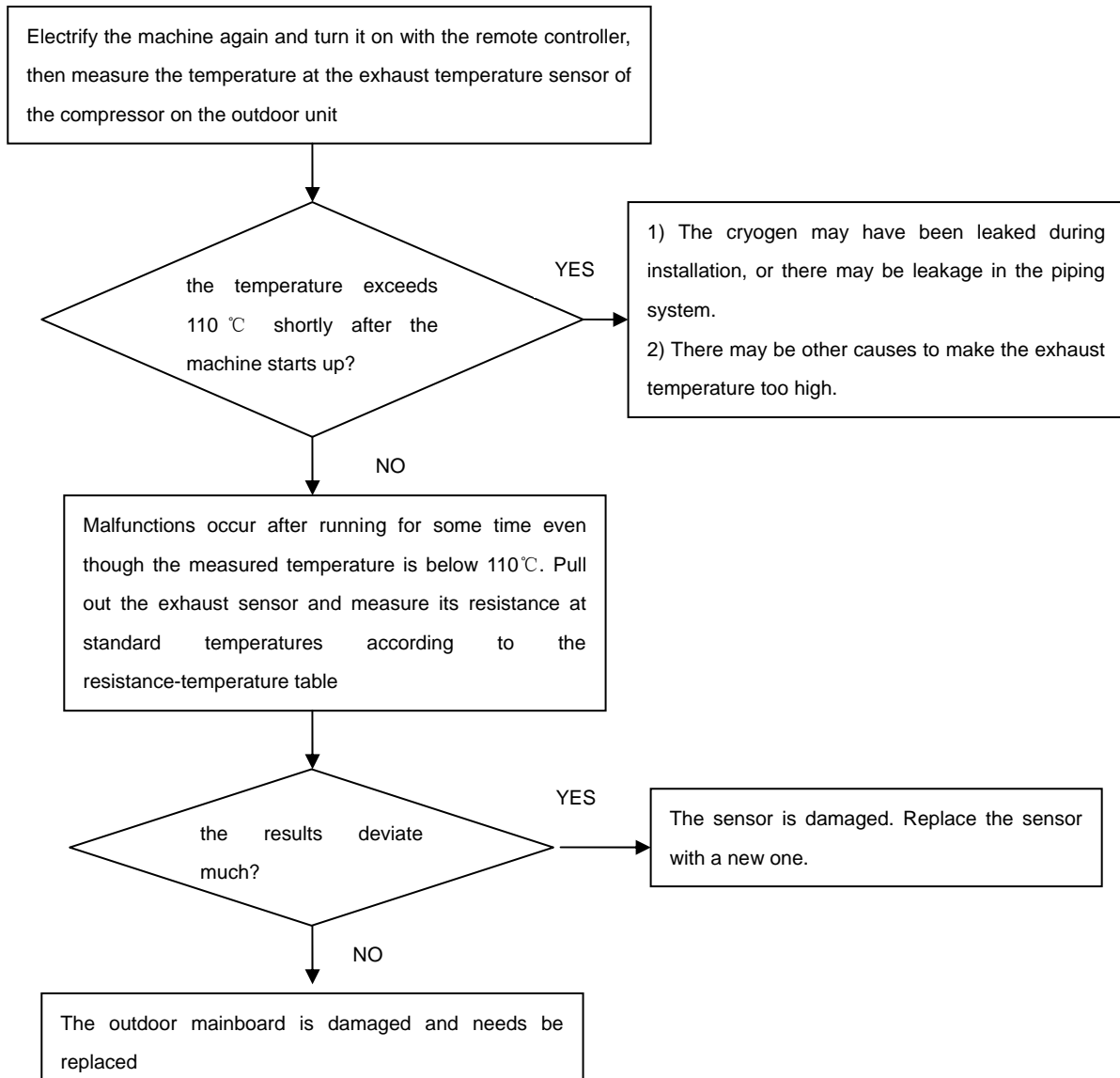


11.4.9 Overheat Protection For Discharge Temperature

Outdoor display

LED1 flash 8 times

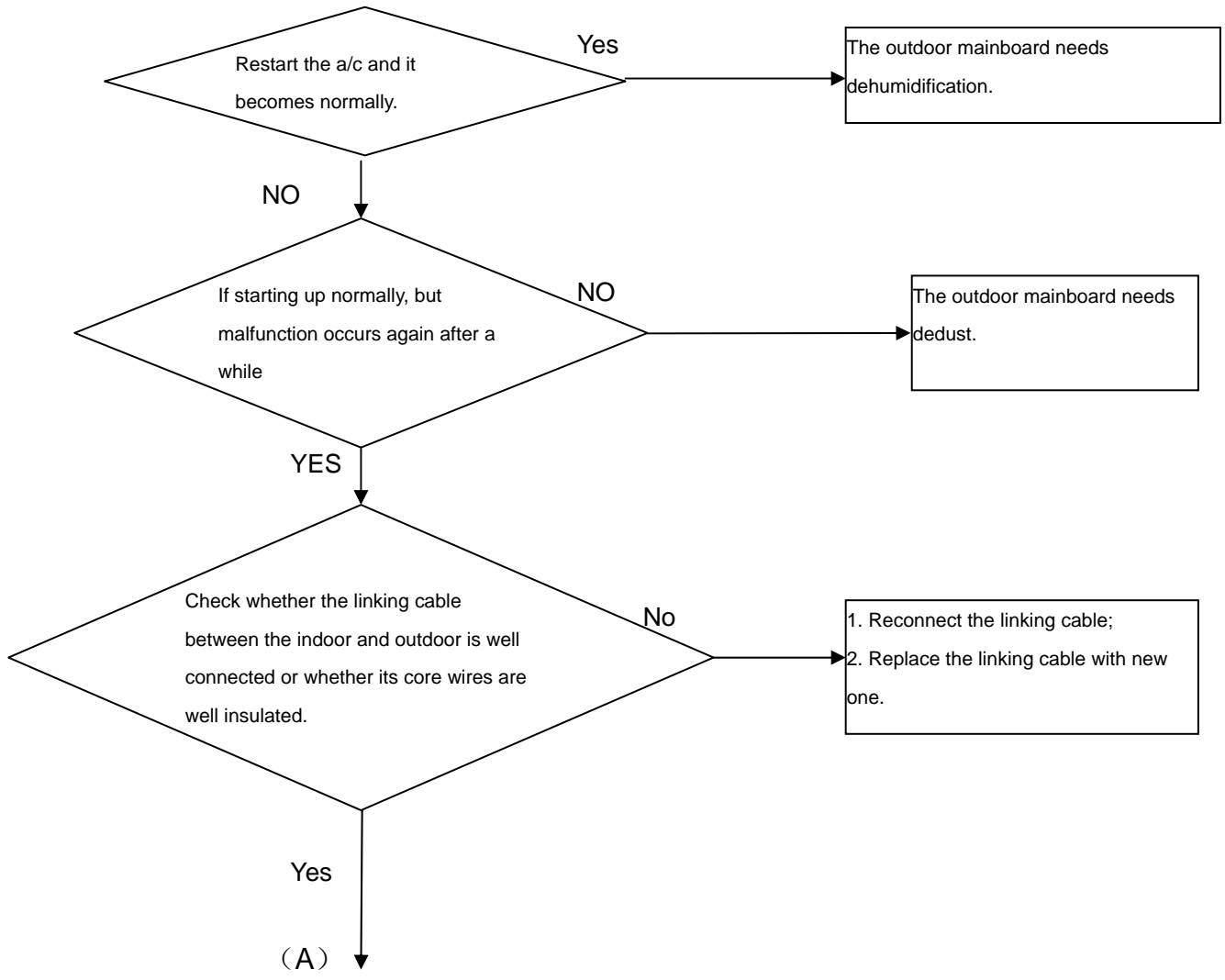
Method of malfunction detection	The Discharge temperature control is checked with the temperature being detected by the Discharge pipe thermistor
Malfunction detection conditions	when the compressor discharge temperature is above 110°C
Supposed causes	<ul style="list-style-type: none"> ■Electronic expansion valve defective ■Faulty thermistor ■Faulty PCB
Troubleshooting	<p>* Caution</p> <p>Be sure to turn off power switch before connect or disconnect connector, or else parts damage may be occurred.</p>

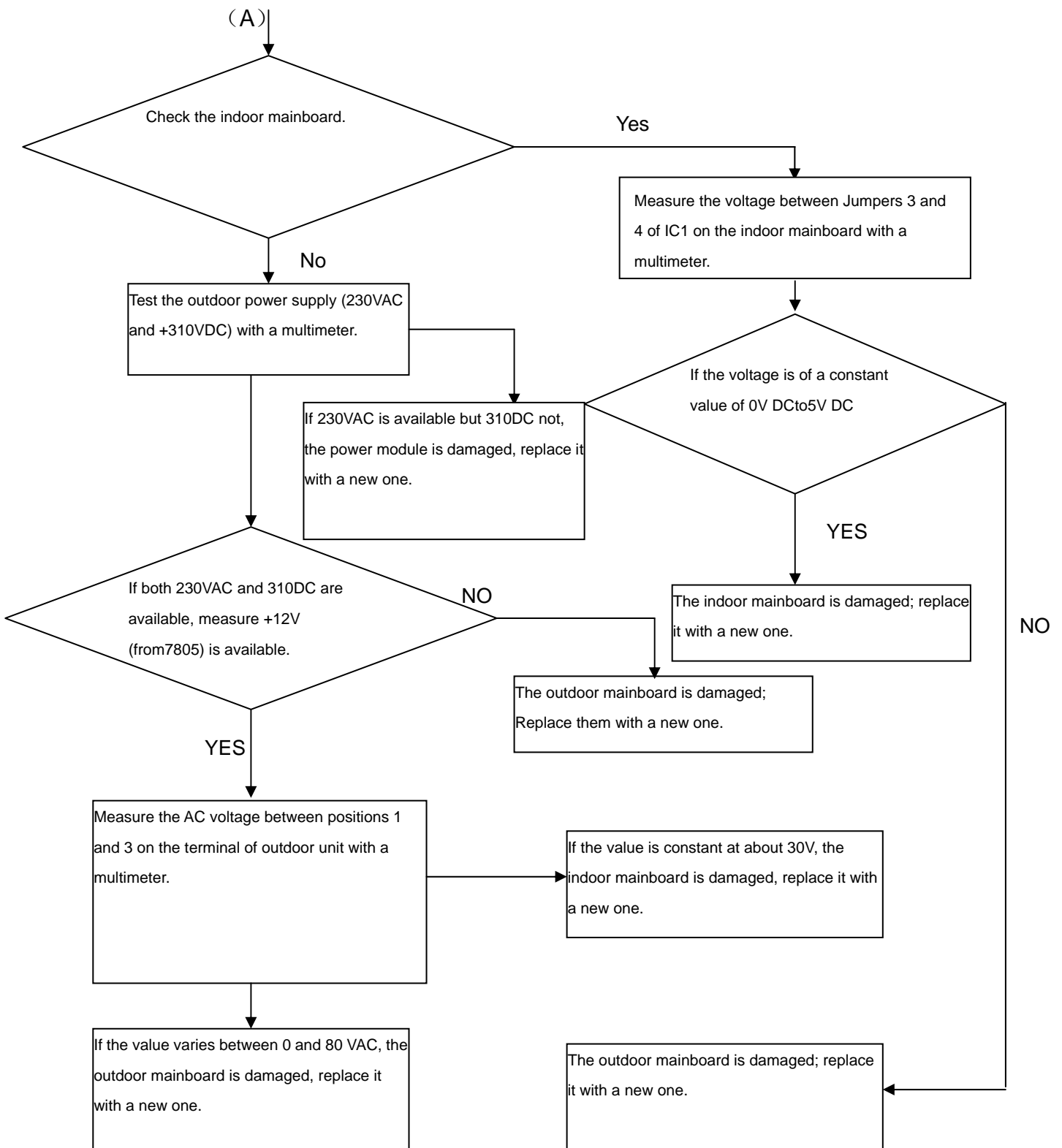


11.4.10 The communication fault between indoor and outdoor

indoor display: E7
 Outdoor display: LED1 flash 15 times

Method of malfunction detection	Communication is detected by checking the indoor PCB and the outdoor PCB
Malfunction detection conditions	<ul style="list-style-type: none"> ■ The outdoor PCB broken leads to communication fault ■ The indoor PCB broken leads to communication fault
Supposed causes	<ul style="list-style-type: none"> ■ Communication wiring disconnected ■ The indoor PCB is broken ■ The outdoor PCB is broken ■ The module PCB is broken
Troubleshooting	<p>* Caution</p> <p>Be sure to turn off power switch before connect or disconnect connector, or else parts damage may be occurred.</p>



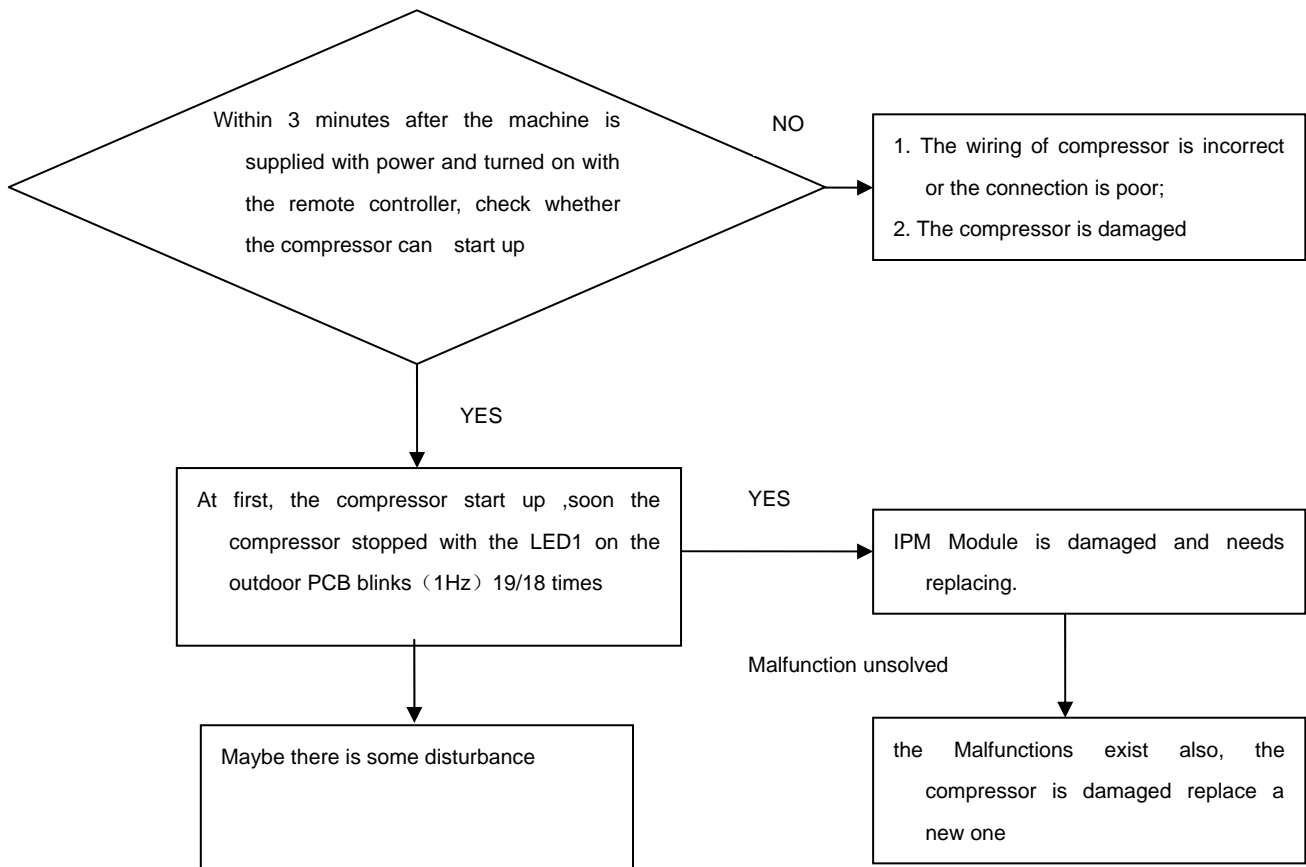


11.4.11 Loss of synchronism detection

Inverter side current detection is abnormal

Outdoor display LED1 flash 18 times
 LED1 flash 19 times

Method of malfunction detection	The position of the compressor rotor can not detected normally
Malfunction detection conditions	when the wiring of compressor is wrong or the connection is poor; or the compressor is damaged
Supposed causes	<ul style="list-style-type: none"> ■Faulty The wiring of compressor ■Faulty compressor ■Faulty PCB
Troubleshooting	<p>* Caution</p> <p>Be sure to turn off power switch before connect or disconnect connector, or else parts damage may be occurred.</p>

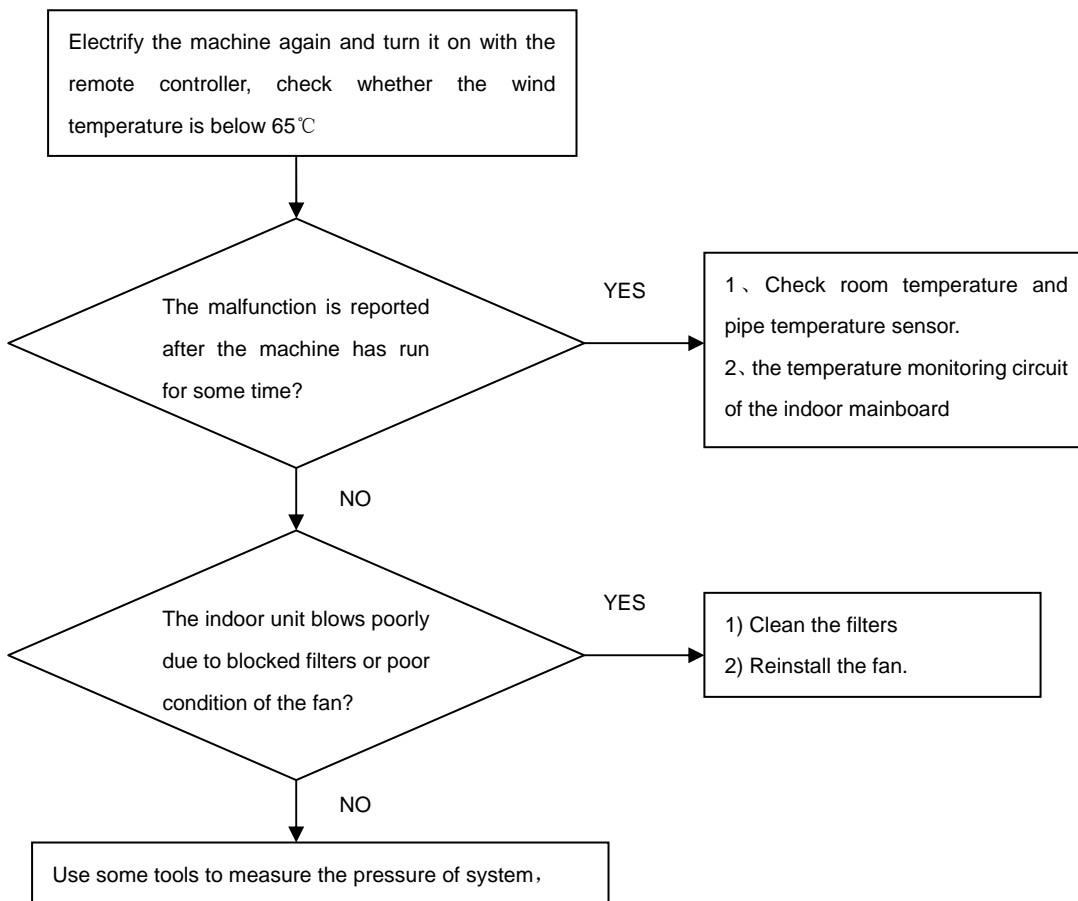


11.4.12 High work-intense protection

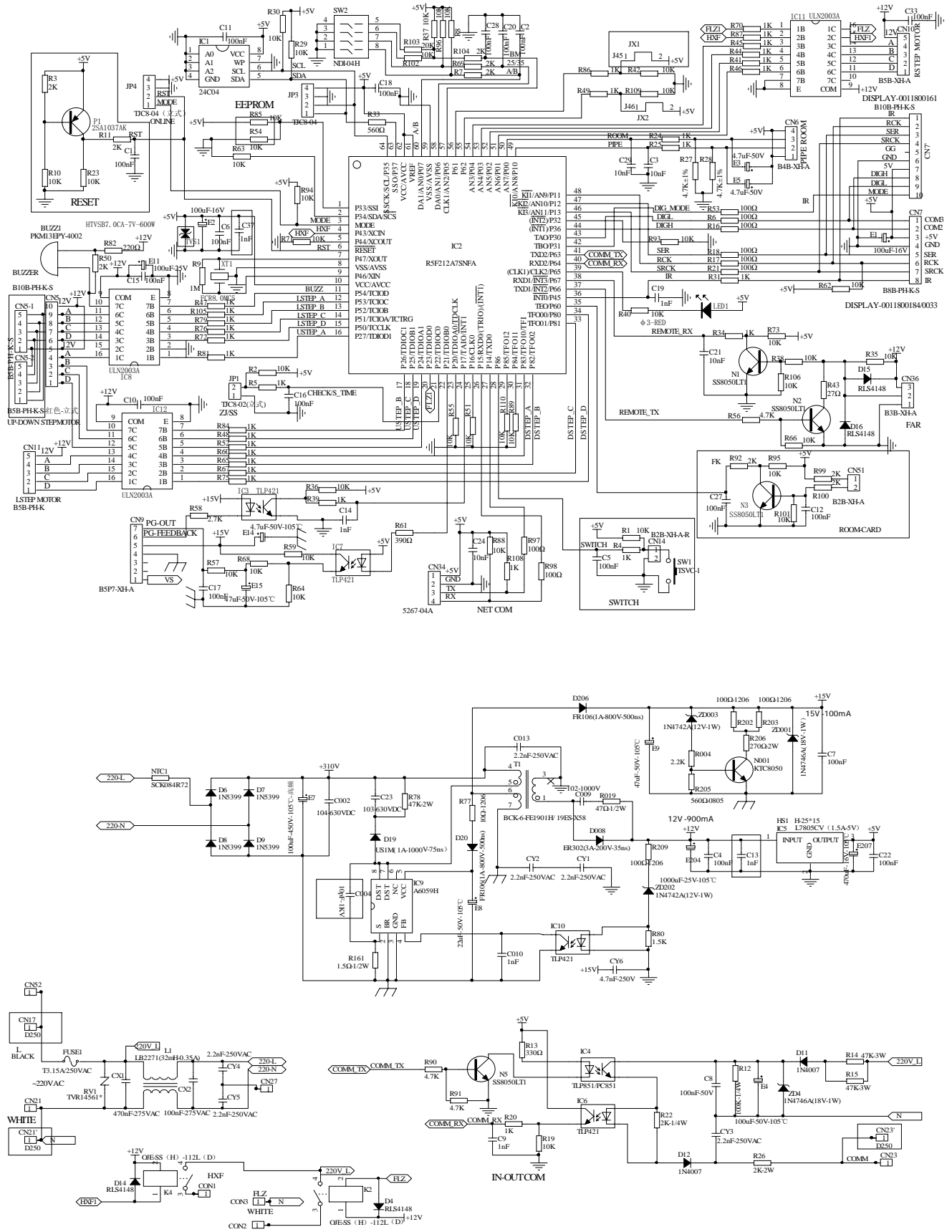
Outdoor display

LED1 flash 21 times

Method of malfunction detection	High work-intense control is activated in the heating mode if the temperature being sensed by the heat exchanger thermistor exceeds the limit.
Malfunction detection conditions	Activated when the temperature being sensed by the heat exchanger rises above 65°C twice in 30 minutes.
Supposed causes	<ul style="list-style-type: none"> ■ Faulty electronic expansion valve ■ Dirty heat exchanger ■ Faulty heat-exchange sensor ■ Insufficient gas
Troubleshooting	<p>* Caution</p> <p>Be sure to turn off power switch before connect or disconnect connector, or else parts damage may be occurred.</p>

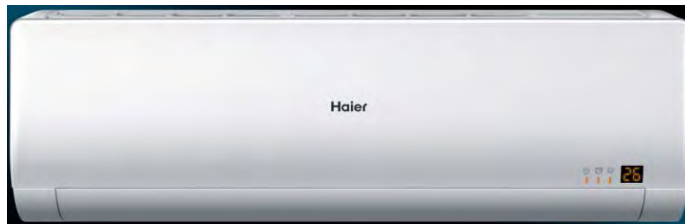


12. Circuit diagrams



Haier SERVICE MANUAL

Wall Mounted Type DC Inverter FREE MATCH N-Series Model No. AS18NS3HRA



WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or Repair the product or products dealt with in this service information by anyone else could result in serious injury or death

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Haier Group

Version: V1

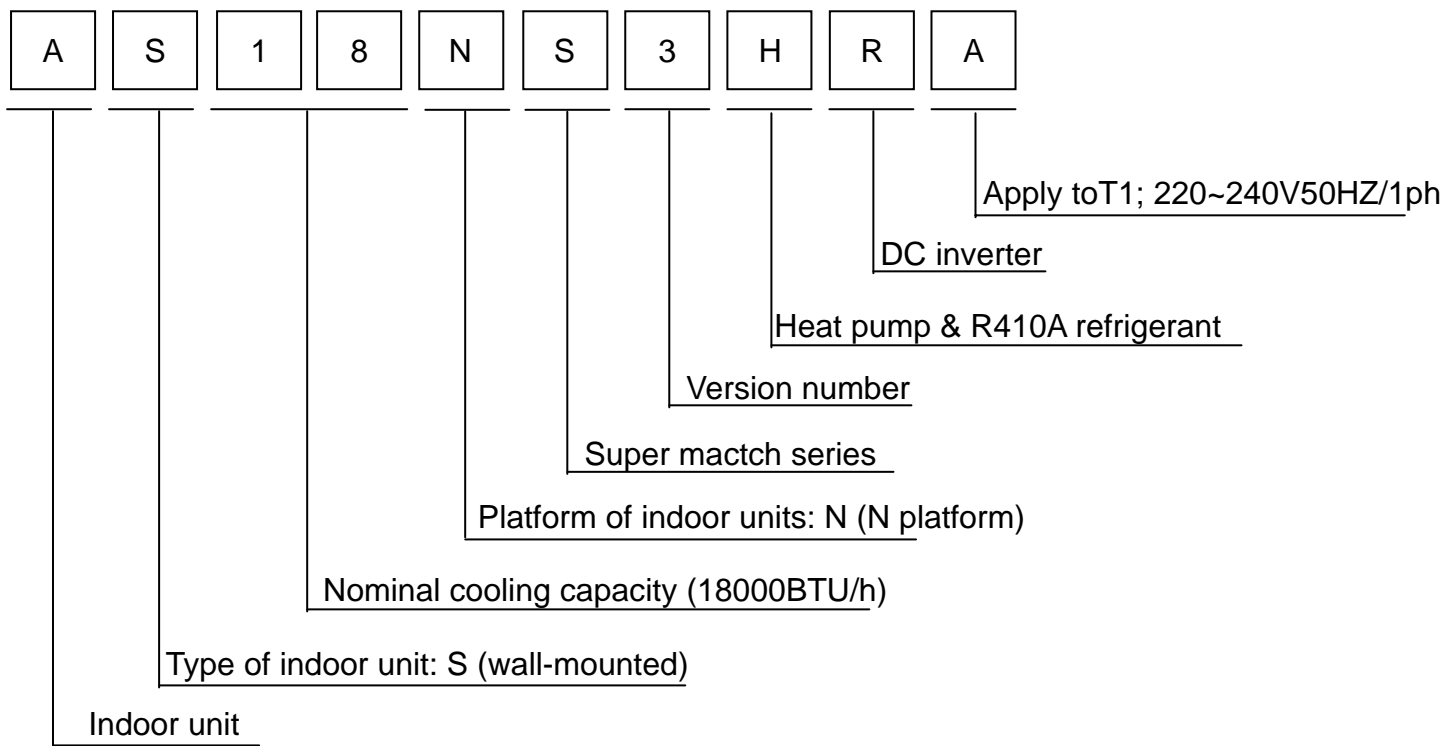
Date: 2014-11-25

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1 Introduction

1.1 Model name explanation



1.2 Safety Cautions

Be sure to read the following safety cautions before conducting repair work.






The caution items are classified into “Warning” and “Caution”. The “Warning” items are especially important since they can lead to death or serious injury if they are not followed closely. The “Caution” items can also lead to serious accidents under some conditions if they are not followed. Therefore, be sure to observe all the safety caution items described below.




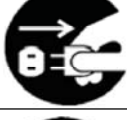


About the pictograms

- △ This symbol indicates an item for which caution must be exercised.
The pictogram shows the item to which attention must be paid.
- This symbol indicates a prohibited action.
The prohibited item or action is shown inside or near the symbol.
- This symbol indicates an action that must be taken, or an instruction.
The instruction is shown inside or near the symbol.

After the repair work is complete, be sure to conduct a test operation to ensure that the equipment operates Normally, and explain the cautions for operating the product to the customer.



1.2.1 Caution in Repair


Warning	
<p>Be sure to disconnect the power cable plug from the plug socket before disassembling the equipment for a repair.</p> <p>Working on the equipment that is connected to a power supply can cause an electrical shock.</p> <p>If it is necessary to supply power to the equipment to conduct the repair or inspecting the circuits, do not touch any electrically charged sections of the equipment.</p>	
<p>If the refrigerant gas discharges during the repair work, do not touch the discharging refrigerant gas .The refrigerant gas can cause frostbite.</p>	
<p>When disconnecting the suction or discharge pipe of the compressor at the welded section, release the refrigerant gas completely at a well-ventilated place first.</p> <p>If there is a gas remaining inside the compressor , the refrigerant gas or refrigerating machine oil discharges when the pipe is disconnected, and it can cause injury.</p>	
<p>If the refrigerant gas leaks during the repair work, ventilate the area. The refrigerant gas can generate toxic gases when it contacts flames.</p>	
<p>The step-up capacitor supplies high-voltage electricity to the electrical components of the outdoor unit. Be sure to discharge the capacitor completely before conducting repair work . A charged capacitor can cause an electrical shock.</p>	
<p>Do not start or stop the air conditioner operation by plugging or unplugging the power cable plug. Plugging or unplugging the power cable plug to operate the equipment can cause an electrical shock or fire.</p>	

Warning	
Do not repair the electrical components with wet hands . Working on the equipment with wet hands can cause an electrical shock	
Do not clean the air conditioner by splashing water. Washing the unit with water can cause an electrical shock.	
Be sure to provide the grounding when repairing the equipment in a humid or wet place, to avoid electrical shock.	
Be sure to turn off the power switch and unplug the power cable when cleaning the equipment. The internal fan rotates at a high speed, and cause injury.	
Do not tilt the unit when removing it. The water inside the unit can spill and wet the furniture and floor.	
Be sure to check that the refrigerating cycle section has cooled down sufficiently before conducting repair work. Working on the unit when the refrigerating cycle section is hot can cause burns.	
Use the welder in a well-ventilated place. Using the welder in an enclosed room can cause oxygen deficiency.	



1.2.2 Cautions Regarding Products after Repair


Warning	
Be sure to use parts listed in the service parts list of the applicable model and appropriate tools to conduct repair work. Never attempt to modify the equipment. The use of inappropriate parts or tools can cause an electrical shock, excessive heat generation or fire.	
When relocating the equipment, make sure that the new installation site has sufficient strength to withstand the weight of the equipment. If the installation site does not have sufficient strength and if the installation work is not conducted securely, the equipment can fall and cause injury.	
Be sure to install the product correctly by using the provided standard installation frame. Incorrect use of the installation frame and improper installation can cause the equipment to fall, resulting in injury.	For integral units only
Be sure to install the product securely in the installation frame mounted on a window frame. If the unit is not securely mounted, it can fall and cause injury.	For integral units only


Warning	
<p>Be sure to use an exclusive power circuit for the equipment, and follow the technical standards related to the electrical equipment, the internal wiring regulations and the instruction manual for installation when conducting electrical work.</p> <p>Insufficient power circuit capacity and improper electrical work can cause an electrical shock or fire.</p>	
<p>Be sure to use the specified cable to connect between the indoor and outdoor units. Make the connections securely and route the cable properly so that there is no force pulling the cable at the connection terminals.</p> <p>Improper connections can cause excessive heat generation or fire.</p>	
<p>When connecting the cable between the indoor and outdoor units, make sure that the terminal cover does not lift off or dismount because of the cable.</p> <p>If the cover is not mounted properly, the terminal connection section can cause an electrical shock, excessive heat generation or fire.</p>	
<p>Do not damage or modify the power cable.</p> <p>Damaged or modified power cable can cause an electrical shock or fire. Placing heavy items on the power cable, and heating or pulling the power cable can damage the cable.</p>	
<p>Do not mix air or gas other than the specified refrigerant (R-410A / R22) in the refrigerant system.</p> <p>If air enters the refrigerating system, an excessively high pressure results, causing equipment damage and injury.</p>	
<p>If the refrigerant gas leaks, be sure to locate the leak and repair it before charging the refrigerant. After charging refrigerant, make sure that there is no refrigerant leak.</p> <p>If the leak cannot be located and the repair work must be stopped, be sure to perform pump-down and close the service valve, to prevent the refrigerant gas from leaking into the room. The refrigerant gas itself is harmless, but it can generate toxic gases when it contacts flames, such as fan and other heaters, stoves and ranges.</p>	
<p>When replacing the coin battery in the remote controller, be sure to disposed of the old battery to prevent children from swallowing it.</p> <p>If a child swallows the coin battery, see a doctor immediately.</p>	

Caution	
Installation of a leakage breaker is necessary in some cases depending on the conditions of the installation site, to prevent electrical shocks.	
Do not install the equipment in a place where there is a possibility of combustible gas leaks. If a combustible gas leaks and remains around the unit, it can cause a fire.	
Be sure to install the packing and seal on the installation frame properly. If the packing and seal are not installed properly, water can enter the room and wet the furniture and floor.	

1.2.3 Inspection after Repair

Warning	
Check to make sure that the power cable plug is not dirty or loose, then insert the plug into a power outlet all the way. If the plug has dust or loose connection, it can cause an electrical shock or fire.	
If the power cable and lead wires have scratches or deteriorated, be sure to replace them. Damaged cable and wires can cause an electrical shock, excessive heat generation or fire.	





Warning	
Do not use a joined power cable or extension cable, or share the same power outlet with other electrical appliances since it can cause an electrical shock, excessive heat generation or fire.	

Caution	
Check to see if the parts and wires are mounted and connected properly, and if the connections at the soldered or crimped terminals are secure. Improper installation and connections can cause excessive heat generation, fire or an electrical shock.	
If the installation platform or frame has corroded, replace it. Corroded installation platform or frame can cause the unit to fall, resulting in injury.	
Check the grounding, and repair it if the equipment is not properly grounded. Improper grounding can cause an electrical shock.	
Be sure to measure the insulation resistance after the repair, and make sure that the resistance is 1 M ohm or higher. Faulty insulation can cause an electrical shock.	
Be sure to check the drainage of the indoor unit after the repair. Faulty drainage can cause the water to enter the room and wet the furniture and floor.	

1.2.4 Using Icons

Icons are used to attract the attention of the reader to specific information. The meaning of each icon is described in the table below:

1.2.5 Using Icons List

Icon	Type of Information	Description
 Note	Note	A “note” provides information that is not indispensable, but may nevertheless be valuable to the reader, such as tips and tricks.
 Caution	Caution	A “caution” is used when there is danger that the reader, through incorrect manipulation, may damage equipment, loose data, get an unexpected result or has to restart (part of) a procedure.
 Warning	Warning	A “warning” is used when there is danger of personal injury.
	Reference	A “reference” guides the reader to other places in this binder or in this manual, where he/she will find additional information on a specific topic.

2.Features



Super quiet: Lower noise operation condition



A-PAM DC inverter:With adoption of S-TYPE,S-PAM and PHASE control technology to works more stably at low-frequency,and is more energy-saving,mor powerful at high frequency.



Long distance air supplying:



-15°C Heating: When -15°C can still heating natural



10°C heating maintenance:Heating Holding 10°C temperature



Comfortable sleep: The setting temperature and the indoor noise can be adjusted to a more comfortable level when you set the “sleep mode” during night sleep.



Super match:One outdoor unit can match two or more indoor unit.



DIY auto mode: Adjust the last fixed operation mode automatically.



Turbo mode: Quick cooling or heating



Auto restart: Automatic return to previous operation conditions after sudden power blackout



24 hours timer: Use the timer function to set on,or off,or from on to off,or from off to on.



Intergrative valve cover:The valve cover is Intergrative.



2-way piping design: The pipe can shoot out both from left or right side.



Easy clean design: The panel is easy to wash and the airflow vents can be detached easily



Double 8 display:The display is Double 8 mode.

3 Specifications

NOMINAL DISTRIBUTION SYSTEM VOLTAGE		
Phase	/	1
Frequency	Hz	50
Voltage	V	230

NOMINAL CAPACITY and NOMINAL INPUT			
		cooling	heating
Capacity rated	KW	5.2(1.3-6.8)	5.8(1.4-6.9)
	Btu/h	17740(4440-23200)	19790(4770-23500)
Power Consumption(Rated)	KW	1.53	1.71
SEER/SCOP	W/W	6.2	4.0
Annual energy consumption	KWh	293	1832
Moisture Removal	m ³ /h	2.0*10 ⁻³	

TECHNICAL SPECIFICATIONS			
Dimensions	H*W*D	mm	997×235×322
Packaged Dimensions	H*W*D	mm	1085×329×403
Weight	/	KG	13
Gross weight	/	KG	16
Color	/	/	White
Sound level	Sound pressure(high/medium/low)	dB	44/40/35
	Sound power(high)	dB	57
			45/40/35
			58

TECHNICAL SPECIFICATIONS-PARTS				
			cooling	heating
Fan	Type		Cross flow fan	
	Motor output	W	40	40
	Air flow rate(high)	m ³ /h	900	900
	Speed(high/middle/low)	rpm	950/850/750	850/750/650
Heat exchanger	Type		ML fin- φ 7HI-HX tube	
	Segment *stage*fitch		3*18*1.4	
Air direction control			Right,Left,Horizontal,Downward	
Air filter			Removable/Washable/Mildew Proof	
Temperature control			Microcomputer Control	
Remote controller model			YR-HG	

Note: the data are based on the conditions shown in the table below

cooling	heating	Piping length
Indoor: 27°CDB/19°CWB Outdoor: 35°CDB/24°CWB	Indoor:20°CDB Outdoor: 7°CDB/6°CWB	5m

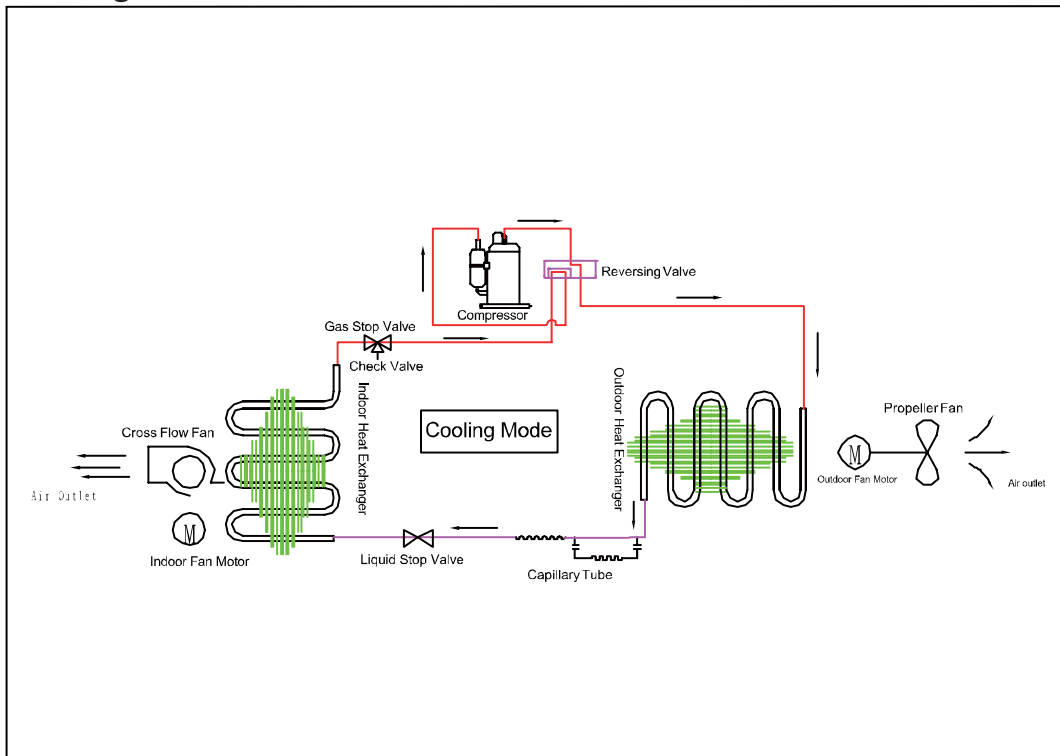
Conversation formulae
Kcal/h= KW×860
Btu/h= KW×3414
cfm=m ³ /min×35.3

4. Sensors list

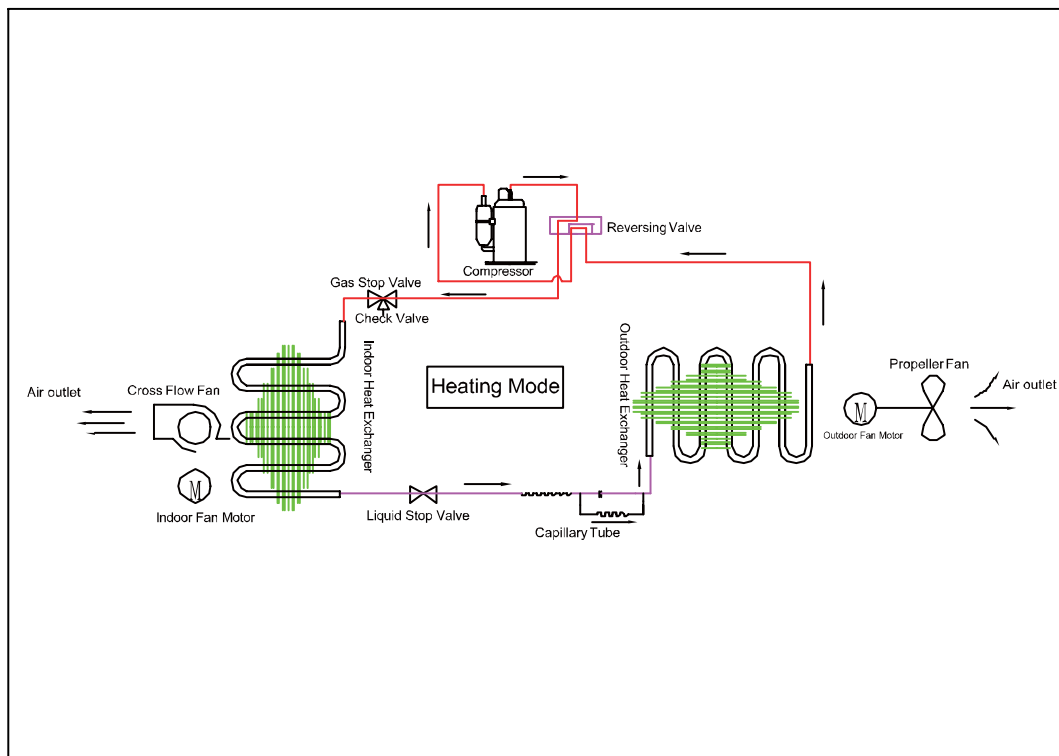
type	Description	Qty
Room sensor	Its used for detecting room temperature	1
Pipe sensor	Its used for detecting temperature of evaporator	1

5. Piping diagrams

Cooling mode



Heating mode



6. Printed Circuit Board Connector Wiring Diagram

Connectors

PCB(1) (Control PCB)

series	PCB connector	Connect with load
1	CN9	Connector for fan motor
2	CN6	Connector for heat exchanger thermistor and Room temperature thermistor
3	CN5	Connector for UP&DOWN STEP motor
4	CN21	Connector for power N wire
5	CN52	Connector for power L
6	CN27	Connector for power GRN
7	CN7	Connector for display board
8	CN23	Connector for communicate between the indoor board and the outdoor board
9	CN34	Connector for long-range control

Note: Other designations

PCB(1) (Indoor Control PCB)

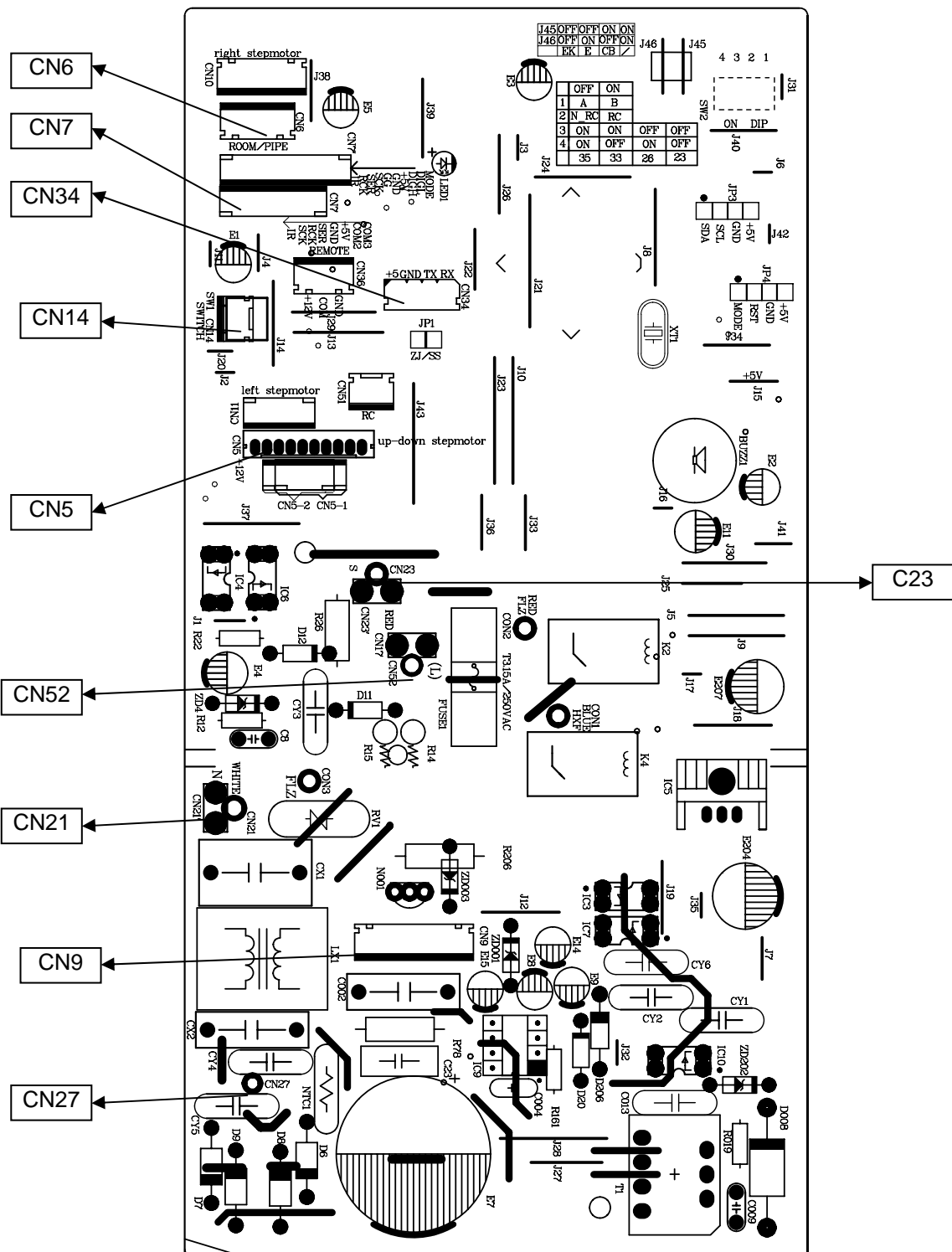
1) CN14 Connector for Forced operation ON / OFF switch

2) SW2 1 Select remote code A or B, 2 Select room card able or disable , 3-4 Select 23,26,33, or 35

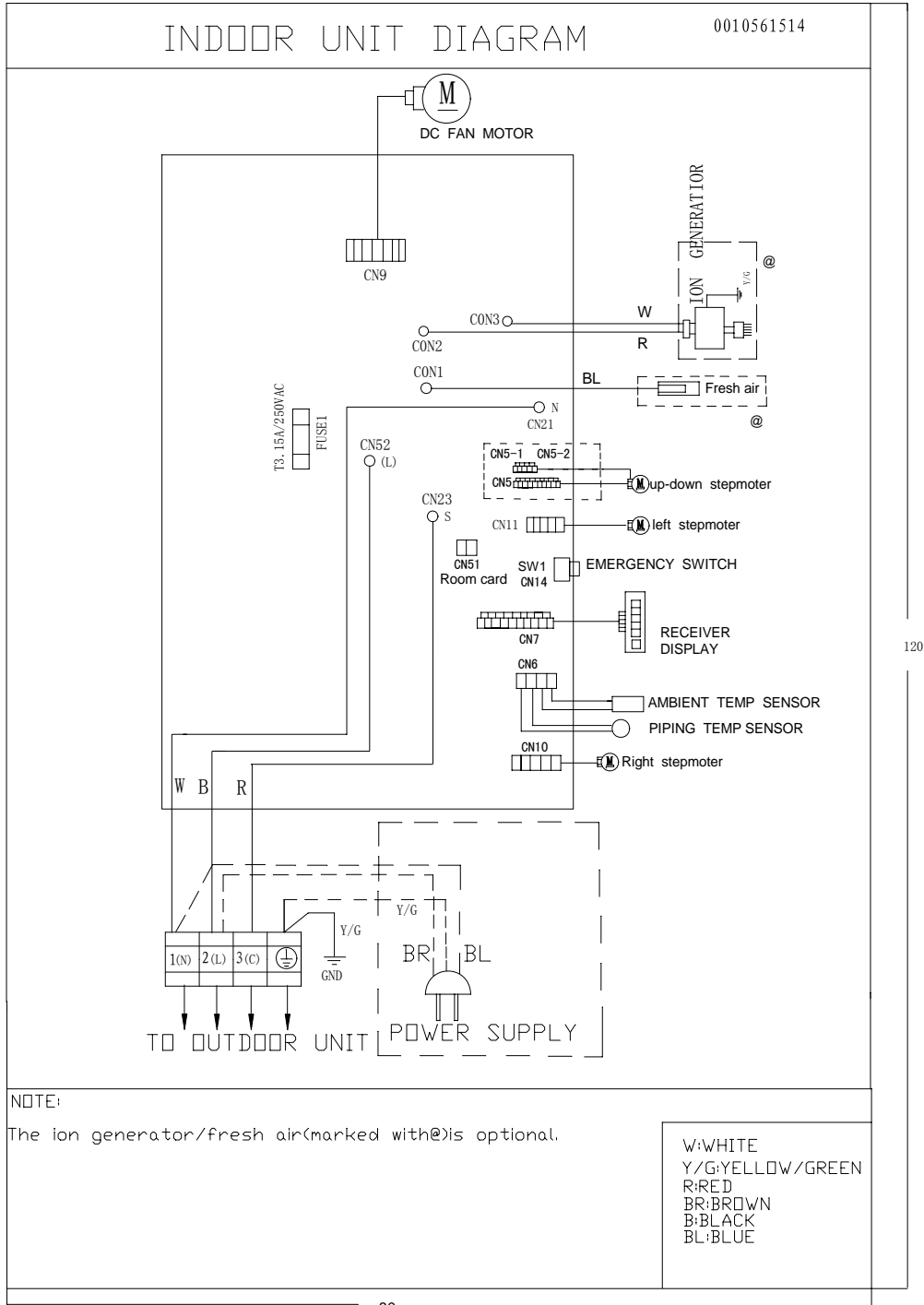
3) RV1 Varistor

4) FUSE1 Fuse 3.15A/250VAC

PCB(1)



Wiring diagrams



7.Functions and Control

7.1 Main functions and control specification

7.1.1 Automatic operation

When the running mode is turned to automation after starting the system, the system will first determine the running mode according to the current room temperature and then will run according to the determined mode. Tr in the following selection conditions means room temperature, Ts means setting temperature, Tp means temperature of indoor coil pipe

$Tr \geq 23^{\circ}\text{C}$ Choose Cooling Mode

$Tr < 23^{\circ}\text{C}$ Choose Heating Mode

After turning to the automation mode, the running mode can be switched between cooling mode, fan mode and heating mode according to the change of the indoor ambient temperature. But the automatic conversion between cooling mode and heating mode must be conducted after 15 minutes.

7.1.2 Cooling operation mode

Temperature control range: $16^{\circ}\text{C} \text{---} 30^{\circ}\text{C}$

Temperature difference: $\pm 1^{\circ}\text{C}$

* Control features: When $Tr(\text{input airflow}) > Ts(\text{set temperature})^{\circ}\text{C}$, the compressor will be opened, the indoor fan will operate at the set speed and the mode signal will be sent to the outdoor system. When $Tr(\text{input airflow}) < Ts(\text{set temperature})^{\circ}\text{C}$, the compressor will be opened, the indoor fan will operate at the set speed and the mode signal will be sent to the outdoor system. The system will keep the original status if $Tr = Ts$.

Airflow speed control: (temperature difference 1°C)

Automatic: When $Tr \geq Ts + 3^{\circ}\text{C}$, high speed.

When $Ts + 1^{\circ}\text{C} \leq Tr < Ts + 3^{\circ}\text{C}$, medium speed

When $Tr < Ts + 1^{\circ}\text{C}$, low speed

When the sensor is off, low speed

When the airflow speed has no delay from the high to low switching, the speed should be delayed for 3 minutes (remain at high speed for 3 minutes.) before the next switch.

Manus: When the system is operating, you can set the high, medium or low speed manually. (When the sensor is on or off, the system will change the speed 2 seconds after receiving the signal.)

*Airgate location control: the location for the airgate can be set according to your needs.

*Defrosting function: preventing the frosting on the indoor heat exchanger (when cooling or dehumidifying). When the compressor works continuously for 1/6 minutes (adaptable in EEPROM) and the temperature of the indoor coils has been below zero centigrade for 10 seconds, the compressor will be stopped and the malfunction will be recorded in the malfunction list. The indoor system will continue to run. When the temperature of the indoor coil is raised to 7°C , the compressor will be restarted again (the requirement of 3 minutes' delay should be satisfied.)

* timing system on/off function.

* Dormant control function.

7.1.3 Demoisture mode.

* temperature control range: 16---30°C

* temperature difference: $\pm 1^\circ\text{C}$

Control feature: send the demoisture signal to the outdoor system.

When $\text{Tr} > \text{Ts} + 2^\circ\text{C}$, the compressor will be turned on, the indoor fan will operate at the set speed.

When Tr is between the Ts and $\text{Ts} + 2^\circ\text{C}$, the outdoor system will operate at the high demoisture frequency for 10 minutes and then at the low demoisture mode for six minutes. The indoor fan will operate at low speed.

When $\text{Tr} < \text{Ts}$, the outsystem will be stopped, the indoor fan will be stopped for 3 minutes and then turned to the low speed option.

All the frequency converses have a $\pm 1^\circ\text{C}$ difference.

* Wind speed control: Automatic:

When $\text{Tr} \geq \text{Ts} + 5^\circ\text{C}$, high speed.

When $\text{Ts} + 3^\circ\text{C} \leq \text{Tr} < \text{Ts} + 5^\circ\text{C}$, medium speed.

When $\text{Ts} + 2^\circ\text{C} \leq \text{Tr} < \text{Ts} + 3^\circ\text{C}$, low speed.

When $\text{Tr} < \text{Ts} + 2^\circ\text{C}$, light speed.

If the outdoor fan stopped, the indoor fan will be paused for 3 minutes.

If the outdoor fan stopped for more than 3 minutes and the outdoor system still operates, the system will be changed into light speed mode.

When the airflow speed has no delay from the high to low switching, the speed should be delayed for 3 minutes (remain at high speed for 3 minutes.) before the next switch.

Manual: When the sensor is off or $\text{Tr} < \text{Ts} + 3^\circ\text{C}$, the manual operation can not be made. (obligatory automatic operation.)

* Airgate location control: the location for the airgate can be set according to your needs.

* Defrosting function: preventing the frosting on the indoor heat exchanger (when cooling or demoisture). When the compressor works continuously for 1/6 minutes (adaptable in EEPROM) and the temperature of the indoor coils has been below zero centigrade for 10 seconds, the compressor will be stopped and the malfunction will be recorded in the malfunction list. The indoor system will continue to run. When the temperature of the indoor coil is raised to 7°C , the compressor will be restarted again (the prerequisite of 3 minutes' delay should be satisfied.)

* coil protection (synchronic overheating protection) are installed for the four directions latch malfunctions when demoisturing.

* timing system on/off function.

* Dormant control function.

7.1.4 Heating operation mode.

* temperature control range: 16---30°C

* temperature difference: $\pm 1^\circ\text{C}$

* control feature: the temperature compensation is automatically added and the system will send the heating signals to the outdoor system.

If $\text{Tr} \leq \text{Ts}$, the outdoor compressor is turned on, the indoor fan will be at the cold air proof mode.

If $\text{Tr} > \text{Ts}$, the outdoor system is turned off, the indoor fan will be at the heat residue sending mode.

If $\text{Tr} < \text{Ts}$, the outdoor system will be turned on again, the indoor fan will be at the cold air proof mode.

*Indoor fan control

manual control: You can choose high, medium, low and automatic speed control.

Automatic: When $T_r < T_s$, high speed.

When $T_s \leq T_r \leq T_s + 2^\circ\text{C}$, medium speed.

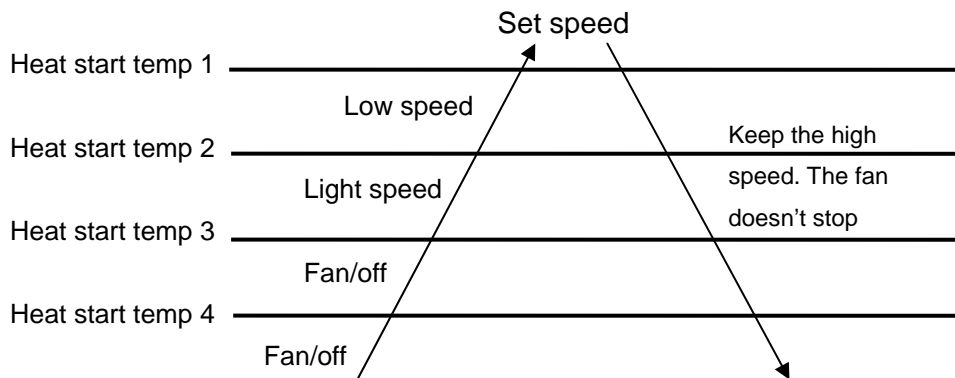
When $T_r > T_s + 2^\circ\text{C}$, low speed.

When the airflow speed has no delay from the high to low switching, the speed should be delayed for 3 minutes (remain at high speed for 3 minutes.) before the next switch.

*Airgate location control: the location for the airgate can be set according to your needs.

Coldair proof operation

1. The indoor operation within 4 minutes after the start up is as the following diagram, the air speed can be raised only after the speed has reached a certain level.



2. 4 minutes after the start up of the indoor fan, the light airflow and the low airflow will be turned to the set speed airflow.

3. In the cold air proof operation, the fan won't stop after the start up.

4. During the cold air proof operation, the indoor system will continuously send 'indoor high speed' signals to the outdoor system.

* Residue heat sending. The indoor fan will send the residue heat at a low speed for 12 seconds.

If other conditions are satisfied, when the compressor stops, the indoor system will operate at a light speed. The indoor fan will stop when the coil temperature is below the 'heat start temp 4'.

* Defrosting. When the system receives the defrosting signal from outdoors, the indoor fan will stop and the indoor temperature display won't change. At the time, any indoor coil malfunctions will be neglected. When the outdoor defrosting finishes, the coil malfunction will still be neglected until the compressor has been started up for 30 seconds. The indoor temperature display will not change and the system operates at the cold air proof mode.

* Automatic heating temperature compensation: when the system enters the heating mode, the temperature compensation (4) will be added. When the status is switched off, the compensation will be erased.

7.1.5 Strength operation

The system enters the mode after receiving the 'strength signal'.

Send strength operation signal to the outdoor system.

The mode change finishes the strength operation.

Entering 'mute', you can have normal operation or signal control such as timing to finish the strength operation.

When the system is at the automatic option with the strength/ mute function, if the system enters the cooling mode, the cooling strength/ mute function will be offered; if the system enters the heating mode, then the heating strength/ mute function will be offered; if the system enters the airflow mode, there will be no strength/ mute function.

7.1.6 Mute operation

The system enters the mode after receiving the 'mute signal'.

- a. Mute heating: the airflow speed is slight, the system sends the mute signal to the outdoor system.
- b. mute cooling: the airflow speed is slight, the system sends the mute signal to the outdoor system.

When the compressor operates, the airflow speed is mute speed. EEPROM is adaptable.

Mute operation can not work under the dehumidifying and airflow-sending operation.

7.1.7 Air refreshing

After receiving the signal from the remote control, (HV series: the background light of the 'health' logo is green. HS series: the 'health' indicator will be lighted). If the fan operates, the Nano-Aqua operates to realize the ions sending function.

If the indoor fan stops, the Nano-Aqua is turned off.

When the Nano-Aqua is turned off, if the air refreshing system is turned on, the Nano-Aqua will be turned on when the fan operates.

7.1.8 Timing

You can set 24 hours' on/off timing accordingly. After the setting, the timing indicator will be lightened. Also, the light will be turning off after the timing is finished. The followings are several timing methods.

1.system /on timing: The timing indicator will be lightened and the indoor system is under the waiting mode. The light will be turned off when the timing is finished and the rest of the system will operate under a normal condition. The timing starts since the last reception of the timing signal.

2.system /off timing: When the system is turned on, the timing indicator is lightened, the rest of the system will operated under a normal condition. When set time comes, the indicator light will be turned off and the system will be turned off. If you have set the dormant functions, the order of your settings will be operated according to the timing settings.

3 .system /on and off timing: The settings will be completed according to the orders..

7.1.9 Dormant operation

The dormant timing is an eight hours unadaptable one. The timing signs are shown on the V series board. (RC series show the dormant signal, the timing light is lighted on the 6 lights board).

2.1 Under the cooling/ dehumidifying operation, after the setting of the dormant operation, the set temperature will be raised for 1 centigrade after 1 hour's operation and will be raised for 1 centigrade 1 hour later. The system will keep this status for 6 hours and then close.

2.2 Under the heating mode, after the setting of the dormant operation, the setting temperature will fall 2 centigrade after 1 hour's operation and will fall 2 centigrade 1 hour later. 3 hours after the preceding operations, the set temperature will be raised for 1 centigrade and the system will keep this status for 3 hours

and then close down.

2.3 During the dormant time, except the change of the system mode or a new press on the dormant setting keys, the timing of the 8 hours dormancy will take the first timing as the start time, any presses on other keys will not affect the original timing.

2.4 Indoor fan control under the dormant operation.

If the indoor fan is at the high speed before the dormant operation setting, the speed will be turned to medium after the setting. If the fan is at the medium speed before the dormant setting, the speed will be turned to low after the setting. If the fan is at the low speed before the dormant setting, the speed will not change.

7.1.10 Urgent on/off input

Press the urgency button the buzzer will ring. The system will enter the automatic mode if you don't press the button for more than 5 seconds.

Under the system off mode, if you press the urgency key for 5 to 10 seconds, the system will start the test operation.

Under the system off mode, if you press the urgency key for 10 to 15 seconds, the display screen will show the resume of the last malfunction.

If the system is under operation, the press on the urgency key will stop it.

Under the system off mode, the display screen will show automatic running sign.

Under the system off mode, the system will not receive the remote control signal if the press on the urgency key doesn't last for 15 seconds or if the key is loosened.

Urgency operation: If you press the urgency key for less than 5 seconds, the buzzer will ring when you press the on/off key. The system will enter the urgency operation when the urgency key is loosened. The urgency operation is fully automatic.

Test operation.

The inlet temperature sensor doesn't work, the indoor fan and the indoor air direction board motor works synchronically. High speed airflow, cooling, outdoor system on, etc, will send the ambient temperature 30 centigrade and coil temperature 16 centigrade information to the outdoor system.

Test operation

The defrost protection of the evaporator doesn't work.

The temperature control doesn't work.

The test operation will be finished in 30 minutes.

The test operation can be stopped by the relative commands from the remote control.

7.1.11 Low load protection control

In order to prevent the frosting of the indoor heat interaction device, the outdoor system will be stopped if the indoor heat interaction temperature is below zero centigrade for 5 minutes, but the fan will continue to operate. The outdoor system will be started again when the heat interaction temperature is above 7 centigrade and the system has been stopped for 3 minutes. The malfunction will be stored in the malfunction resume and will not be revealed.

7.1.12 High load protection control

The outdoor system will be stopped if the coil temperature is above 65°C for 2 minutes. The indoor fan will be

controlled by the thermostat. The outdoor system can be restarted when the coil temperature is below 42°C and the system has been stopped for 3 minutes. The malfunction will be stored in the malfunction resume and will not be revealed.

7.1.13 Abnormal operation of indoor system

When the outdoor system operates, if the indoor system operation differs from the outdoor system, the abnormal operation malfunction will be reported. 10s after the report, the indoor system will be closed.

Outdoor system mode	Indoor system mode	conflicts
cooling	heating	yes
cooling	cooling	no
cooling	airflow	no
heating	heating	no
heating	airflow	yes
heating	cooling	yes

7.1.14 Malfunction list resume.

Nothing is presented if there is no code list.

The malfunction display will automatically finish in 10 seconds.

The remote control only receives the signals for stop. According to the signals, the malfunction resume presentation finishes.

The resume restores after the power supply restores.

7.1.15 Abnormality confirmation approaches

1. indoor temperature sensor abnormality:

Under the operation, the normal temperature ranges from 120 degree to -30 degree. When the temperature goes beyond this range, the abnormality can be confirmed. If the temperature goes back into the range, the system will automatically resume.

2 .indoor heat interaction sensor abnormality:

Under the operation, the normal temperature ranges from 120 degree to -30 degree. When the temperature goes beyond this range, the abnormality can be confirmed. If the temperature goes back into the range, the system will automatically resume.

3 .indoor malfunction:

Outdoor malfunction: When the indoor system receives the outdoor malfunction codes, it will store the code into E2 for the malfunction list resume. The indoor system will continue to operate according to the original status, the malfunction code will not be revealed or processed.

4. transmission abnormality:

If the indoor system can't receive the outdoor system for 8 minutes, the communication abnormality can be confirmed and reported and the outdoor system will be stopped.

7.1.16 Single indoor system operation

* Enter condition: First, set the high speed airflow and 30 centigrade set temperature, then press the dormant

keys for 6 times within 7 seconds, the system will feedback with 6 rings.

* After the system enters the separate indoor system operation mode, the indoor system will operate according to the set mode and neglect the communication signals of the outdoor system. However, it has to send signals to the outdoor system.

* Quitting condition: This mode can be quitted after receiving the quitting signal from the remote control or urgency system. The indoor system thus can quit the single operation mode.

7.1.17 Power cut compensation

* Entering condition: Press dormant button 10 times within 7 second, the buzzer will ring 4 times and the present system status will be stored into the EEPROM of the indoor system.

* After entering the power cut compensation mode, the processing of the indoor system should be as the followings:

Remote control urgency signal: operate according to the remote control and the urgent conditions, the present status will be stored into the EEPROM of the indoor system.

* Quitting conditions: Press dormant button 10 times within 7 seconds and the buzzer will ring twice.

7.1.18 Fixed frequency operation

1. Fixed cooling: a. under G code condition: high speed cooling, set 16°C, press temperature '-' key and the set key at the same time. The system will enter the fixed frequency operation after the buzzer rings twice.

b. The proceeding programs are as the follows:

Entering the fixed frequency operation, you can set the fixed strength location 1 and send the cooling signal to the outdoor system. Meanwhile, you can fix the indoor system at high speed mode, the location of the airflow direction board can be switched to the maximal position.

c. Quitting condition: The fixed frequency cooling can be quitted after receiving the remote signal, and the system will enter the remote setting status.

2. Fixed heating: a. under G code condition: high speed heating, set 30°C, press temperature '+' key and the set key at the same time. The system will enter the fixed frequency operation after the buzzer rings twice.

b. The proceeding programs are as the follows:

Entering the fixed frequency operation, you can set the fixed strength location 1 and send the heating signal to the outdoor system. Meanwhile, you can fix the indoor system at high speed mode, the location of the airflow direction board can be switched to the maximal position.

c. Quitting condition: The fixed frequency heating can be quitted after receiving the remote signal, and the system will enter the remote setting status.

7.1.19 Test program

First, connect the test program terminal on the mainboard. Then connect the system to the power circuit. The test program will operate as follows.

HV series display: The buzzer rings for one time—the signal will be sent to outdoor system for 0.5 second—the violet is sent for 0.5-- the background light turns to white—the back ground light turns to white—the background light turns to white—the background light is fully lighted for 0.5 second—LED screen lights for 0.5 second—the step-in motor fully output for 0.5 second—then the motor doesn't output for 0.5 second—the motor fully output again for 0.5 second. The test program finishes.

7.1.20 Time cutting function:

Connect the test program terminal on the mainboard after connecting the system to the power circuit. The CPU of the main control will be 60 times faster.

7.2 Value of thermistor

Room sensor and Pipe Sensor

R25°C=10KΩ ±3%

B25°C/50°C=3700K±3%

Temp.(°C)	Max.(KΩ)	Normal(KΩ)	Min.(KΩ)	Tolerance(°C)	
-30	165.2170	147.9497	132.3678	-1.94	1.75
-29	155.5754	139.5600	125.0806	-1.93	1.74
-28	146.5609	131.7022	118.2434	-1.91	1.73
-27	138.1285	124.3392	111.8256	-1.89	1.71
-26	130.2371	117.4366	105.7989	-1.87	1.70
-25	122.8484	110.9627	100.1367	-1.85	1.69
-24	115.9272	104.8882	94.8149	-1.83	1.67
-23	109.4410	99.1858	89.8106	-1.81	1.66
-22	103.3598	93.8305	85.1031	-1.80	1.64
-21	97.6556	88.7989	80.6728	-1.78	1.63
-20	92.3028	84.0695	76.5017	-1.76	1.62
-19	87.2775	79.6222	72.5729	-1.74	1.60
-18	82.5577	75.4384	68.8710	-1.72	1.59
-17	78.1230	71.5010	65.3815	-1.70	1.57
-16	73.9543	67.7939	62.0907	-1.68	1.55
-15	70.0342	64.3023	58.9863	-1.66	1.54
-14	66.3463	61.0123	56.0565	-1.64	1.52
-13	62.8755	57.9110	53.2905	-1.62	1.51
-12	59.6076	54.9866	50.6781	-1.60	1.49
-11	56.5296	52.2278	48.2099	-1.58	1.47
-10	53.6294	49.6244	45.8771	-1.56	1.46
-9	50.8956	47.1666	43.6714	-1.54	1.44
-8	48.3178	44.8454	41.5851	-1.51	1.42
-7	45.8860	42.6525	39.6112	-1.49	1.40

-6	43.5912	40.5800	37.7429	-1.47	1.39
-5	41.4249	38.6207	35.9739	-1.45	1.37
-4	39.3792	36.7676	34.2983	-1.43	1.35
-3	37.4465	35.0144	32.7108	-1.41	1.33
-2	35.6202	33.3552	31.2062	-1.38	1.31
-1	33.8936	31.7844	29.7796	-1.36	1.29
0	32.2608	30.2968	28.4267	-1.34	1.28
1	30.7162	28.8875	27.1431	-1.32	1.26
2	29.2545	27.5519	25.9250	-1.29	1.24
3	27.8708	26.2858	24.7686	-1.27	1.22
4	26.5605	25.0851	23.6704	-1.25	1.20
5	25.3193	23.9462	22.6273	-1.23	1.18
6	24.1432	22.8656	21.6361	-1.20	1.16
7	23.0284	21.8398	20.6939	-1.18	1.14
8	21.9714	20.8659	19.7982	-1.15	1.12
9	20.9688	19.9409	18.9463	-1.13	1.09
10	20.0176	19.0621	18.1358	-1.11	1.07
11	19.1149	18.2270	17.3646	-1.08	1.05
12	18.2580	17.4331	16.6305	-1.06	1.03
13	17.4442	16.6782	15.9315	-1.03	1.01
14	16.6711	15.9601	15.2657	-1.01	0.99
15	15.9366	15.2770	14.6315	-0.98	0.96
16	15.2385	14.6268	14.0271	-0.96	0.94
17	14.5748	14.0079	13.4510	-0.93	0.92
18	13.9436	13.4185	12.9017	-0.91	0.90
19	13.3431	12.8572	12.3778	-0.88	0.87
20	12.7718	12.3223	11.8780	-0.86	0.85
21	12.2280	11.8126	11.4011	-0.83	0.83
22	11.7102	11.3267	10.9459	-0.81	0.80
23	11.2172	10.8634	10.5114	-0.78	0.78
24	10.7475	10.4216	10.0964	-0.75	0.75
25	10.3000	10.0000	9.7000	-0.75	0.75
26	9.8975	9.5974	9.2980	-0.76	0.76
27	9.5129	9.2132	8.9148	-0.80	0.80
28	9.1454	8.8465	8.5496	-0.84	0.83
29	8.7942	8.4964	8.2013	-0.87	0.86
30	8.4583	8.1621	7.8691	-0.91	0.90
31	8.1371	7.8428	7.5522	-0.95	0.93
32	7.8299	7.5377	7.2498	-0.98	0.97
33	7.5359	7.2461	6.9611	-1.02	1.00
34	7.2546	6.9673	6.6854	-1.06	1.04
35	6.9852	6.7008	6.4222	-1.10	1.07
36	6.7273	6.4459	6.1707	-1.13	1.11
37	6.4803	6.2021	5.9304	-1.17	1.14
38	6.2437	5.9687	5.7007	-1.21	1.18

39	6.0170	5.7454	5.4812	-1.25	1.22
40	5.7997	5.5316	5.2712	-1.29	1.25
41	5.5914	5.3269	5.0704	-1.33	1.29
42	5.3916	5.1308	4.8783	-1.37	1.33
43	5.2001	4.9430	4.6944	-1.41	1.36
44	5.0163	4.7630	4.5185	-1.45	1.40
45	4.8400	4.5905	4.3500	-1.49	1.44
46	4.6708	4.4252	4.1887	-1.53	1.47
47	4.5083	4.2666	4.0342	-1.57	1.51
48	4.3524	4.1145	3.8862	-1.61	1.55
49	4.2026	3.9686	3.7443	-1.65	1.59
50	4.0588	3.8287	3.6084	-1.70	1.62
51	3.9206	3.6943	3.4780	-1.74	1.66
52	3.7878	3.5654	3.3531	-1.78	1.70
53	3.6601	3.4416	3.2332	-1.82	1.74
54	3.5374	3.3227	3.1183	-1.87	1.78
55	3.4195	3.2085	3.0079	-1.91	1.82
56	3.3060	3.0989	2.9021	-1.95	1.85
57	3.1969	2.9935	2.8005	-2.00	1.89
58	3.0919	2.8922	2.7029	-2.04	1.93
59	2.9909	2.7948	2.6092	-2.08	1.97
60	2.8936	2.7012	2.5193	-2.13	2.01
61	2.8000	2.6112	2.4328	-2.17	2.05
62	2.7099	2.5246	2.3498	-2.22	2.09
63	2.6232	2.4413	2.2700	-2.26	2.13
64	2.5396	2.3611	2.1932	-2.31	2.17
65	2.4591	2.2840	2.1195	-2.36	2.21
66	2.3815	2.2098	2.0486	-2.40	2.25
67	2.3068	2.1383	1.9803	-2.45	2.29
68	2.2347	2.0695	1.9147	-2.49	2.34
69	2.1652	2.0032	1.8516	-2.54	2.38
70	2.0983	1.9393	1.7908	-2.59	2.42
71	2.0337	1.8778	1.7324	-2.63	2.46
72	1.9714	1.8186	1.6761	-2.68	2.50
73	1.9113	1.7614	1.6219	-2.73	2.54
74	1.8533	1.7064	1.5697	-2.78	2.58
75	1.7974	1.6533	1.5194	-2.83	2.63
76	1.7434	1.6021	1.4710	-2.88	2.67
77	1.6913	1.5528	1.4243	-2.92	2.71
78	1.6409	1.5051	1.3794	-2.97	2.75
79	1.5923	1.4592	1.3360	-3.02	2.80
80	1.5454	1.4149	1.2942	-3.07	2.84
81	1.5000	1.3721	1.2540	-3.12	2.88
82	1.4562	1.3308	1.2151	-3.17	2.93
83	1.4139	1.2910	1.1776	-3.22	2.97

84	1.3730	1.2525	1.1415	-3.27	3.01
85	1.3335	1.2153	1.1066	-3.32	3.06
86	1.2953	1.1794	1.0730	-3.38	3.10
87	1.2583	1.1448	1.0405	-3.43	3.15
88	1.2226	1.1113	1.0092	-3.48	3.19
89	1.1880	1.0789	0.9789	-3.53	3.24
90	1.1546	1.0476	0.9497	-3.58	3.28
91	1.1223	1.0174	0.9215	-3.64	3.33
92	1.0910	0.9882	0.8942	-3.69	3.37
93	1.0607	0.9599	0.8679	-3.74	3.42
94	1.0314	0.9326	0.8424	-3.80	3.46
95	1.0030	0.9061	0.8179	-3.85	3.51
96	0.9756	0.8806	0.7941	-3.90	3.55
97	0.9490	0.8558	0.7711	-3.96	3.60
98	0.9232	0.8319	0.7489	-4.01	3.64
99	0.8983	0.8088	0.7275	-4.07	3.69
100	0.8741	0.7863	0.7067	-4.12	3.74
101	0.8507	0.7646	0.6867	-4.18	3.78
102	0.8281	0.7436	0.6672	-4.23	3.83
103	0.8061	0.7233	0.6484	-4.29	3.88
104	0.7848	0.7036	0.6303	-4.34	3.92
105	0.7641	0.6845	0.6127	-4.40	3.97
106	0.7441	0.6661	0.5957	-4.46	4.02
107	0.7247	0.6482	0.5792	-4.51	4.07
108	0.7059	0.6308	0.5632	-4.57	4.12
109	0.6877	0.6140	0.5478	-4.63	4.16
110	0.6700	0.5977	0.5328	-4.69	4.21
111	0.6528	0.5820	0.5183	-4.74	4.26
112	0.6361	0.5667	0.5043	-4.80	4.31
113	0.6200	0.5518	0.4907	-4.86	4.36
114	0.6043	0.5374	0.4775	-4.92	4.41
115	0.5891	0.5235	0.4648	-4.98	4.45
116	0.5743	0.5100	0.4524	-5.04	4.50
117	0.5600	0.4968	0.4404	-5.10	4.55
118	0.5460	0.4841	0.4288	-5.16	4.60
119	0.5325	0.4717	0.4175	-5.22	4.65
120	0.5194	0.4597	0.4066	-5.28	4.70

8 System configuration

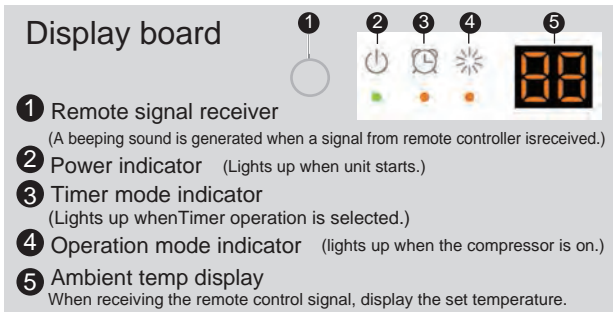
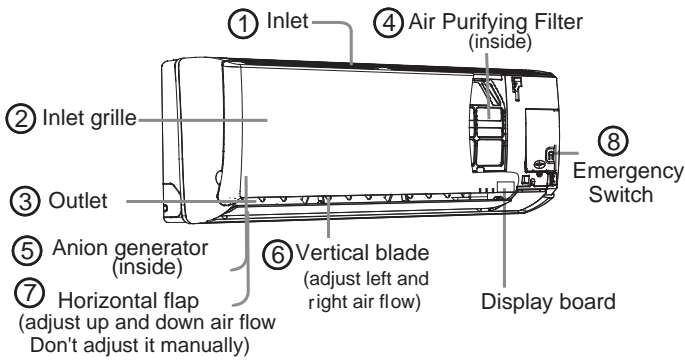
8.1 System configuration

After the installation and test operation of the room air conditioner have been completed, it should be operated and handled as described below. Every user would like to know the correct method of operation of the room air conditioner, to check if it is capable of cooling(or heating) well, and to know a clever method of using it. In order to meet this expectation of the users, giving sufficient explanations taking enough time can be said to reduce about 80% of the requests for servicing. However good the installation work is and however good the functions are, the customer may blame either the room air conditioner or its installation work because of improper handling. The installation work and handing over of the unit can only be considered to have been completed when its handling has been explained to the user without using technical terms but giving full knowledge of the equipment.

8.2 Instruction

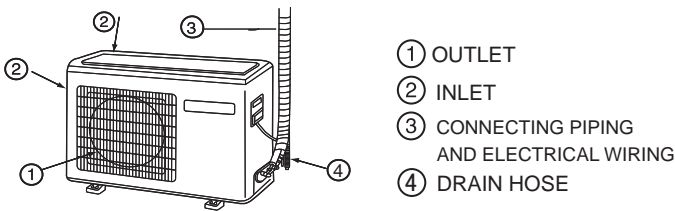
Parts and Functions

Indoor Unit



Actual inlet grille may vary from the one shown in the manual according to the product purchased

Outdoor Unit



Remote controller

1. Mode display

Operation mode	AUTO	COOL	DRY	FAN
Remote controller				

2. Signal sending display

3. SWING display

4. FAN SPEED display

Display circulated	LO	MED	HI	AUTO
--------------------	----	-----	----	------

5. LOCK display

6. TIMER OFF display
TIMER ON display

7. TEMP display

8. Additional functions display

Operation mode	QUIET SLEEP	Supplemental electrical heating	HEALTH	TURBO
Remote controller				

9. TURBO/Quiet button

10. HEAT button

11. COOL button

12. SWING UP/DOWN button

13. FAN SPEED button

14. HEALTH button

15. SLEEP button

16. LOCK button

17. LIGHT button

18. Auto button

19. POWER ON/OFF button

20. DRY button

21. TEMP button

22. SWING LEFT/RIGHT button

23. TIMER OFF/ON button

24. EXTRA FUNCTION button
Function: FAN → Healthy airflow → Fahrenheit/Celsius mode conversion → Low-Temperature Heating Operation Down to 10°C → Fresh air → A-B yard

25. CANCEL/CONFIRM button
Function: Setting and cancel to the timer and other additional functions.

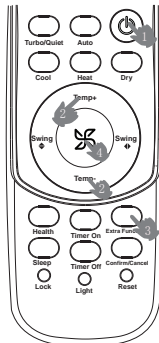
26. RESET button
When the remote controller appears abnormal, use a sharp pointed article to press this button to reset the remote.

Healthy function is not available for some units.

Operation

Base Operation

Remote controller



1. Unit start

Press ON/OFF on the remote controller, unit starts.

2. Select temp. setting

Press TEMP+ / TEMP- button

TEMP+ Every time the button is pressed, temp.setting increase 1°C,if kept depressed, it will increase rapidly

TEMP- Every time the button is pressed, temp.setting decrease 1°C,if kept depressed, it will decrease rapidly

Select a desired temperature.

3. Fan function

Press EXTRA FUNCTION button to enter additional options, when cycle display to , will flash. And then press CONFIRM/CANCEL enter to FAN function.

For each press button fan speed changes as follows:

Remote controller:



Air conditioner is running under displayed fan speed. When FAN is set to AUTO, the air conditioner automatically adjusts the fan speed according to room temperature.

Operation Mode	Remote Controller	Note
AUTO		Under the mode of auto operation, air conditioner will automatically select Cool or Heat operation according to room temperature. When FAN is set to AUTO, the air conditioner automatically adjusts the fan speed according to room temperature.
COOL		Cooling only unit do not have displays and functions related with heating
DRY		In DRY mode, when room temperature becomes lower than temp.setting+2°C,unit will run intermittently at LOW speed regardless of FAN setting.
HEAT		In HEAT mode,warm air will blow out after a short periodof the time due to cold-draft prevention function.
FAN		In FAN operation mode, the unit will not operate in COOL or HEAT mode but only in FAN mode ,AUTO is not available in FAN mode.And temp.setting is disabled. When FAN is set to AUTO, the air conditioner automatically adjusts the fan speed according to room temperature. In FAN mode,SLEEP operation is not available.

Emergency operation and test operation

Emergency Operation:

- Use this operation only when the remote controller is defective or lost, and with function of emergency running, air conditioner can run automatically for a while.
- When the emergency operation switch is pressed, the " Pi " sound is heard once, which means the start of this operation.
- When power switch is turning on for the first time and emergency operation starts, the unit will run automatically in the following modes:

Room temperature	Designated temperature	Timer mode	Fan speed	Operation mode
Above 23°C	26°C	No	AUTO	COOL

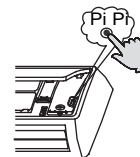


- It is impossible to change the settings of temp. and fan speed,It is also not possible to operate in timer or dry mode.

Test operation:

Test operation switch is the same as emergency switch.

- Use this switch in the test operation when the room temperature is below 16°C, do not use it in the normal operation.
- Continue to press the test operation switch for more than 5 seconds. After you hear the "Pi" sound twice, release your finger from the switch: the cooling operation starts with the air flow speed "Hi".
- Under this operation mode,the fan motor of indoor unit will run in high speed.

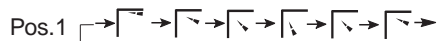


Air Flow Direction Adjustment

1. Status display of air flow Vertical flap

For each press of SWING button, remote controller displays as follows :

remote controller:



Initial state

Pos.2 No initial state displayed on remote controller, the vertical flap will be fixed on the current position

2. Left and right air flow adjustment

For each press of SWING button, remote controller displays as follows :

remote controller:



Cautions:


- When adjusting the flap by hand,turn off the unit.
- When humidity is high,condensate water might occur adjusted to left or at air outlet if all vertical louvers are right.
- It is advisable not to keep horizontal flap at downward position for a long time in COOL or DRY mode , otherwise, condensate water might occur.

Note:

When restart after remote turning off, the remote controller will automatically memorize the previous set swing position.

Operation

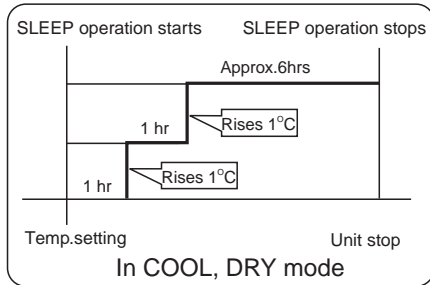
Comfortable SLEEP

Press **SLEEP** button , the remote controller will show  , and then achieve to the sleep function. Press again this **SLEEP** button , the sleep function will be cancelled.

Operation Mode

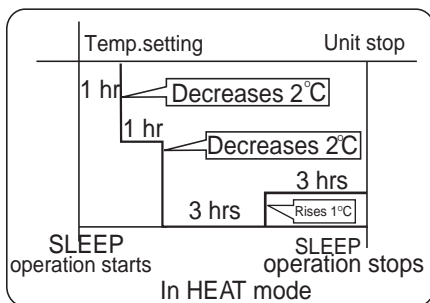
1. In COOL, DRY mode

1 hours after SLEEP mode starts,temp.will become 1°C higher than temp.setting.After another 1 hours, temp.risesby 1°C futher .The unit will run for further 6 hours then stops Temp. is higher than temp.setting so that room temperature won't be too low for your sleep.



2.In HEAT mode

1 hours after SLEEP mode starts, temp will become 2°C lower than temp.setting. After another 1 hours, temp decrease by 2°C further. After more another 3 hours, temp.risesby 1°C further.The unit will run for further 3 hours then stops.Temp. is lower than temp. setting so that room temperature won't be too high for your sleep.



3.In AUTO mode

The unit operates in corresponding sleep mode corresponding sleep mode adapted to the automatically selected operation mode.

4. In FAN mode

It has no SLEEP function.

5. When quiet sleeping function is set to 8 hours the quiet sleeping time can not be adjusted.When TIMER function is set,the quiet sleeping function can't be set up.After the sleeping function is set up,if user resets TIMER function, the sleeping function will be cancelled; the machine will be in the state of timing-on,if the two modes are set up at the same time,either of their operation time is ended first,the unit will stop automatically,and the other mode will be cancelled.

Note

When TIMER function is set, the sleeping function can't be set up .After the sleeping function is set up,if user resets TIMER function, the sleeping function will be cancelled; the machine will be in the state of timing-on.

Note to the power failure resume:

Press the sleep button ten times in five seconds and enter function after hearing four sounds.And press the sleep button ten times within five seconds and leave this function after hearing two sounds.

Power Failure Resume Function

If the unit is started for the first time, the compressor will not start running unless 3 minutes have elapsed. When the power resumes after power failure, the unit will run automatically, and 3 minutes later the compressor starts running.

Healthy airflow Operation

1.Press to starting

Setting the comfort work conditions.

2.The setting of healthy airflow function

Press **EXTRA FUNCTION** button to enter additional options,Press this button continuously, the louvers location will cycle between in the following three locations, to choose the swing location what you needed,and then press **CONFIRM/CANCEL** button to confirm.




3.The cancel of the healthy airflow function

Press **EXTRA FUNCTION** button to enter additional options,Press this button continuously, the louvers location will cycle between in the following three locations again,and then press **CONFIRM/CANCEL** button to cancel.

Notice: Do not direct the flap by hand. Otherwise, the grille will run incorrectly. If the grille is not run correctly, stop for a minute and then start, adjusting by remote controller.

Note:


- 1.After setting the healthy airflow function, the position grill is fixed.
- 2.In cooling, it is better to select the  mode.
- 3.In cooling and dry, using the air conditioner for a long time under the high air humidity, condensate water may occur at the grille .


Operation

Timer On/Off On-Off Operation

1. After unit starts, select your desired operation mode.

2. Press  /  button to change TIMER mode.

Press  button "ON 0.5 " will appear ,after 10 seconds the time display will be blank.

Press  button "OFF 0.5 " will appear ,after 10 seconds the time display will be blank.

Then select your desired TIMER mode (TIMER ON or TIMER OFF). " ON "or " OFF "will flash.

3. Press  /  button to set time.

Press the button for each time, setting time in the first 12 hours increased by 0.5 hour every time, after 12 hours,increased by 1 hour every time.

4. Confirm timer setting

After adjust the time,press  button and confirm the time ON or OFF button will not flash any more.

5. Cancel timer setting

Press the  button the time display eliminated.


Hints:

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

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

HEALTH Operation

(This function is unavailable on some models.)

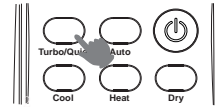
Press HEALTH button , the remote controller will show  and then achieve to the health function.

Press again this HEALTH button , the health function will be cancelled.


The anion generator in the airconditioner can generate a lot of anion effectively balance the quantity of position and anion in the air and also to kill bacteria and speed up the dust sediment in the room and finally clean the air in the room.

TURBO Operation

(This function is unavailable on some models.)



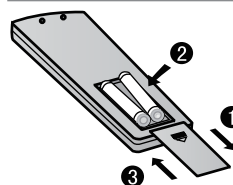
When you need fast cool or fast dehumidification,you can choose the Turbo function; when you sleep, read, you can choose Quiet function

Press the  button, you can switch the "Turbo" and "Quiet" function easily. Eevery press,the remote controller will swith as below



When running in Turbo , the fan speed is the highest, when running in Quiet, the fan speed is super slow

Loading of the battery



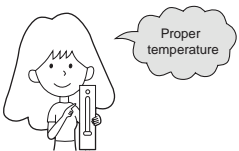
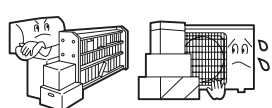


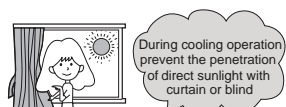
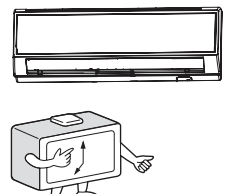



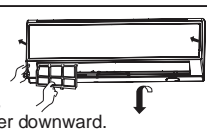
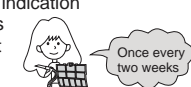
- 1 Remove the battery cover;
- 2 Load the batteries as illustrated. 2 R-03 batteries, resetting key (cylinder);
- 3 Be sure that the loading is in line with the "+" and "-";
- 4 Load the battery,then put on the cover again.

Note:


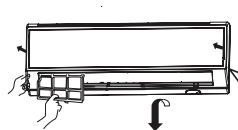

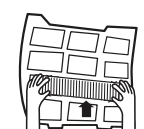
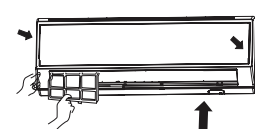
- The distance between the signal transmission head and the receiver hole should be within 7m without any obstacle as well.
- When electronic-started type fluorescent lamp or change-over type fluorescent lamp or wireless telephone is installed in the room, the receiver is apt to be disturbed in receiving the signals, so the distance to the indoor unit should be shorter.
- Full display or unclear display during operation indicates the batteries have been used up. Please change batteries.
- If the remote controller can't run normally during operation, please remove the batteries and reload several minutes later.

Maintenance

For Smart Use of The Air Conditioner

<p>Setting of proper room temperature</p> 	<p>Do not block the air inlet or outlet</p> 	<p>Remote Controller</p>  <p>Do not use water, wipe the controller with a dry cloth. Do not use glass cleaner or chemical cloth.</p>	<p>Indoor Body</p>  <p>wipe the air conditioner by using a soft and dry cloth. For serious stains, use a neutral detergent diluted with water. Wring the water out of the cloth before wiping, then wipe off the detergent completely.</p>
<p>Close doors and windows during operation</p> 	<p>Use the timer effectively</p> 	<p>Do not use the following for cleaning</p>  <p>Gasoline, benzene, thinner or cleanser Hot water over 40°C (104°F) may damage the coating of the unit. cause discoloring or deformation.</p>	
<p>If the unit is not to be used for a long time, turn off the power supply main switch.</p> 	<p>Use the louvers effectively</p> 	<p>Air Filter cleaning</p> <ol style="list-style-type: none"> 1 Open the inlet grille by pulling it upward. 2 Remove the filter. Push up the filter's center tab slightly until it is released from the stopper, and remove the filter downward. 3 Clean the filter. Use a vacuum cleaner to remove dust, or wash the filter with water. After washing, dry the filter completely in the shade. 4 Attach the filter. Attach the filter correctly so that the "FRONT" indication is facing to the front. Make sure that the filter is completely fixed behind the stopper. If the right and left filters are not attached correctly, that may cause defects. 5 Close the inlet grille.  	

Replacement of Air Purifying Filter



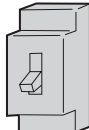
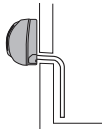



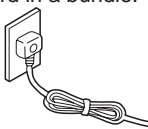
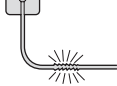





<p>1. Open the Inlet Grille Prop up the inlet grille by using a small device named grille-support which located in the right side of the indoor unit.</p>  <p>2. Detach the standard air filter Slide the knob slightly upward to release the filter, then withdraw it.</p>  <p>Detach old Air Purifying Filter</p>  <p>3. Attach Air Purifying Filter Put air purifying filter appliances into the right and left filter frames.</p> 	<p>4. Attach the standard air filter (Necessary installation)</p>  <p>ATTENTION: The white side of the photocatalyst air purifying filter face outside, and the black side face the unit. The green side of the bacteria-killing medium air purifying filter face outside, and the white side face the unit.</p> <p>5. Close the Inlet Grille Close the Grille surely</p> <p>NOTE:</p> <ul style="list-style-type: none"> • The photocatalyst air purifying filter will be solarized in fixed time. In normal family, it will be solarized every 6 months. • The bacteria-killing medium air purifying filter will be used for a long time, no need for replacement. But in the period of using them, you should remove the dust frequently by using vacuum cleaner or flapping them lightly, otherwise, its performance will be affected. • Please keep the bacteria-killing medium air purifying filter in the cool and dry conditions, avoid long time directly sunshine when you stop using it, or its ability of sterilization will be reduced.
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Cautions


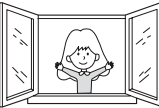
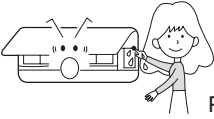
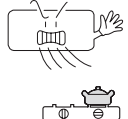
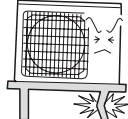



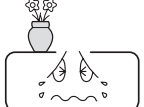
⚠ WARNING

Please call Sales/Service Shop for the Installation.
Do not attempt to install the air conditioner by yourself because improper works may cause electric shock, fire, water leakage.

⚠ WARNING

<p>When abnormality such as burnt-smell found, immediately stop the operation button and contact sales shop.</p>  OFF  STRICT ENFORCEMENT	<p>Use an exclusive power source with a circuit breaker</p> 	<p>Check proper installation of the drainage securely</p>  <p>STRICT ENFORCEMENT</p>	
<p>Connect power supply cord to the outlet completely</p>  STRICT ENFORCEMENT	<p>Use the proper voltage</p>  STRICT ENFORCEMENT	<p>1. Do not use power supply cord extended or connected in halfway 2. Do not install in the place where there is any possibility of inflammable gas leakage around the unit. 3. Do not get the unit exposed to vapor or oil steam.</p>  PROHIBITION	
<p>Do not use power supply cord in a bundle.</p>  PROHIBITION	<p>Take care not to damage the power supply cord.</p>  PROHIBITION	<p>Do not insert objects into the air inlet or outlet.</p>  PROHIBITION	
<p>Do not start or stop the operation by disconnecting the power supply cord and so on.</p>  PROHIBITION	<p>Do not channel the air flow directly at people, especially at infants or the aged.</p>  PROHIBITION	<p>Do not try to repair or reconstruct by yourself.</p> 	<p>Connect the earth cable.</p>  earthing






⚠ CAUTION

<p>Do not use for the purpose of storage of food, art work, precise equipment, breeding, or cultivation.</p>  PROHIBITION	<p>Take fresh air occasionally especially when gas appliance is running at the same time.</p>  STRICT ENFORCEMENT	<p>Do not operate the switch with wet hand.</p>  PROHIBITION
<p>Do not install the unit near a fireplace or other heating apparatus.</p>  PROHIBITION	<p>Check good condition of the installation stand</p>  PROHIBITION	<p>Do not pour water onto the unit for cleaning</p>  PROHIBITION
<p>Do not place animals or plants in the direct path of the air flow</p>  PROHIBITION	<p>Do not place any objects on or climb on the unit.</p>  PROHIBITION	<p>Do not place flower vase or water containers on the top of the unit.</p>  PROHIBITION

English

Trouble shooting

Before asking for service, check the following first.

	Phenomenon	Cause or check points
Normal Performance inspection	The system does not restart immediately. 	<ul style="list-style-type: none"> When unit is stopped, it won't restart immediately until 3 minutes have elapsed to protect the system. When the electric plug is pulled out and reinserted, the protection circuit will work for 3 minutes to protect the air conditioner.
	Noise is heard 	<ul style="list-style-type: none"> During unit operation or at stop, a swishing or gurgling noise may be heard. At first 2-3 minutes after unit start, this noise is more noticeable. (This noise is generated by refrigerant flowing in the system.) During unit operation, a cracking noise may be heard. This noise is generated by the casing expanding or shrinking because of temperature changes. Should there be a big noise from air flow in unit operation, air filter may be too dirty.
	Smells are generated.	<ul style="list-style-type: none"> This is because the system circulates smells from the interior air such as the smell of furniture, paint, cigarettes.
	Mist or steam are blown out. 	<ul style="list-style-type: none"> During COOL or DRY operation, indoor unit may blow out mist. This is due to the sudden cooling of indoor air.
	In dry mode, fan speed can't be changed.	<ul style="list-style-type: none"> In DRY mode, when room temperature becomes lower than temp. setting+2 °C, unit will run intermittently at LOW speed regardless of FAN setting.
Multiple check		<ul style="list-style-type: none"> Is power plug inserted? Is there a power failure? Is fuse blownout?
	Poor cooling 	<ul style="list-style-type: none"> Is the air filter dirty? Normally it should be cleaned every 15 days. Are there any obstacles before inlet and outlet? Is temperature set correctly? Are there some doors or windows left open? Is there any direct sunlight through the window during the cooling operation?(Use curtain) Are there too much heat sources or too many people in the room during cooling operation?

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.
- This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of appliance by person responsible for their safety. Children should be supervised to ensure that they do not play with the appliance.

Specifications

- The refrigerating circuit is leak-proof.

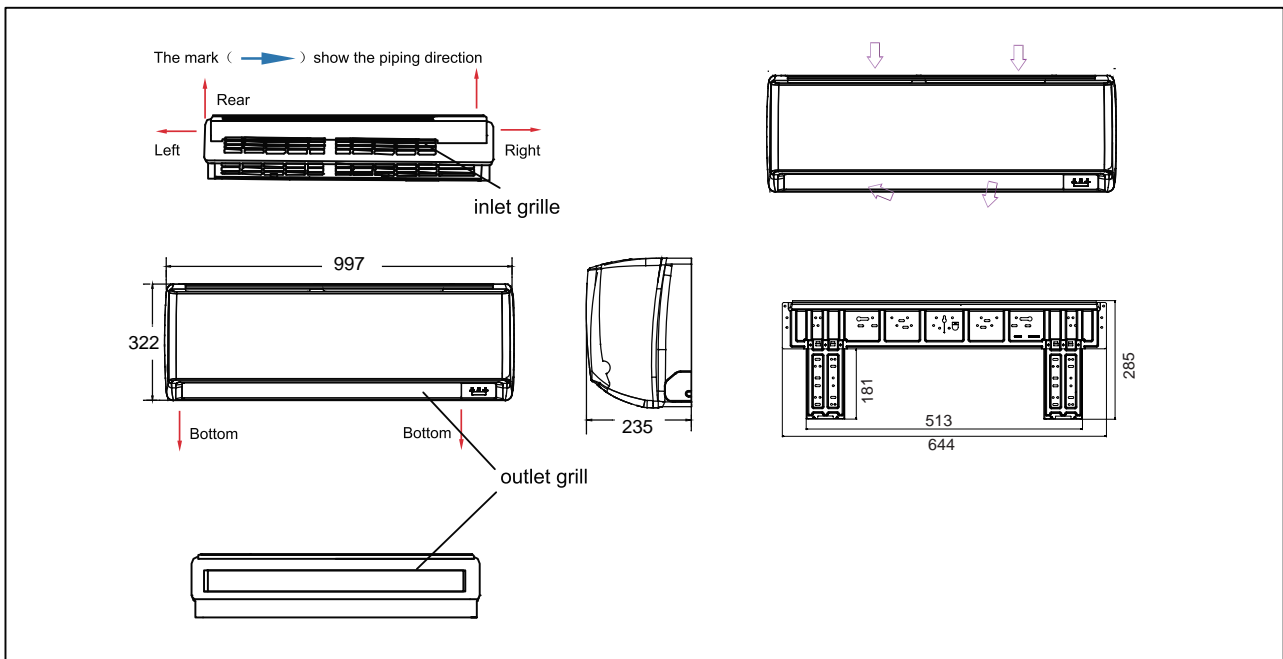
The machine is adaptive in following situation

1. Applicable ambient temperature range:

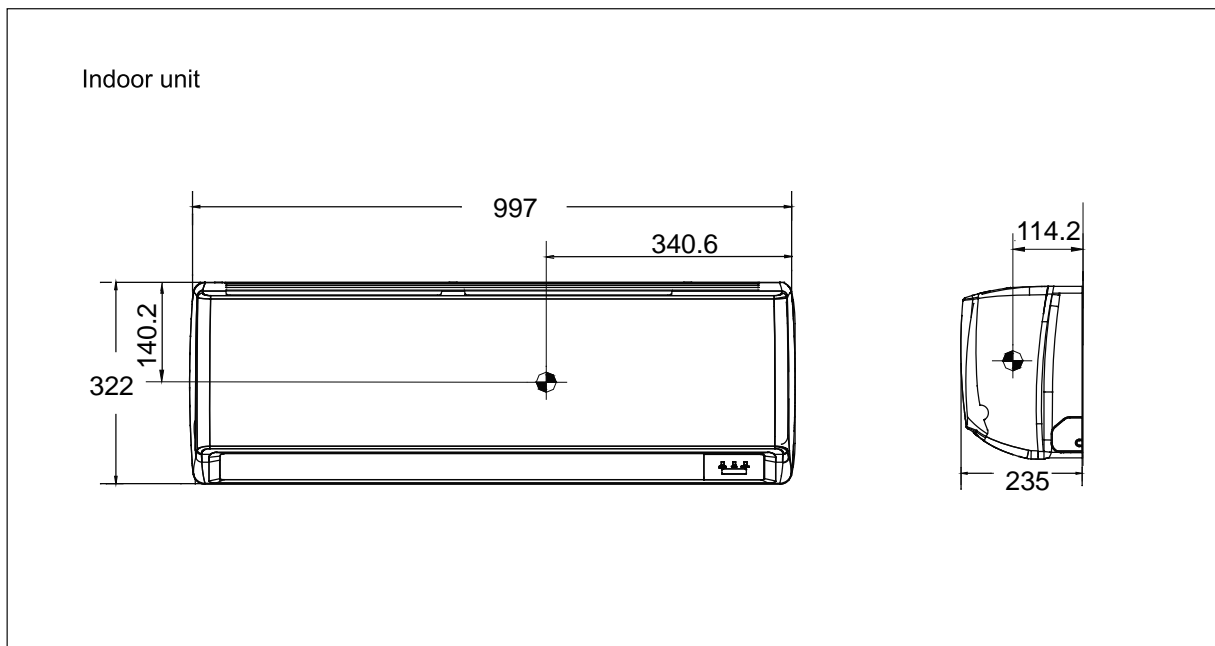
Cooling	Indoor	Maximum:D.B/W.B 32°C/23°C Minimum:D.B/W.B 21°C/15°C
	Outdoor	Maximum:D.B/W.B 46°C/26°C Minimum: D.B 18°C
Heating	Indoor	Maximum:D.B 27°C Minimum: D.B 15°C
	Outdoor	Maximum:D.B/W.B 24°C/18°C Minimum:D.B/W.B -7°C/-8°C
	Outdoor (INVERTER)	Maximum:D.B/W.B 24°C/18°C Minimum:D.B -15°C

- If the power supply cord is damaged, it must be replaced by the manufacturer or its service agent or a similar qualified person.
- If the fuse of indoor unit on PC board is broken, please change it with the type of T. 3.15A/ 250V. If the fuse of outdoor unit is broken, change it with the type of T.25A/250V
- The wiring method should be in line with the local wiring standard.
- After installation, the power plug should be easily reached.
- The waste battery should be disposed properly.
- Please employ the proper power plug, which fit into the power supply cord.
- The power plug and connecting cable must have acquired the local attestation.
- In order to protect the units, please turn off the A/C first, and at least 30 seconds later, cutting off the power.
- Please check the installation instruction of WiFi in the WiFi module

9. Dimensional drawings



10. Center of gravity



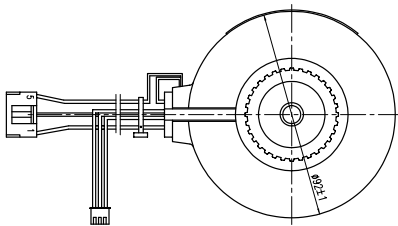
11 Service Diagnosis

11.1 Caution for Diagnosis

The operation lamp flashes when any of the following errors is detected.

1. When a protection device of the indoor or outdoor unit is activated or when the thermistor malfunctions, disabling equipment operation.
2. When a signal transmission error occurs between the indoor and outdoor units. In either case, conduct the diagnostic procedure described in the following pages.

11.2 Parameter of primary electronic appliance

NO	Name	Parameter	Picture
1	Fan motor	Rated voltage: DC310V Rated current: 0.17A Rated frequency: – Resistance: 548Ω	

11.3 Problem Symptoms and Measures

Symptom	Check Item	Details of Measure
None of the units operates	Check the power supply.	Check to make sure that the rated voltage is supplied.
	Check the indoor PCB.	Check to make sure that the indoor PCB is broken.
Operation sometimes stops	Check the power supply.	A power failure of 2 to 10 cycles can stop air conditioner operation.
Equipment operates but does not cool, or does not heat (only for heat pump)	Check for faulty operation of the electronic expansion valve.	Set the units to cooling operation, and compare the temperatures of the liquid side connection pipes of the connection section among rooms to check the opening and closing operation of the electronic expansion valves of the individual units.
	Diagnosis by service port pressure and operating current.	Check for insufficient gas.
Large operating noise and vibrations	Check the installation condition.	Check to make sure that the required spaces for installation (specified in the Technical Guide, etc.) are provided.

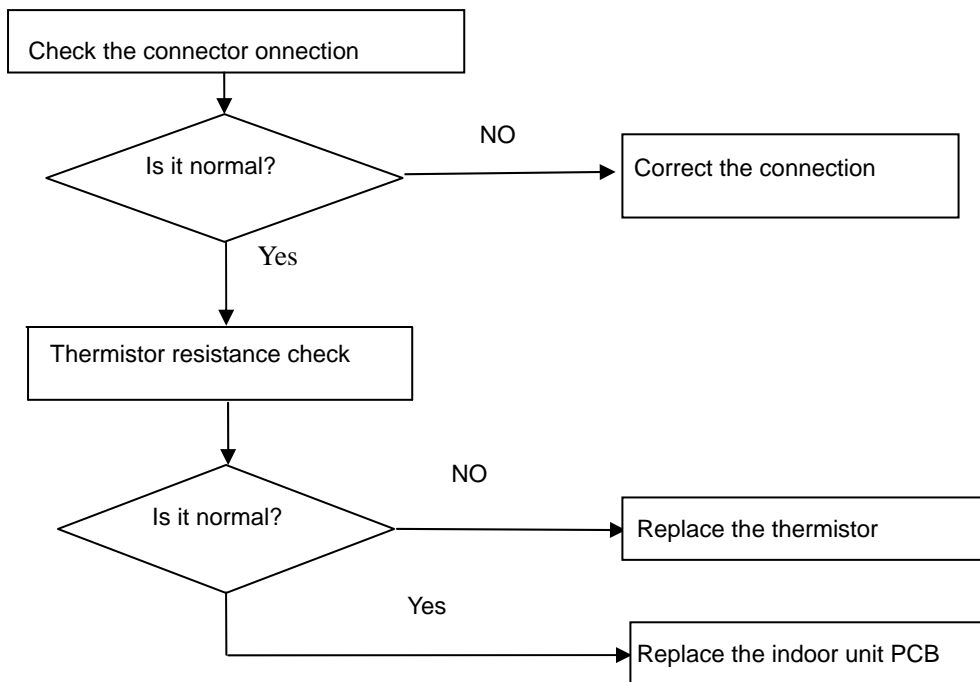
11.4 Error Codes and Description indoor display

	Code indication		fault description	Reference Page
	Indoor displaying panel code indication	Outdoor (LED1 flash times)		
Indoor and Outdoor	E7	15	Communication fault between indoor and outdoor units	Page .45
Indoor Malfunction	E1	--	Room temperature sensor failure	Page .36
	E2	--	Heat-exchange sensor failure	Page .36
	E4	--	Indoor EEPROM error	Page .37
	E14	--	Indoor fan motor malfunction	Page .38
Outdoor Malfunction	F12	1	Outdoor EEPROM error	Page .37
	F1	2	The protection of IPM	Page .41
	F22	3	Overcurrent protection of AC electricity for the outdoor model	Page .42
	F3	4	Communication fault between the IPM and outdoor PCB	Page.43
	F19	6	Power voltage is too high or low	Page .44
	F4	8	Overheat protection for Discharge temperature	Page .45
	F8	9	Outdoor DC fan motor fault	Page .40
	F21	10	Defrost temperature sensor failure	Page .36
	F7	11	Suction temperature sensor failure	Page .36
	F6	12	Ambient temperature sensor failure	Page .36
	F25	13	Discharge temperature sensor failure	Page .36
	F11	18	deviate from the normal for the compressor	Page .48
	F28	19	Loop of the station detect error	Page .48
	F2	24	Overcurrent of the compressor	Page .42
	F23	25	Overcurrent protection for single-phase of the compressor	Page .42
	E9	21	High work-intense protection	Page .49

11.4.1 Thermistor or Related Abnormality

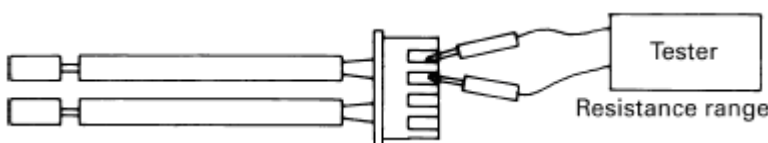
Indoor display	E1: Room temperature sensor failure E2: Heat-exchange sensor failure
	LED1 flash 10 times: Defrost temperature sensor failure
Outdoor display	LED1 flash 11 times: Suction temperature sensor failure LED1 flash 12 times: Ambient temperature sensor failure LED1 flash 13 times: Discharge temperature sensor failure

Method of malfunction section	The temperatures detected by the thermistors are used to determine thermistor errors
Malfunction detection conditions	when the thermistor input is more than 4.92V or less than 0.08V during compressor operation. ● Note: The values vary slightly in some models
*Thermistor resistance check	<ul style="list-style-type: none"> ■ Faulty connector connection ■ Faulty thermistor ■ Faulty PCB
Troubleshooting	* Caution Be sure to turn off power switch before connect or disconnect connector, or else parts damage may be occurred.



Thermistor resistance check method:

Remove the connector of the thermistor on the PCB, and measure the resistance of thermistor using tester. The relationship between normal temperature and resistance is shown in the value of indoor thermistor.



11.4.2 EEPROM abnormal

Indoor Display E4: indoor EEPROM error
 outdoor display F12: Outdoor EEPROM error; Outdoor LED1 flash 1 times

Method of
malfunction
detection

The Data detected by the EEPROM are used to determine MCU

Malfunction
detection
conditions

when the data of EEPROM is error or the EEPROM is damaged

Supposed
causes

- Faulty EEPROM data
- Faulty EEPROM
- Faulty PCB

Troubleshooting

* Caution Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.

Replace the indoor or outdoor mainboard

11.4.3 Indoor fan motor malfunction

Indoor Display E14

Method of Malfunction Detection

The rotation speed detected by the Hall IC during fan motor operation is used to determine abnormal fan motor operation

Malfunction Decision Conditions

when the detected rotation feedback signal don't received in 2 minutes

Supposed Causes

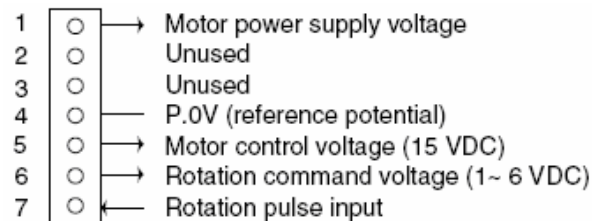
- Operation halt due to breaking of wire inside the fan motor .
- Fan motor overheat protection
- Operation halt due to breaking of the fan motor lead wires
- Detection error due to faulty indoor unit PCB

Troubleshooting

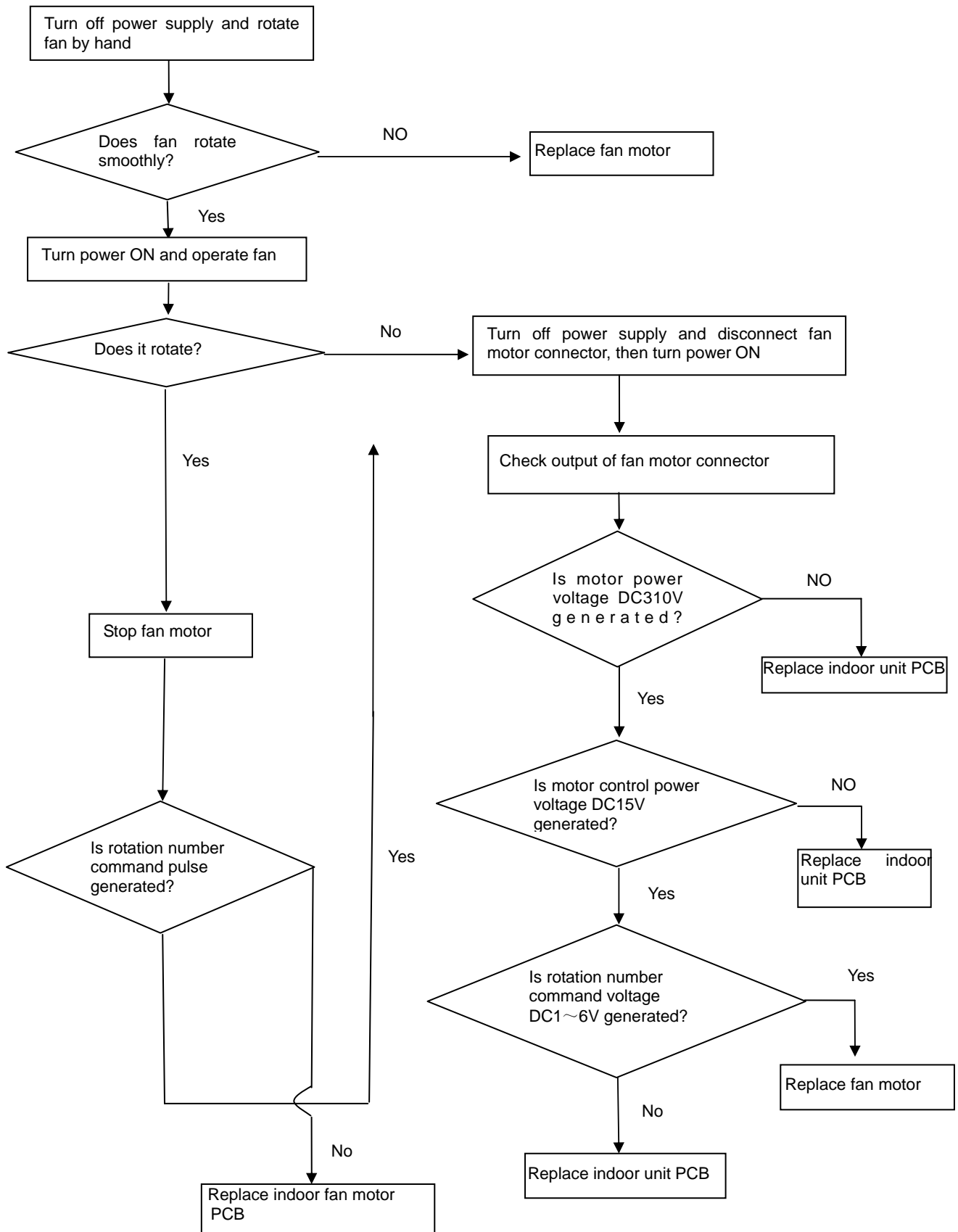
* Caution Be sure to turn off power switch before connect or disconnect connector, or else parts damage may be occurred.

How to check Fan Motor (DC)

1. Check connector connection.
2. Check motor power supply voltage output (pins 1-4).
3. Check motor control voltage (pins 4-5).
4. Check rotation command voltage output (pins 4-6).
5. Check rotation pulse input (pins 4-7).

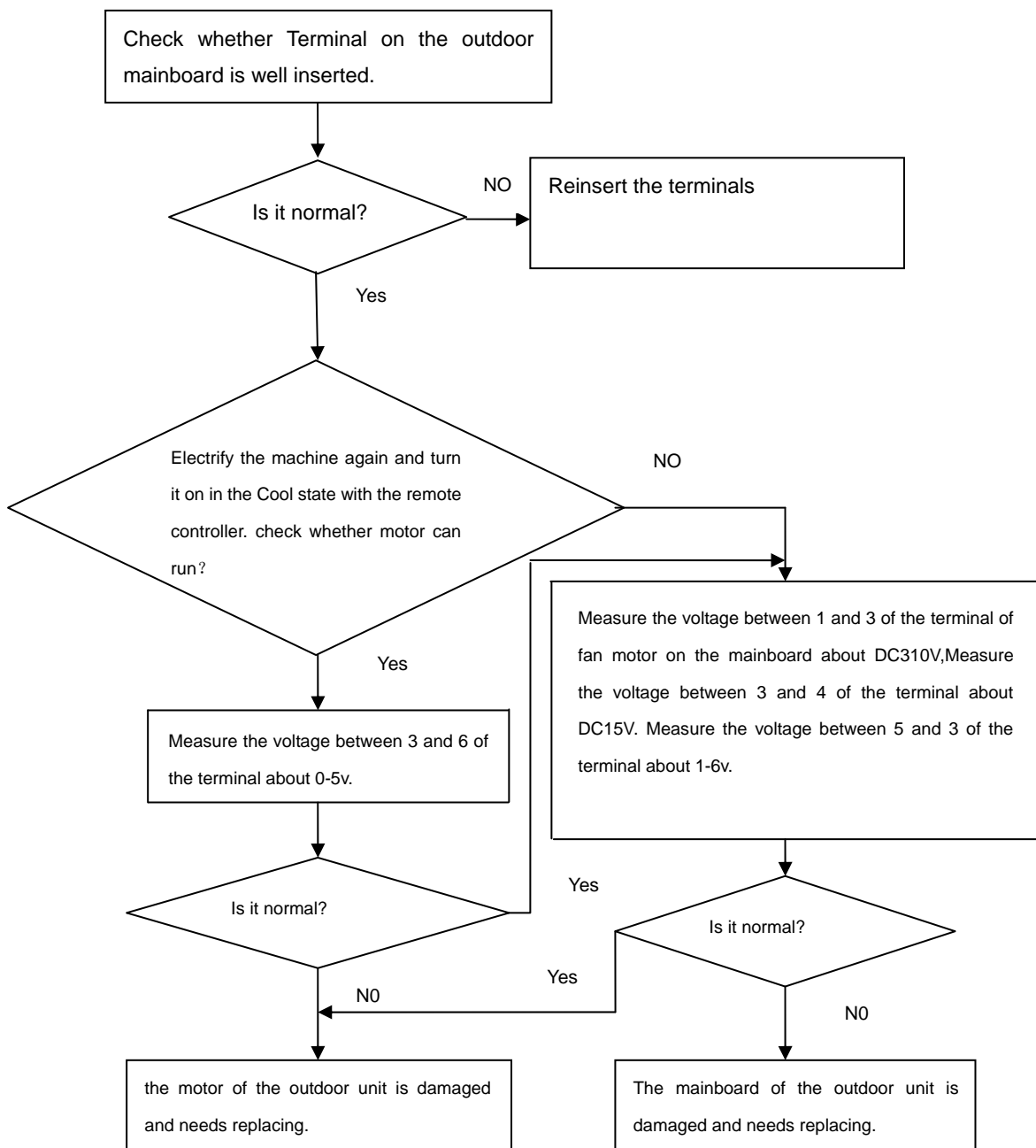


Notes: the a/c is electrifying, don't pull out or insert the terminals of the motor, else the motor would be damaged.



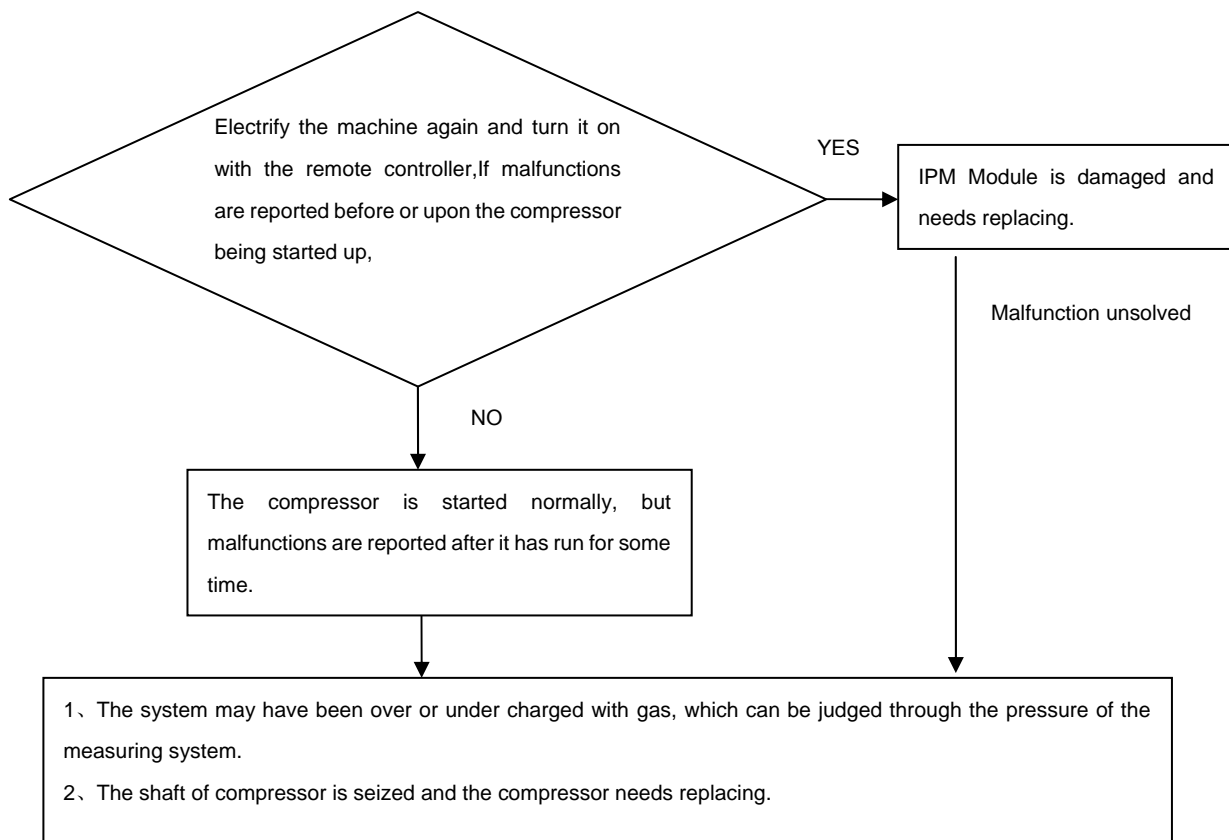
11.4.4 Outdoor DC fan motor fault

Outdoor display	LED1 flash 9 times
Method of malfunction detection	DC fan motor is detected by checking the fan running condition and so on
Malfunction detection conditions	when the data of EEPROM is error or the EEPROM is damaged
Supposed causes	<ul style="list-style-type: none"> ■DC fan motor protection dues to the DC fan motor faulty ■DC fan motor protection dues to faulty PCB
Troubleshooting	<p>* Caution</p> <p>Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.</p>



11.4.5 IPM protection

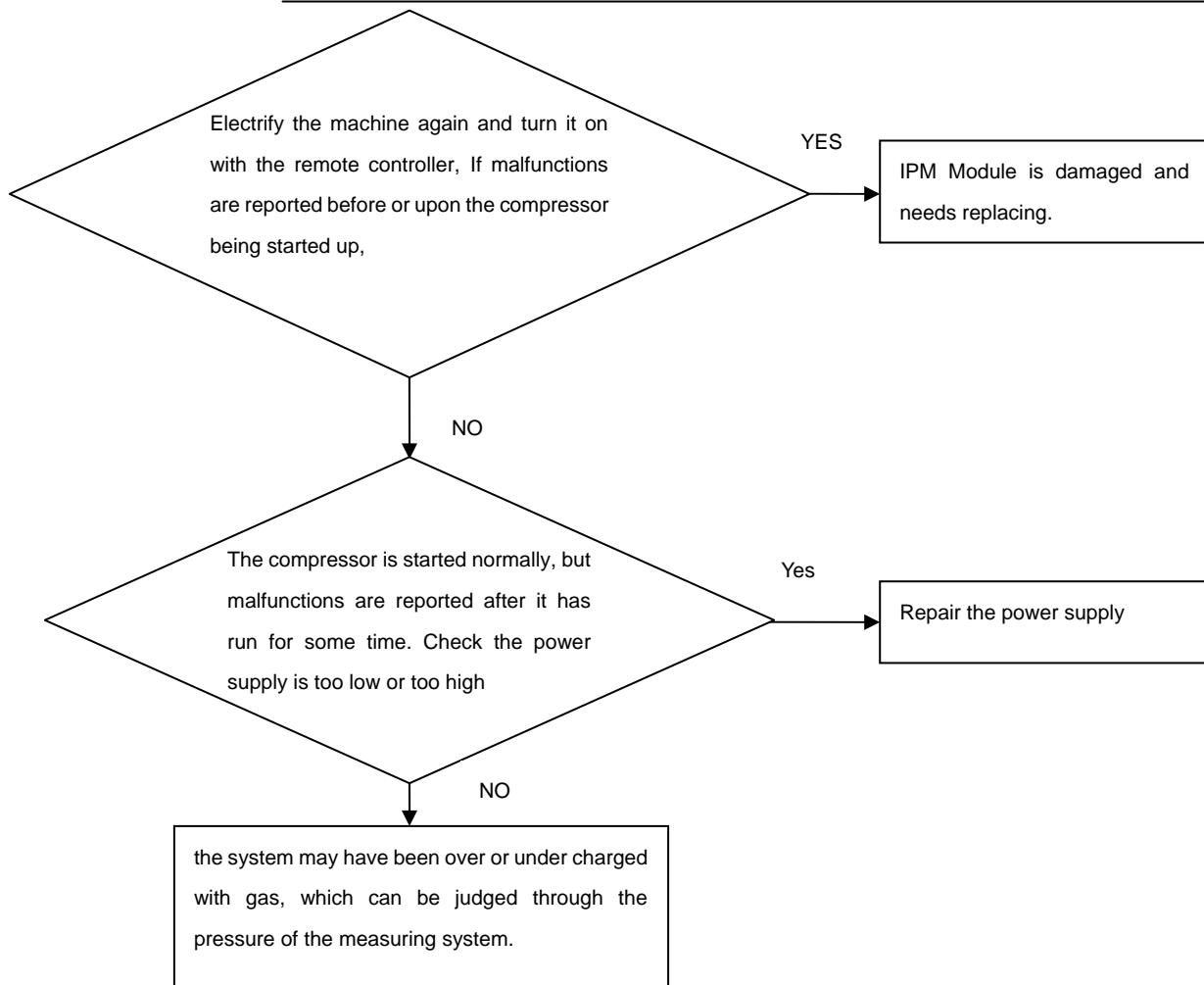
Outdoor display	LED1 flash 2 times
Method of malfunction detection	IPM protection is detected by checking the compressor running condition and so on
Malfunction detection conditions	<ul style="list-style-type: none"> ■The system leads to IPM protection due to over current ■The compressor faulty leads to IPM protection ■circuit component of IPM is broken and led to IPM protection
Supposed causes	<ul style="list-style-type: none"> ■IPM protection dues to the compressor faulty ■IPM protection dues to faulty PCB of IPM module ■Compressor wiring disconnected
Troubleshooting	<p>* Caution</p> <p>Be sure to turn off power switch before connect or disconnect connector, or else parts damage may be occurred..</p>



11.4.6 Over-current of the compressor

Outdoor display LED1 flash 3 or 24 or 25 times

Method of malfunction detection	the current of the compressor is too high
Malfunction detection conditions	when the IPM Module is damaged or the compressor is damaged. power supply voltage is too low or too high
Supposed causes	<ul style="list-style-type: none"> ■ Faulty IPM Module ■ Faulty compressor ■ Faulty power supply
Troubleshooting	<p>* Caution</p> <p>Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred...</p>

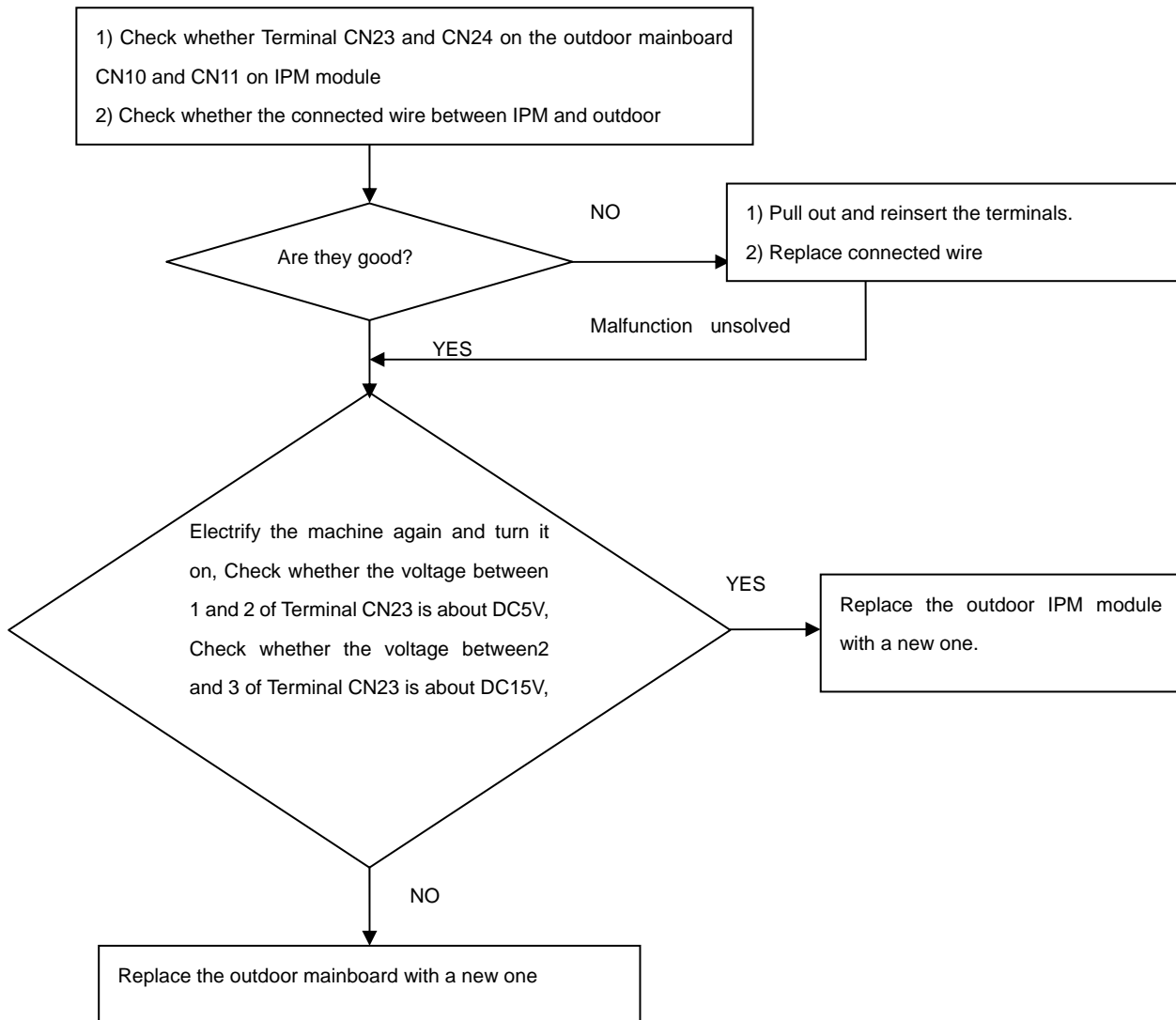


11.4.7 The communication fault between IPM and outdoor PCB

Outdoor display

LED1 flash 4 times

Method of malfunction detection	Communication is detected by checking the IPM module and the outdoor PCB
Malfunction detection conditions	<ul style="list-style-type: none"> ■The outdoor PCB broken leads to communication fault ■The IPM module broken leads to communication fault
Supposed causes	<ul style="list-style-type: none"> ■The outdoor PCB is broken ■The IPM module is broken ■Communication wiring disconnected
Troubleshooting	<p>* Caution</p> <p>Be sure to turn off power switch before connect or disconnect connector, or else parts damage may be occurred</p>

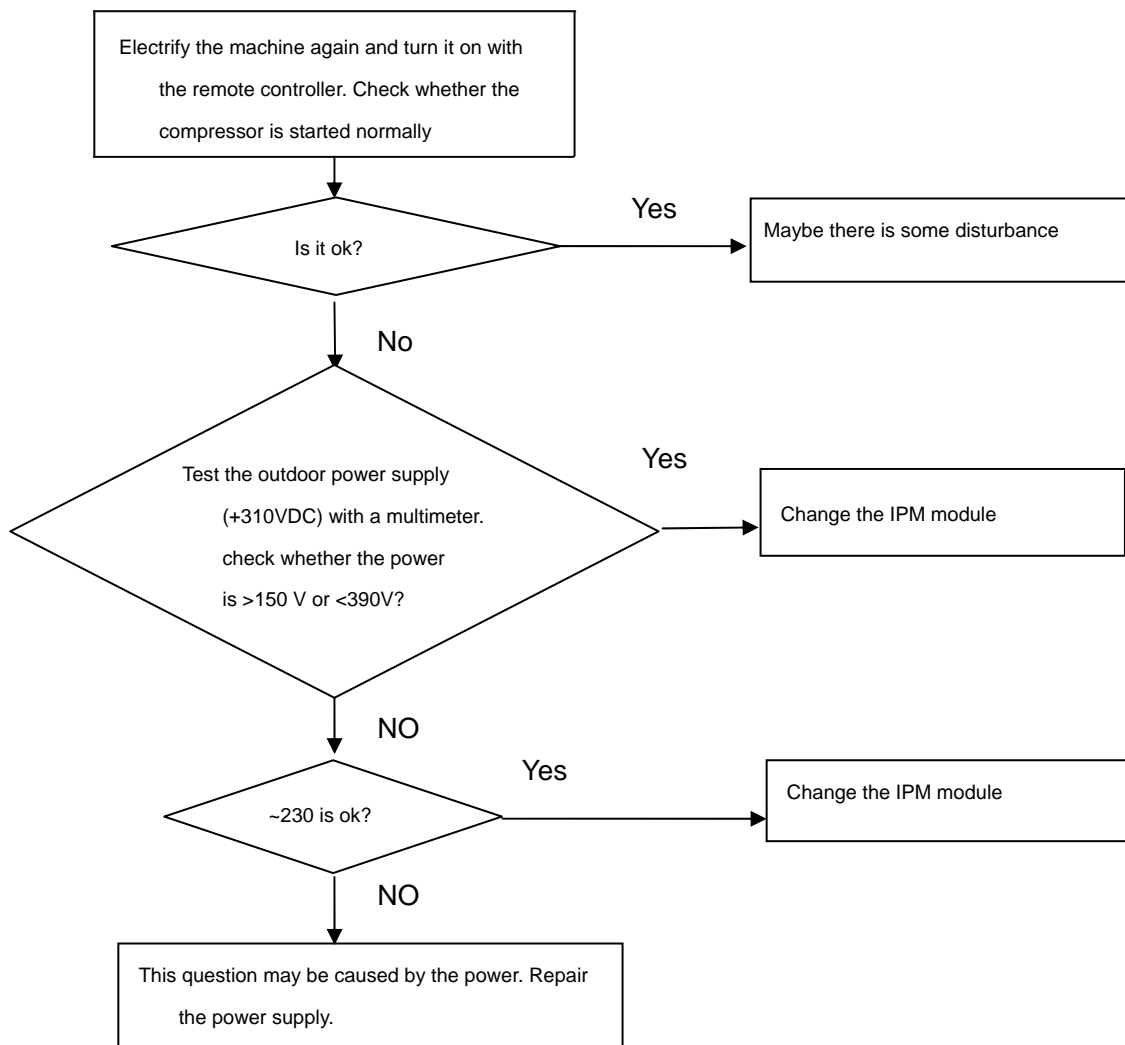


11.4.8 Power Supply Over or under voltage fault

Outdoor diplay

LED1 flash 6 times The power supply is over voltage

Method of malfunction detection	An abnormal voltage rise or fall is detected by checking the specified voltage detection
Malfunction detection conditions	An voltage signal is fed from the voltage detection circuit to the microcomputer
Supposed causes	<ul style="list-style-type: none"> ■Supply voltage not as specified. ■The IPM module is broken. ■The outdoor PCB is broken.
Troubleshooting	<p>* Caution</p> <p>Be sure to turn off power switch before connect or disconnect connector, or else parts damage may be occurred.</p>

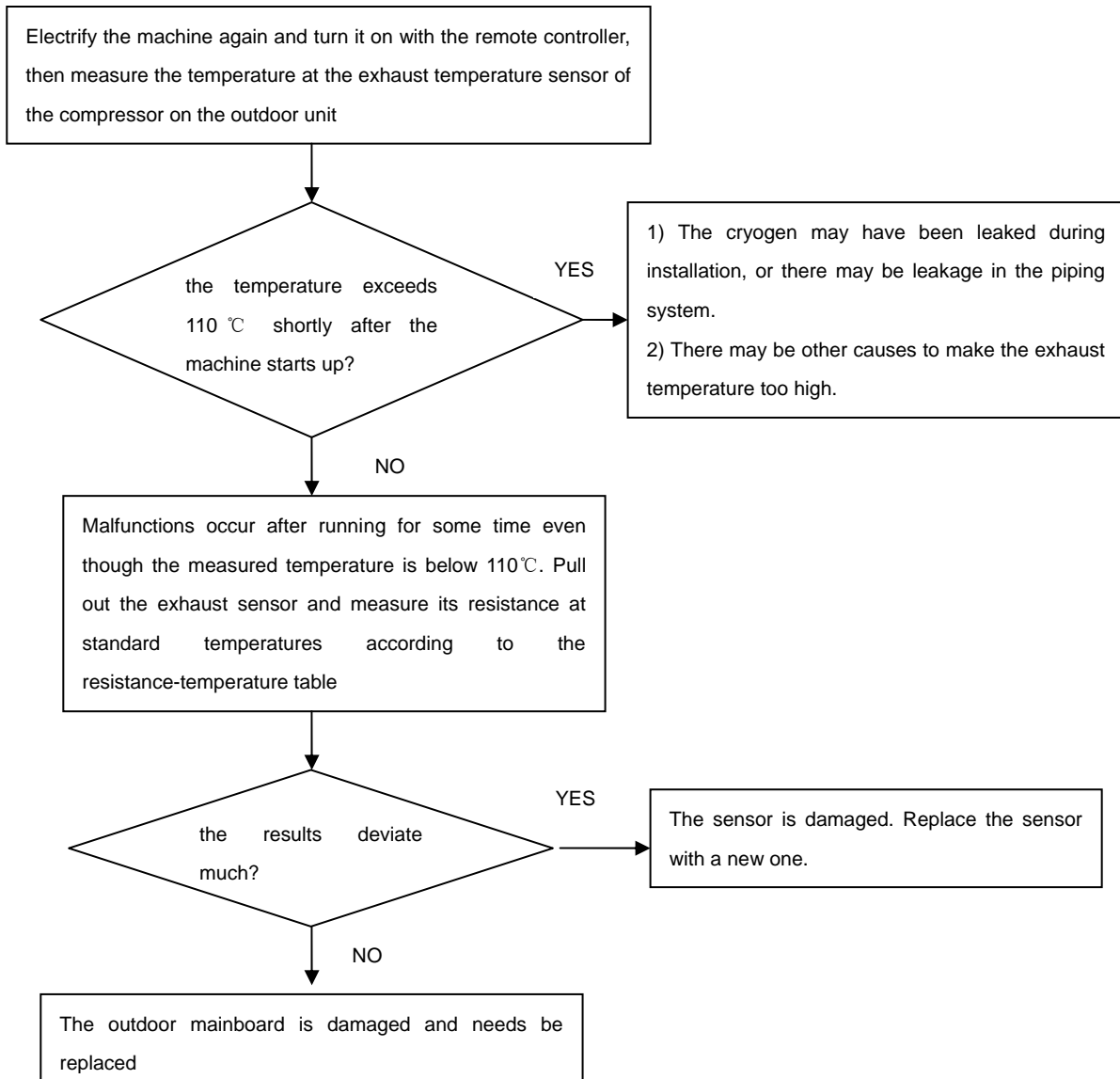


11.4.9 Overheat Protection For Discharge Temperature

Outdoor display

LED1 flash 8 times

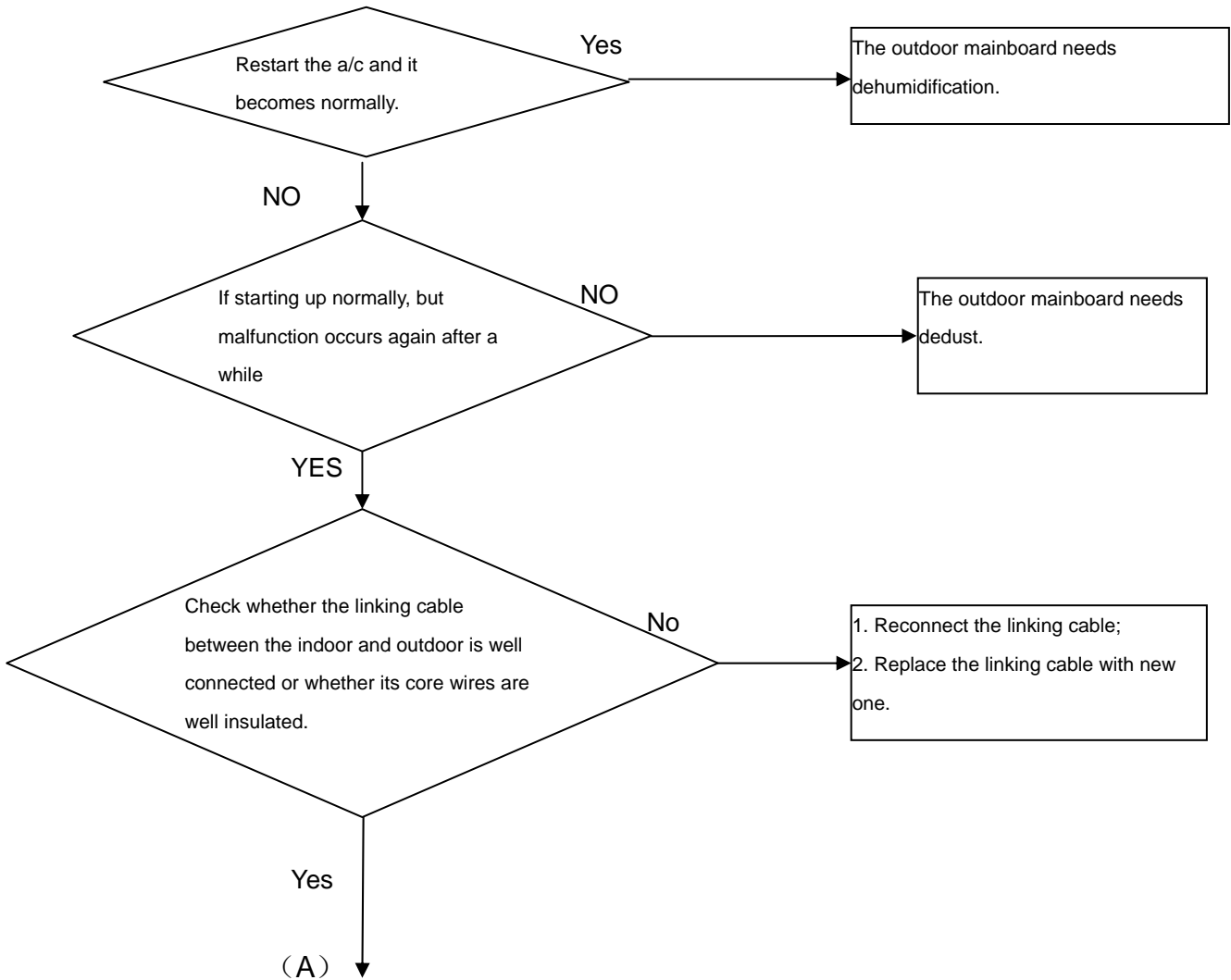
Method of malfunction detection	The Discharge temperature control is checked with the temperature being detected by the Discharge pipe thermistor
Malfunction detection conditions	when the compressor discharge temperature is above 110°C
Supposed causes	<ul style="list-style-type: none"> ■ Electronic expansion valve defective ■ Faulty thermistor ■ Faulty PCB
Troubleshooting	<p>* Caution</p> <p>Be sure to turn off power switch before connect or disconnect connector, or else parts damage may be occurred.</p>

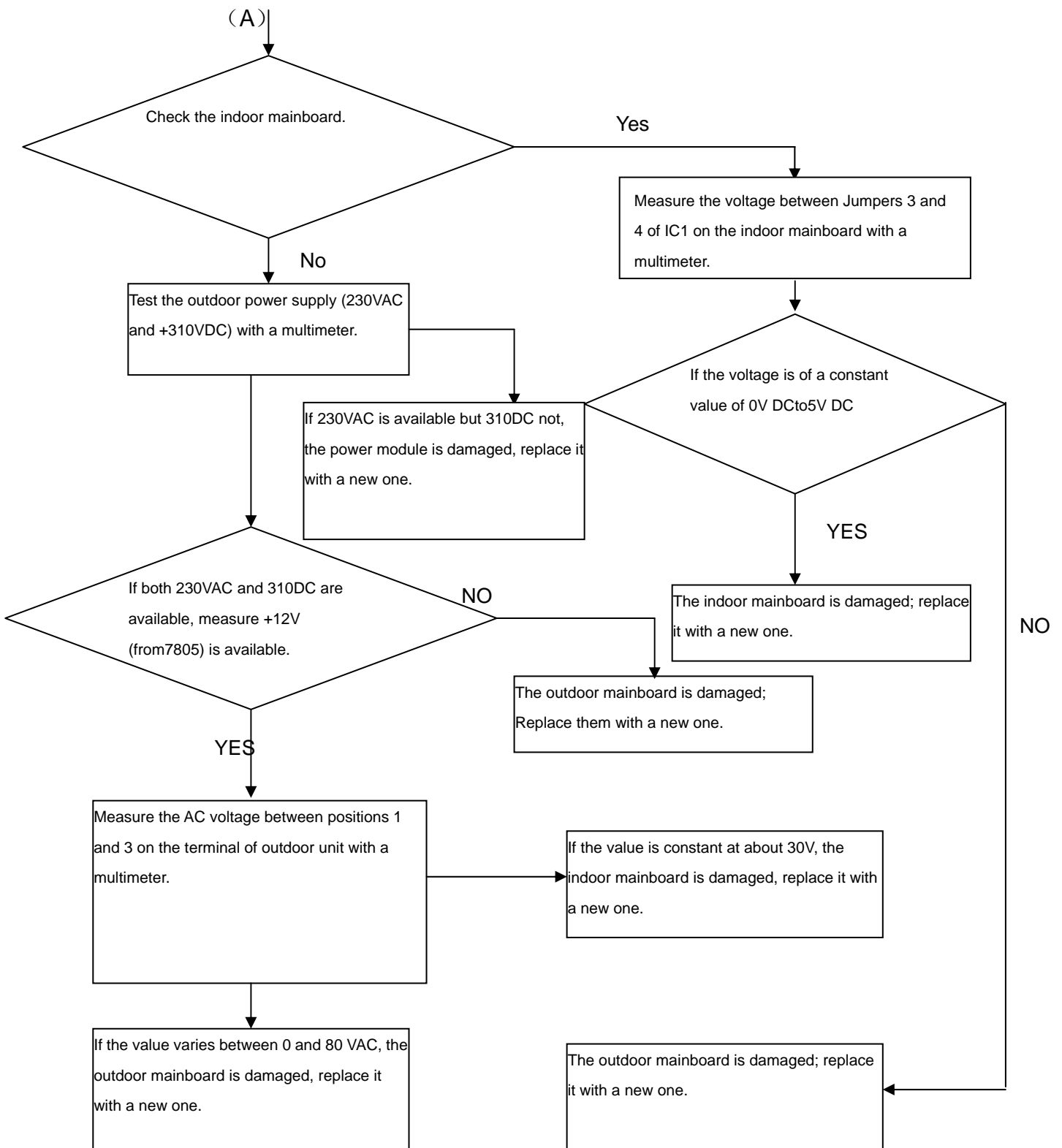


11.4.10 The communication fault between indoor and outdoor

indoor display: E7
 Outdoor display: LED1 flash 15 times

Method of malfunction detection	Communication is detected by checking the indoor PCB and the outdoor PCB
Malfunction detection conditions	<ul style="list-style-type: none"> ■ The outdoor PCB broken leads to communication fault ■ The indoor PCB broken leads to communication fault
Supposed causes	<ul style="list-style-type: none"> ■ Communication wiring disconnected ■ The indoor PCB is broken ■ The outdoor PCB is broken ■ The module PCB is broken
Troubleshooting	<p>* Caution</p> <p>Be sure to turn off power switch before connect or disconnect connector, or else parts damage may be occurred.</p>



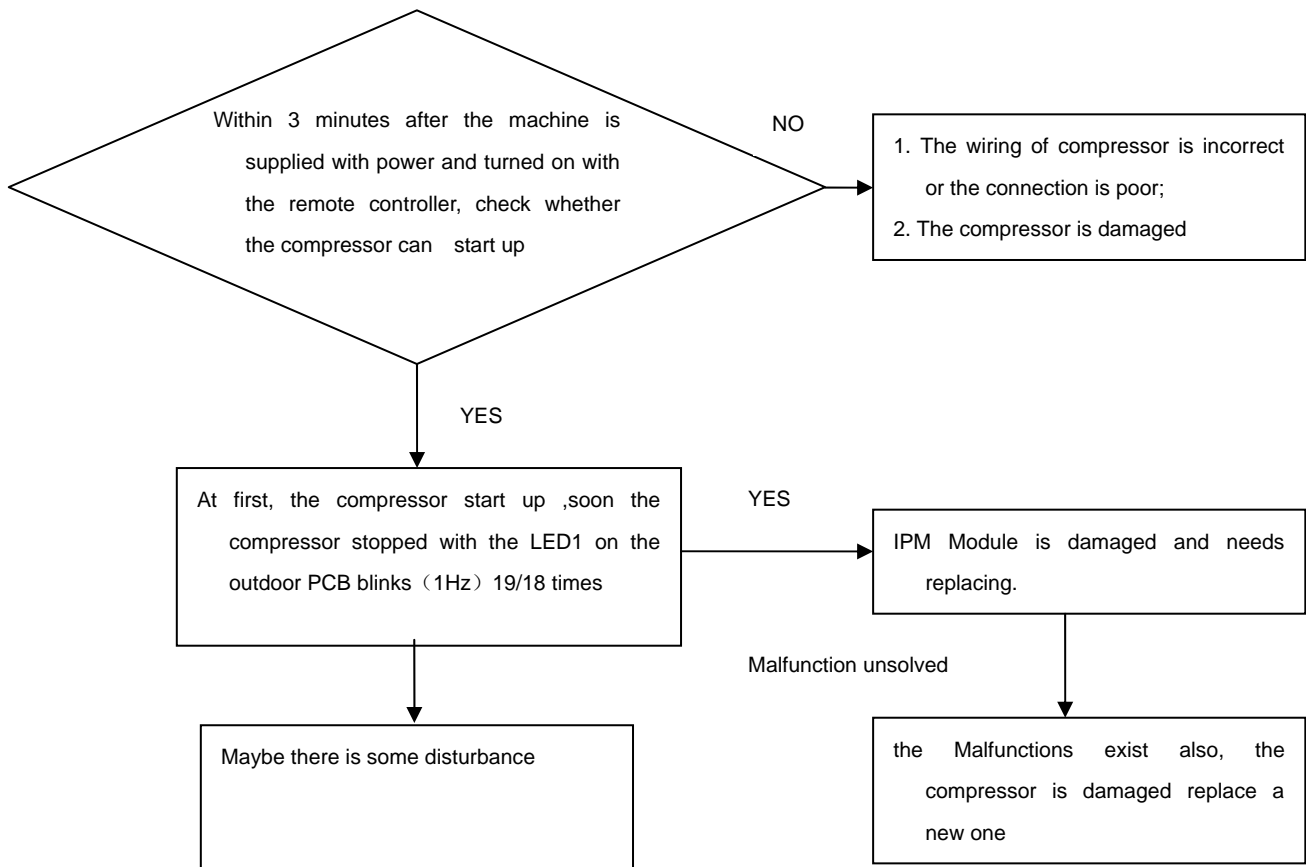


11.4.11 Loss of synchronism detection

Inverter side current detection is abnormal

Outdoor display LED1 flash 18 times
 LED1 flash 19 times

Method of malfunction detection	The position of the compressor rotor can not detected normally
Malfunction detection conditions	when the wiring of compressor is wrong or the connection is poor; or the compressor is damaged
Supposed causes	<ul style="list-style-type: none"> ■Faulty The wiring of compressor ■Faulty compressor ■Faulty PCB
Troubleshooting	<p>* Caution</p> <p>Be sure to turn off power switch before connect or disconnect connector, or else parts damage may be occurred.</p>

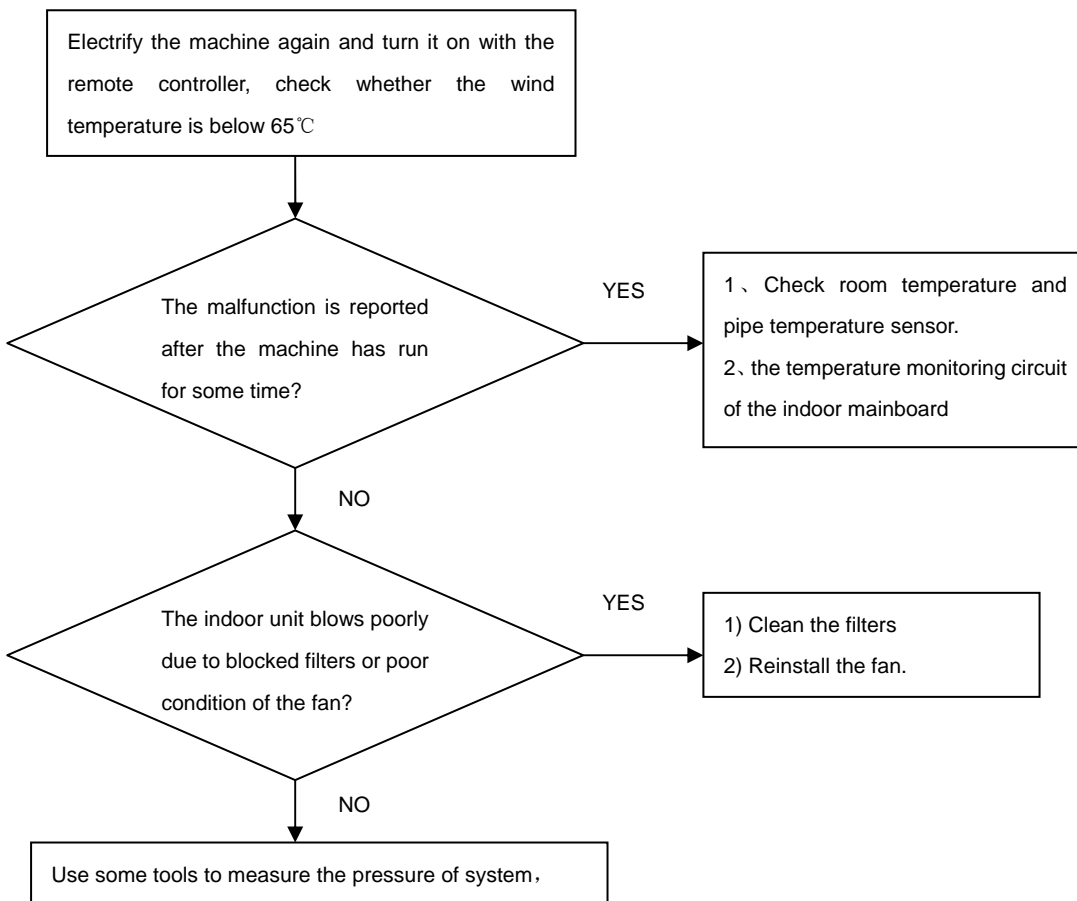


11.4.12 High work-intense protection

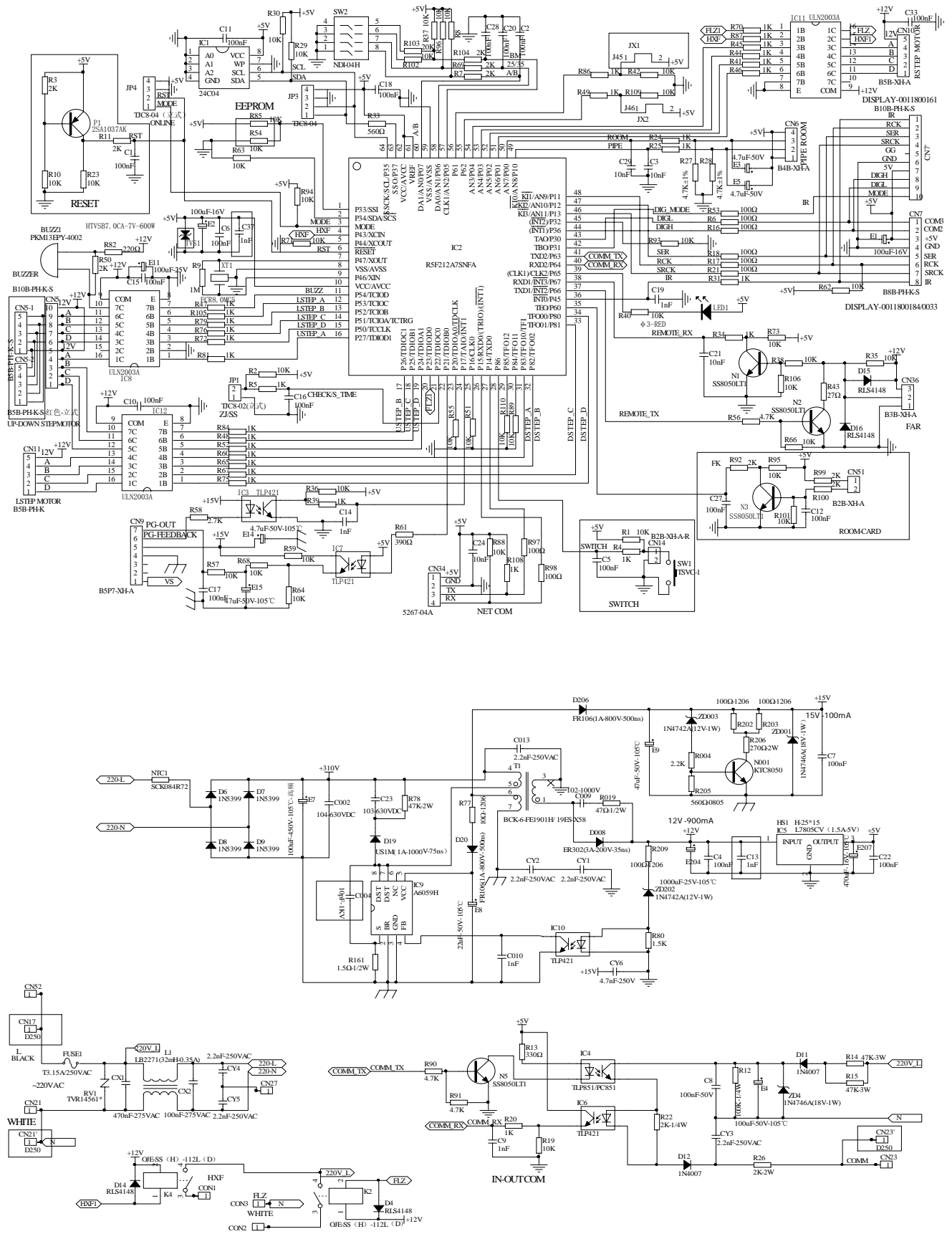
Outdoor display

LED1 flash 21 times

Method of malfunction detection	High work-intense control is activated in the heating mode if the temperature being sensed by the heat exchanger thermistor exceeds the limit.
Malfunction detection conditions	Activated when the temperature being sensed by the heat exchanger rises above 65°C twice in 30 minutes.
Supposed causes	<ul style="list-style-type: none"> ■ Faulty electronic expansion valve ■ Dirty heat exchanger ■ Faulty heat-exchange sensor ■ Insufficient gas
Troubleshooting	<p>* Caution</p> <p>Be sure to turn off power switch before connect or disconnect connector, or else parts damage may be occurred.</p>

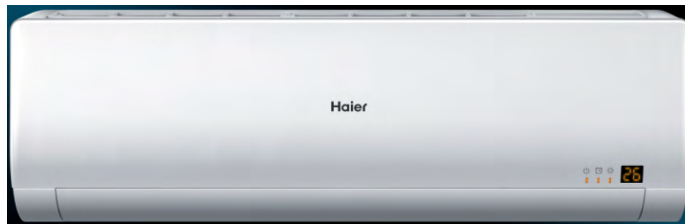


12. Circuit diagrams



Haier SERVICE MANUAL

Wall Mounted Type DC Inverter FREE MATCH N-Series Model No. AS24NS3HRA



WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or Repair the product or products dealt with in this service information by anyone else could result in serious injury or death

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Haier Group

Version: V1

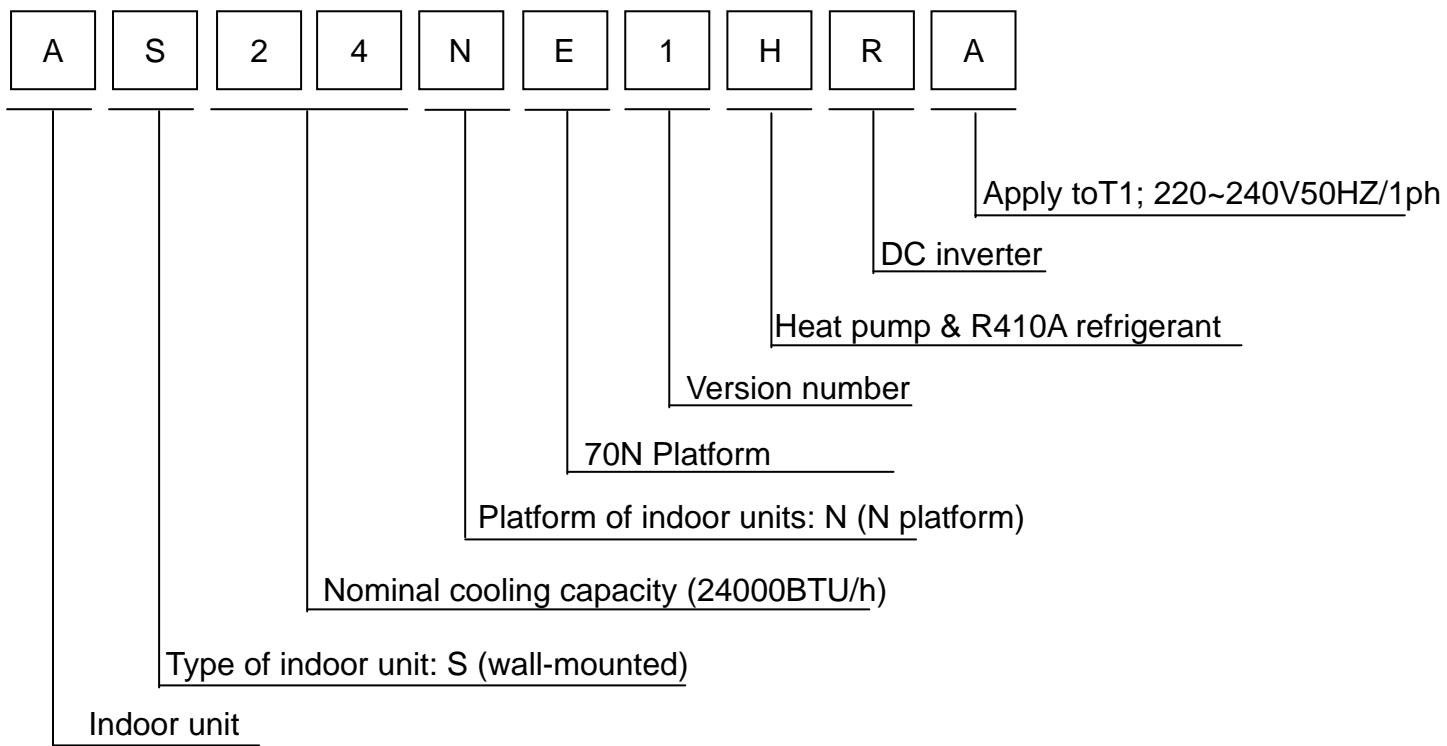
Date: 2014-11-25

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1 Introduction

1.1 Model name explanation



1.2 Safety Cautions

Be sure to read the following safety cautions before conducting repair work.

The caution items are classified into “Warning” and “Caution”. The “Warning” items are especially important since they can lead to death or serious injury if they are not followed closely. The “Caution” items can also lead to serious accidents under some conditions if they are not followed. Therefore, be sure to observe all the safety caution items described below.

About the pictograms

△ This symbol indicates an item for which caution must be exercised.

The pictogram shows the item to which attention must be paid.

○ This symbol indicates a prohibited action.






The prohibited item or action is shown inside or near the symbol.




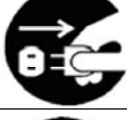


● This symbol indicates an action that must be taken, or an instruction.

The instruction is shown inside or near the symbol.

After the repair work is complete, be sure to conduct a test operation to ensure that the equipment operates Normally, and explain the cautions for operating the product to the customer.



1.2.1 Caution in Repair


Warning	
<p>Be sure to disconnect the power cable plug from the plug socket before disassembling the equipment for a repair.</p> <p>Working on the equipment that is connected to a power supply can cause an electrical shock.</p> <p>If it is necessary to supply power to the equipment to conduct the repair or inspecting the circuits, do not touch any electrically charged sections of the equipment.</p>	
<p>If the refrigerant gas discharges during the repair work, do not touch the discharging refrigerant gas. The refrigerant gas can cause frostbite.</p>	
<p>When disconnecting the suction or discharge pipe of the compressor at the welded section, release the refrigerant gas completely at a well-ventilated place first.</p> <p>If there is a gas remaining inside the compressor, the refrigerant gas or refrigerating machine oil discharges when the pipe is disconnected, and it can cause injury.</p>	
<p>If the refrigerant gas leaks during the repair work, ventilate the area. The refrigerant gas can generate toxic gases when it contacts flames.</p>	
<p>The step-up capacitor supplies high-voltage electricity to the electrical components of the outdoor unit. Be sure to discharge the capacitor completely before conducting repair work. A charged capacitor can cause an electrical shock.</p>	
<p>Do not start or stop the air conditioner operation by plugging or unplugging the power cable plug. Plugging or unplugging the power cable plug to operate the equipment can cause an electrical shock or fire.</p>	

Warning	
Do not repair the electrical components with wet hands . Working on the equipment with wet hands can cause an electrical shock	
Do not clean the air conditioner by splashing water. Washing the unit with water can cause an electrical shock.	
Be sure to provide the grounding when repairing the equipment in a humid or wet place, to avoid electrical shock.	
Be sure to turn off the power switch and unplug the power cable when cleaning the equipment. The internal fan rotates at a high speed, and cause injury.	
Do not tilt the unit when removing it. The water inside the unit can spill and wet the furniture and floor.	
Be sure to check that the refrigerating cycle section has cooled down sufficiently before conducting repair work. Working on the unit when the refrigerating cycle section is hot can cause burns.	
Use the welder in a well-ventilated place. Using the welder in an enclosed room can cause oxygen deficiency.	



1.2.2 Cautions Regarding Products after Repair


Warning	
Be sure to use parts listed in the service parts list of the applicable model and appropriate tools to conduct repair work. Never attempt to modify the equipment. The use of inappropriate parts or tools can cause an electrical shock, excessive heat generation or fire.	
When relocating the equipment, make sure that the new installation site has sufficient strength to withstand the weight of the equipment. If the installation site does not have sufficient strength and if the installation work is not conducted securely, the equipment can fall and cause injury.	
Be sure to install the product correctly by using the provided standard installation frame. Incorrect use of the installation frame and improper installation can cause the equipment to fall, resulting in injury.	For integral units only
Be sure to install the product securely in the installation frame mounted on a window frame. If the unit is not securely mounted, it can fall and cause injury.	For integral units only


Warning	
<p>Be sure to use an exclusive power circuit for the equipment, and follow the technical standards related to the electrical equipment, the internal wiring regulations and the instruction manual for installation when conducting electrical work.</p> <p>Insufficient power circuit capacity and improper electrical work can cause an electrical shock or fire.</p>	
<p>Be sure to use the specified cable to connect between the indoor and outdoor units. Make the connections securely and route the cable properly so that there is no force pulling the cable at the connection terminals.</p> <p>Improper connections can cause excessive heat generation or fire.</p>	
<p>When connecting the cable between the indoor and outdoor units, make sure that the terminal cover does not lift off or dismount because of the cable.</p> <p>If the cover is not mounted properly, the terminal connection section can cause an electrical shock, excessive heat generation or fire.</p>	
<p>Do not damage or modify the power cable.</p> <p>Damaged or modified power cable can cause an electrical shock or fire. Placing heavy items on the power cable, and heating or pulling the power cable can damage the cable.</p>	
<p>Do not mix air or gas other than the specified refrigerant (R-410A / R22) in the refrigerant system.</p> <p>If air enters the refrigerating system, an excessively high pressure results, causing equipment damage and injury.</p>	
<p>If the refrigerant gas leaks, be sure to locate the leak and repair it before charging the refrigerant. After charging refrigerant, make sure that there is no refrigerant leak.</p> <p>If the leak cannot be located and the repair work must be stopped, be sure to perform pump-down and close the service valve, to prevent the refrigerant gas from leaking into the room. The refrigerant gas itself is harmless, but it can generate toxic gases when it contacts flames, such as fan and other heaters, stoves and ranges.</p>	
<p>When replacing the coin battery in the remote controller, be sure to disposed of the old battery to prevent children from swallowing it.</p> <p>If a child swallows the coin battery, see a doctor immediately.</p>	

Caution	
Installation of a leakage breaker is necessary in some cases depending on the conditions of the installation site, to prevent electrical shocks.	
Do not install the equipment in a place where there is a possibility of combustible gas leaks. If a combustible gas leaks and remains around the unit, it can cause a fire.	
Be sure to install the packing and seal on the installation frame properly. If the packing and seal are not installed properly, water can enter the room and wet the furniture and floor.	

1.2.3 Inspection after Repair

Warning	
Check to make sure that the power cable plug is not dirty or loose, then insert the plug into a power outlet all the way. If the plug has dust or loose connection, it can cause an electrical shock or fire.	
If the power cable and lead wires have scratches or deteriorated, be sure to replace them. Damaged cable and wires can cause an electrical shock, excessive heat generation or fire.	





Warning	
Do not use a joined power cable or extension cable, or share the same power outlet with other electrical appliances since it can cause an electrical shock, excessive heat generation or fire.	

Caution	
Check to see if the parts and wires are mounted and connected properly, and if the connections at the soldered or crimped terminals are secure. Improper installation and connections can cause excessive heat generation, fire or an electrical shock.	
If the installation platform or frame has corroded, replace it. Corroded installation platform or frame can cause the unit to fall, resulting in injury.	
Check the grounding, and repair it if the equipment is not properly grounded. Improper grounding can cause an electrical shock.	
Be sure to measure the insulation resistance after the repair, and make sure that the resistance is 1 M ohm or higher. Faulty insulation can cause an electrical shock.	
Be sure to check the drainage of the indoor unit after the repair. Faulty drainage can cause the water to enter the room and wet the furniture and floor.	

1.2.4 Using Icons

Icons are used to attract the attention of the reader to specific information. The meaning of each icon is described in the table below:

1.2.5 Using Icons List

Icon	Type of Information	Description
 Note	Note	A “note” provides information that is not indispensable, but may nevertheless be valuable to the reader, such as tips and tricks.
 Caution	Caution	A “caution” is used when there is danger that the reader, through incorrect manipulation, may damage equipment, loose data, get an unexpected result or has to restart (part of) a procedure.
 Warning	Warning	A “warning” is used when there is danger of personal injury.
	Reference	A “reference” guides the reader to other places in this binder or in this manual, where he/she will find additional information on a specific topic.

2.Features



Super quiet: Lower noise operation condition



A-PAM DC inverter:With adoption of S-TYPE,S-PAM and PHASE control technology to works more stably at low-frequency,and is more energy-saving,mor powerful at high frequency.



Long distance air supplying:



-15°C Heating: When -15°C can still heating natural



10°C heating maintenance:Heating Holding 10°C temperature



Comfortable sleep: The setting temperature and the indoor noise can be adjusted to a more comfortable level when you set the “sleep mode” during night sleep.



Super match:One outdoor unit can match two or more indoor unit.



DIY auto mode: Adjust the last fixed operation mode automatically.



Turbo mode: Quick cooling or heating



Auto restart: Automatic return to previous operation conditions after sudden power blackout



24 hours timer: Use the timer function to set on,or off,or from on to off,or from off to on.



Intergrative valve cover:The valve cover is Intergrative.



2-way piping design: The pipe can shoot out both from left or right side.



Easy clean design: The panel is easy to wash and the airflow vents can be detached easily



Double 8 display:The display is Double 8 mode.

3 Specifications

NOMINAL DISTRIBUTION SYSTEM VOLTAGE		
Phase	/	1
Frequency	Hz	50
Voltage	V	230

NOMINAL CAPACITY and NOMINAL INPUT			
		cooling	heating
Capacity rated	KW	7.0(2.2-8.5)	7.5(2.4-9.8)
	Btu/h	23890(7500-29010)	25600(8190-33460)
Power Consumption(Rated)	KW	2.18	2.20
SEER/SCOP	W/W	6.1	4.0
Annual energy consumption	KWh	401	1979
Moisture Removal	m ³ /h	2.8*10 ⁻³	

TECHNICAL SPECIFICATIONS			
Dimensions	H*W*D	mm	1115x248x336
Packaged Dimensions	H*W*D	mm	1206x342x418
Weight	/	KG	16
Gross weight	/	KG	19.6
Color	/	/	White
Sound level	Sound pressure(high/medium/low)	dB(A)	47/43/37
	Sound power	dB(A)	62
			48/44/38
			63

TECHNICAL SPECIFICATIONS-PARTS				
			cooling	heating
Fan	Type		Cross flow fan	
	Motor output	W	65	65
	Air flow rate(high)	m ³ /h	1200	1200
	Speed(high/middle/low)	rpm	1000/900/800	900/800/700
Heat exchanger	Type		ML fin- ϕ 7HI-HX tube	
	Segment *stage*fitch		3*18*1.4	
Air direction control			Right,Left,Horizontal,Downward	
Air filter			Removable/Washable/Mildew Proof	
Temperature control			Microcomputer Control	
Remote controller model			YR-HG	

Note: the data are based on the conditions shown in the table below

cooling	heating	Piping length
Indoor: 27°CDB/19°CWB Outdoor: 35°CDB/24°CWB	Indoor:20°CDB Outdoor: 7°CDB/6°CWB	5m

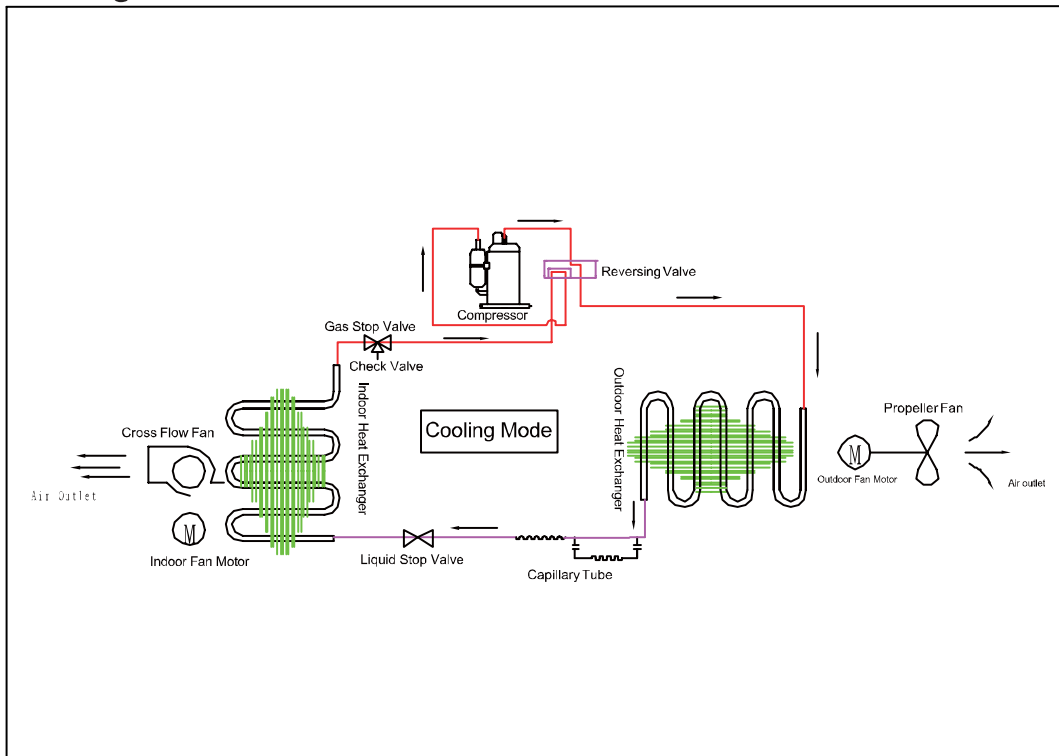
Conversation formulae
Kcal/h= KW×860
Btu/h= KW×3414
cfm=m ³ /min×35.3

4. Sensors list

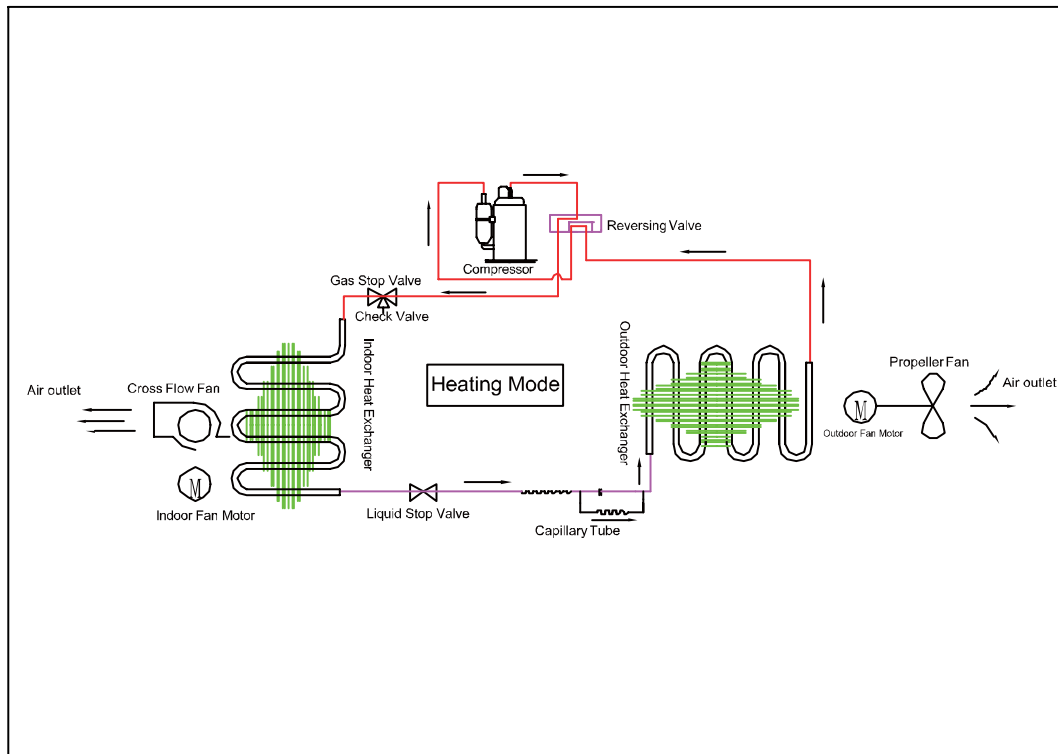
type	Description	Qty
Room sensor	Its used for detecting room temperature	1
Pipe sensor	Its used for detecting temperature of evaporator	1

5. Piping diagrams

Cooling mode



Heating mode



6. Printed Circuit Board Connector Wiring Diagram

Connectors

PCB(1) (Control PCB)

series	PCB connector	Connect with load
1	CN9	Connector for fan motor
2	CN6	Connector for heat exchanger thermistor and Room temperature thermistor
3	CN5	Connector for UP&DOWN STEP motor
4	CN21	Connector for power N wire
5	CN52	Connector for power L
6	CN27	Connector for power GRN
7	CN7	Connector for display board
8	CN23	Connector for communicate between the indoor board and the outdoor board
9	CN34	Connector for long-range control

Note: Other designations

PCB(1) (Indoor Control PCB)

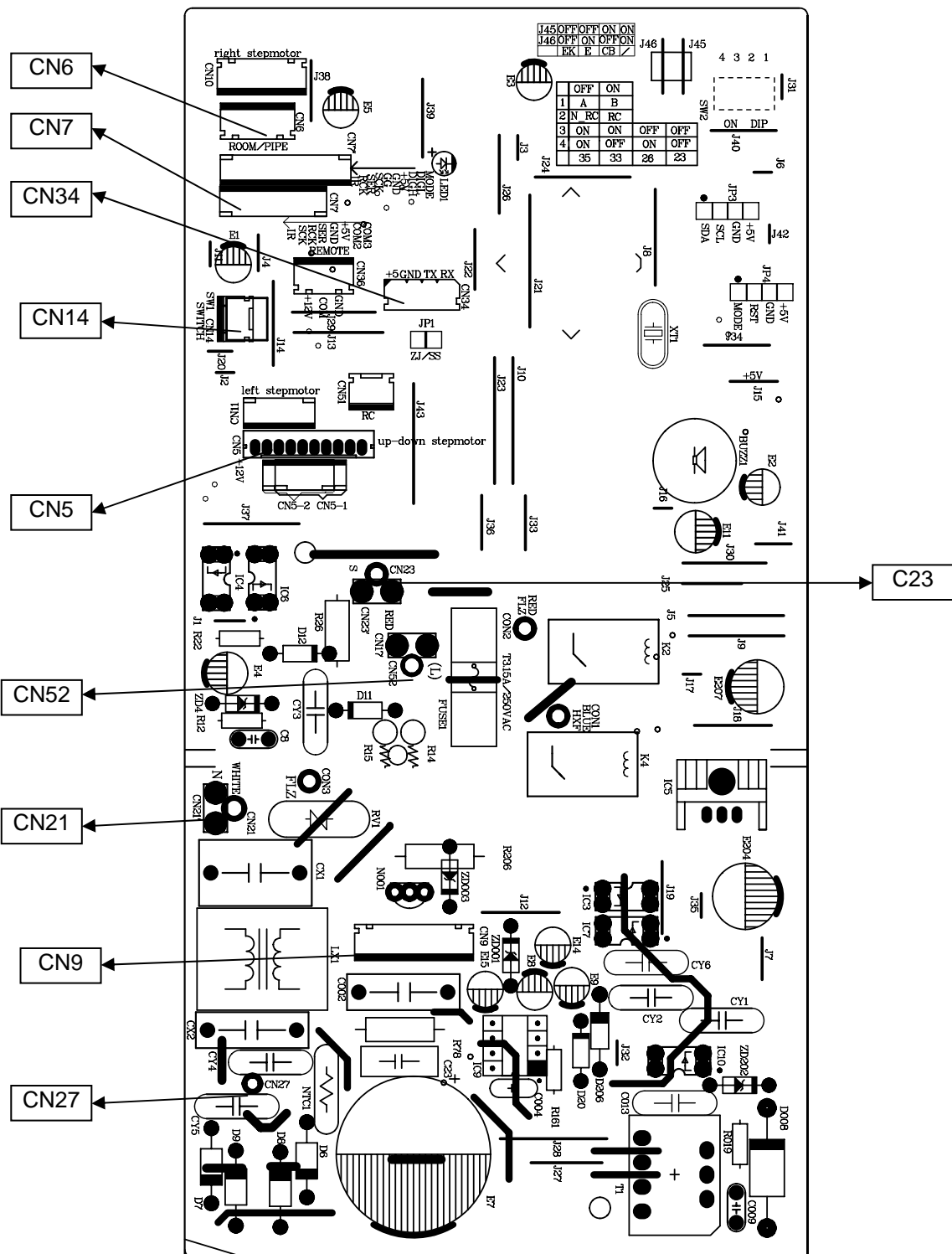
1) CN14 Connector for Forced operation ON / OFF switch

2) SW2 1 Select remote code A or B, 2 Select room card able or disable , 3-4 Select 23,26,33, or 35

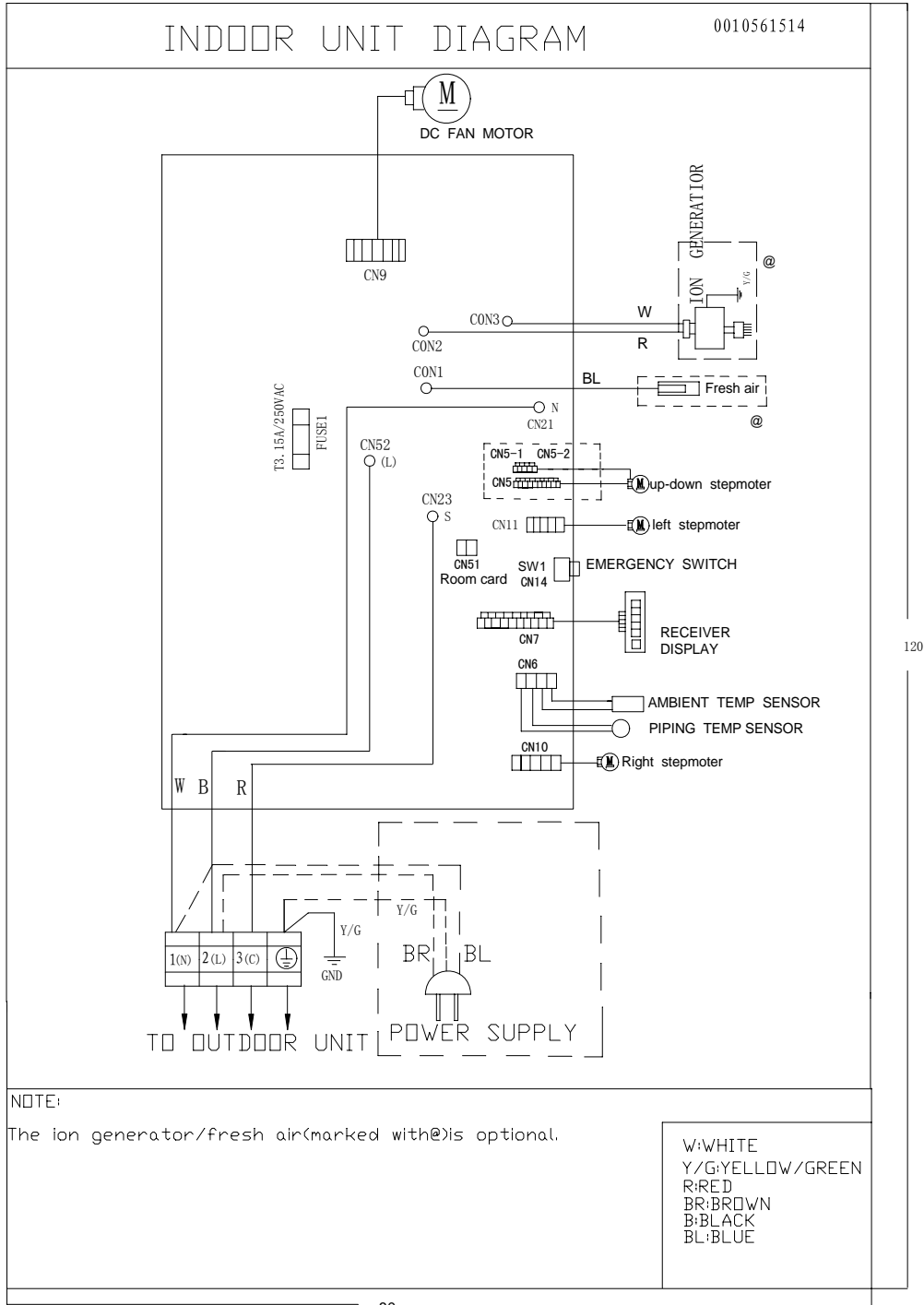
3) RV1 Varistor

4) FUSE1 Fuse 3.15A/250VAC

PCB(1)



Wiring diagrams



7.Functions and Control

7.1 Main functions and control specification

7.1.1 Automatic operation

When the running mode is turned to automation after starting the system, the system will first determine the running mode according to the current room temperature and then will run according to the determined mode. Tr in the following selection conditions means room temperature, Ts means setting temperature, Tp means temperature of indoor coil pipe

$Tr \geq 23^{\circ}\text{C}$ Choose Cooling Mode

$Tr < 23^{\circ}\text{C}$ Choose Heating Mode

After turning to the automation mode, the running mode can be switched between cooling mode, fan mode and heating mode according to the change of the indoor ambient temperature. But the automatic conversion between cooling mode and heating mode must be conducted after 15 minutes.

7.1.2 Cooling operation mode

Temperature control range: $16^{\circ}\text{C} \text{---} 30^{\circ}\text{C}$

Temperature difference: $\pm 1^{\circ}\text{C}$

* Control features: When $Tr(\text{input airflow}) > Ts(\text{set temperature})^{\circ}\text{C}$, the compressor will be opened, the indoor fan will operate at the set speed and the mode signal will be sent to the outdoor system. When $Tr(\text{input airflow}) < Ts(\text{set temperature})^{\circ}\text{C}$, the compressor will be opened, the indoor fan will operate at the set speed and the mode signal will be sent to the outdoor system. The system will keep the original status if $Tr = Ts$.

Airflow speed control: (temperature difference 1°C)

Automatic: When $Tr \geq Ts + 3^{\circ}\text{C}$, high speed.

When $Ts + 1^{\circ}\text{C} \leq Tr < Ts + 3^{\circ}\text{C}$, medium speed

When $Tr < Ts + 1^{\circ}\text{C}$, low speed

When the sensor is off, low speed

When the airflow speed has no delay from the high to low switching, the speed should be delayed for 3 minutes (remain at high speed for 3 minutes.) before the next switch.

Manus: When the system is operating, you can set the high, medium or low speed manually. (When the sensor is on or off, the system will change the speed 2 seconds after receiving the signal.)

* Airgate location control: the location for the airgate can be set according to your needs.

* Defrosting function: preventing the frosting on the indoor heat exchanger (when cooling or dehumidifying). When the compressor works continuously for 1/6 minutes (adaptable in EEPROM) and the temperature of the indoor coils has been below zero centigrade for 10 seconds, the compressor will be stopped and the malfunction will be recorded in the malfunction list. The indoor system will continue to run. When the temperature of the indoor coil is raised to 7°C , the compressor will be restarted again (the requirement of 3 minutes' delay should be satisfied.)

* timing system on/off function.

* Dormant control function.

7.1.3 Demoisture mode.

* temperature control range: 16---30°C

* temperature difference: $\pm 1^\circ\text{C}$

Control feature: send the demoisture signal to the outdoor system.

When $\text{Tr} > \text{Ts} + 2^\circ\text{C}$, the compressor will be turned on, the indoor fan will operate at the set speed.

When Tr is between the Ts and $\text{Ts} + 2^\circ\text{C}$, the outdoor system will operate at the high demoisture frequency for 10 minutes and then at the low demoisture mode for six minutes. The indoor fan will operate at low speed.

When $\text{Tr} < \text{Ts}$, the outsystem will be stopped, the indoor fan will be stopped for 3 minutes and then turned to the low speed option.

All the frequency converses have a $\pm 1^\circ\text{C}$ difference.

* Wind speed control: Automatic:

When $\text{Tr} \geq \text{Ts} + 5^\circ\text{C}$, high speed.

When $\text{Ts} + 3^\circ\text{C} \leq \text{Tr} < \text{Ts} + 5^\circ\text{C}$, medium speed.

When $\text{Ts} + 2^\circ\text{C} \leq \text{Tr} < \text{Ts} + 3^\circ\text{C}$, low speed.

When $\text{Tr} < \text{Ts} + 2^\circ\text{C}$, light speed.

If the outdoor fan stopped, the indoor fan will be paused for 3 minutes.

If the outdoor fan stopped for more than 3 minutes and the outdoor system still operates, the system will be changed into light speed mode.

When the airflow speed has no delay from the high to low switching, the speed should be delayed for 3 minutes (remain at high speed for 3 minutes.) before the next switch.

Manual: When the sensor is off or $\text{Tr} < \text{Ts} + 3^\circ\text{C}$, the manual operation can not be made. (obligatory automatic operation.)

* Airgate location control: the location for the airgate can be set according to your needs.

* Defrosting function: preventing the frosting on the indoor heat exchanger (when cooling or demoisture). When the compressor works continuously for 1/6 minutes (adaptable in EEPROM) and the temperature of the indoor coils has been below zero centigrade for 10 seconds, the compressor will be stopped and the malfunction will be recorded in the malfunction list. The indoor system will continue to run. When the temperature of the indoor coil is raised to 7°C , the compressor will be restarted again (the prerequisite of 3 minutes' delay should be satisfied.)

* coil protection (synchronic overheating protection) are installed for the four directions latch malfunctions when demoisturing.

* timing system on/off function.

* Dormant control function.

7.1.4 Heating operation mode.

* temperature control range: 16---30°C

* temperature difference: $\pm 1^\circ\text{C}$

* control feature: the temperature compensation is automatically added and the system will send the heating signals to the outdoor system.

If $\text{Tr} \leq \text{Ts}$, the outdoor compressor is turned on, the indoor fan will be at the cold air proof mode.

If $\text{Tr} > \text{Ts}$, the outdoor system is turned off, the indoor fan will be at the heat residue sending mode.

If $\text{Tr} < \text{Ts}$, the outdoor system will be turned on again, the indoor fan will be at the cold air proof mode.

*Indoor fan control

manual control: You can choose high, medium, low and automatic speed control.

Automatic: When $T_r < T_s$, high speed.

When $T_s \leq T_r \leq T_s + 2^\circ\text{C}$, medium speed.

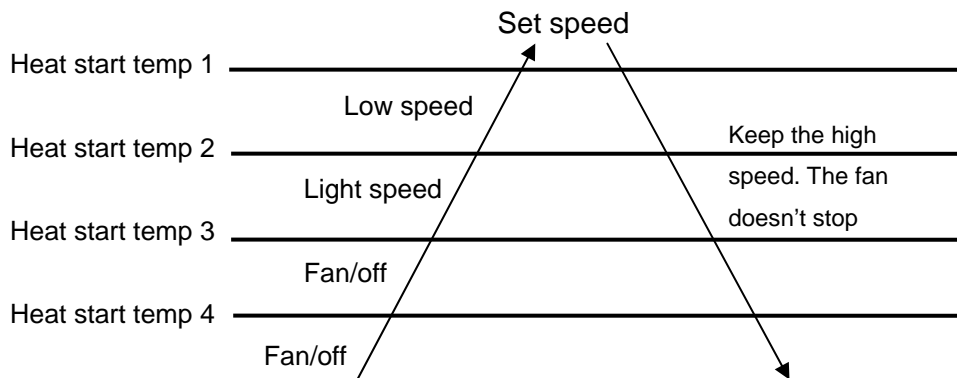
When $T_r > T_s + 2^\circ\text{C}$, low speed.

When the airflow speed has no delay from the high to low switching, the speed should be delayed for 3 minutes (remain at high speed for 3 minutes.) before the next switch.

*Airgate location control: the location for the airgate can be set according to your needs.

Coldair proof operation

1. The indoor operation within 4 minutes after the start up is as the following diagram, the air speed can be raised only after the speed has reached a certain level.



2. 4 minutes after the start up of the indoor fan, the light airflow and the low airflow will be turned to the set speed airflow.

3. In the cold air proof operation, the fan won't stop after the start up.

4. During the cold air proof operation, the indoor system will continuously send 'indoor high speed' signals to the outdoor system.

* Residue heat sending. The indoor fan will send the residue heat at a low speed for 12 seconds.

If other conditions are satisfied, when the compressor stops, the indoor system will operate at a light speed. The indoor fan will stop when the coil temperature is below the 'heat start temp 4'.

* Defrosting. When the system receives the defrosting signal from outdoors, the indoor fan will stop and the indoor temperature display won't change. At the time, any indoor coil malfunctions will be neglected. When the outdoor defrosting finishes, the coil malfunction will still be neglected until the compressor has been started up for 30 seconds. The indoor temperature display will not change and the system operates at the cold air proof mode.

* Automatic heating temperature compensation: when the system enters the heating mode, the temperature compensation (4) will be added. When the status is switched off, the compensation will be erased.

7.1.5 Strength operation

The system enters the mode after receiving the 'strength signal'.

Send strength operation signal to the outdoor system.

The mode change finishes the strength operation.

Entering 'mute', you can have normal operation or signal control such as timing to finish the strength operation.

When the system is at the automatic option with the strength/ mute function, if the system enters the cooling mode, the cooling strength/ mute function will be offered; if the system enters the heating mode, then the heating strength/ mute function will be offered; if the system enters the airflow mode, there will be no strength/ mute function.

7.1.6 Mute operation

The system enters the mode after receiving the 'mute signal'.

- a. Mute heating: the airflow speed is slight, the system sends the mute signal to the outdoor system.
- b. mute cooling: the airflow speed is slight, the system sends the mute signal to the outdoor system.

When the compressor operates, the airflow speed is mute speed. EEPROM is adaptable.

Mute operation can not work under the dehumidifying and airflow-sending operation.

7.1.7 Air refreshing

After receiving the signal from the remote control, (HV series: the background light of the 'health' logo is green. HS series: the 'health' indicator will be lighted). If the fan operates, the Nano-Aqua operates to realize the ions sending function.

If the indoor fan stops, the Nano-Aqua is turned off.

When the Nano-Aqua is turned off, if the air refreshing system is turned on, the Nano-Aqua will be turned on when the fan operates.

7.1.8 Timing

You can set 24 hours' on/off timing accordingly. After the setting, the timing indicator will be lightened. Also, the light will be turning off after the timing is finished. The followings are several timing methods.

1.system /on timing: The timing indicator will be lightened and the indoor system is under the waiting mode. The light will be turned off when the timing is finished and the rest of the system will operate under a normal condition. The timing starts since the last reception of the timing signal.

2.system /off timing: When the system is turned on, the timing indicator is lightened, the rest of the system will operated under a normal condition. When set time comes, the indicator light will be turned off and the system will be turned off. If you have set the dormant functions, the order of your settings will be operated according to the timing settings.

3 .system /on and off timing: The settings will be completed according to the orders..

7.1.9 Dormant operation

The dormant timing is an eight hours unadaptable one. The timing signs are shown on the V series board. (RC series show the dormant signal, the timing light is lighted on the 6 lights board).

2.1 Under the cooling/ dehumidifying operation, after the setting of the dormant operation, the set temperature will be raised for 1 centigrade after 1 hour's operation and will be raised for 1 centigrade 1 hour later. The system will keep this status for 6 hours and then close.

2.2 Under the heating mode, after the setting of the dormant operation, the setting temperature will fall 2 centigrade after 1 hour's operation and will fall 2 centigrade 1 hour later. 3 hours after the preceding operations, the set temperature will be raised for 1 centigrade and the system will keep this status for 3 hours

and then close down.

2.3 During the dormant time, except the change of the system mode or a new press on the dormant setting keys, the timing of the 8 hours dormancy will take the first timing as the start time, any presses on other keys will not affect the original timing.

2.4 Indoor fan control under the dormant operation.

If the indoor fan is at the high speed before the dormant operation setting, the speed will be turned to medium after the setting. If the fan is at the medium speed before the dormant setting, the speed will be turned to low after the setting. If the fan is at the low speed before the dormant setting, the speed will not change.

7.1.10 Urgent on/off input

Press the urgency button the buzzer will ring. The system will enter the automatic mode if you don't press the button for more than 5 seconds.

Under the system off mode, if you press the urgency key for 5 to 10 seconds, the system will start the test operation.

Under the system off mode, if you press the urgency key for 10 to 15 seconds, the display screen will show the resume of the last malfunction.

If the system is under operation, the press on the urgency key will stop it.

Under the system off mode, the display screen will show automatic running sign.

Under the system off mode, the system will not receive the remote control signal if the press on the urgency key doesn't last for 15 seconds or if the key is loosened.

Urgency operation: If you press the urgency key for less than 5 seconds, the buzzer will ring when you press the on/off key. The system will enter the urgency operation when the urgency key is loosened. The urgency operation is fully automatic.

Test operation.

The inlet temperature sensor doesn't work, the indoor fan and the indoor air direction board motor works synchronically. High speed airflow, cooling, outdoor system on, etc, will send the ambient temperature 30 centigrade and coil temperature 16 centigrade information to the outdoor system.

Test operation

The defrost protection of the evaporator doesn't work.

The temperature control doesn't work.

The test operation will be finished in 30 minutes.

The test operation can be stopped by the relative commands from the remote control.

7.1.11 Low load protection control

In order to prevent the frosting of the indoor heat interaction device, the outdoor system will be stopped if the indoor heat interaction temperature is below zero centigrade for 5 minutes, but the fan will continue to operate. The outdoor system will be started again when the heat interaction temperature is above 7 centigrade and the system has been stopped for 3 minutes. The malfunction will be stored in the malfunction resume and will not be revealed.

7.1.12 High load protection control

The outdoor system will be stopped if the coil temperature is above 65°C for 2 minutes. The indoor fan will be

controlled by the thermostat. The outdoor system can be restarted when the coil temperature is below 42°C and the system has been stopped for 3 minutes. The malfunction will be stored in the malfunction resume and will not be revealed.

7.1.13 Abnormal operation of indoor system

When the outdoor system operates, if the indoor system operation differs from the outdoor system, the abnormal operation malfunction will be reported. 10s after the report, the indoor system will be closed.

Outdoor system mode	Indoor system mode	conflicts
cooling	heating	yes
cooling	cooling	no
cooling	airflow	no
heating	heating	no
heating	airflow	yes
heating	cooling	yes

7.1.14 Malfunction list resume.

Nothing is presented if there is no code list.

The malfunction display will automatically finish in 10 seconds.

The remote control only receives the signals for stop. According to the signals, the malfunction resume presentation finishes.

The resume restores after the power supply restores.

7.1.15 Abnormality confirmation approaches

1. indoor temperature sensor abnormality:

Under the operation, the normal temperature ranges from 120 degree to -30 degree. When the temperature goes beyond this range, the abnormality can be confirmed. If the temperature goes back into the range, the system will automatically resume.

2 .indoor heat interaction sensor abnormality:

Under the operation, the normal temperature ranges from 120 degree to -30 degree. When the temperature goes beyond this range, the abnormality can be confirmed. If the temperature goes back into the range, the system will automatically resume.

3 .indoor malfunction:

Outdoor malfunction: When the indoor system receives the outdoor malfunction codes, it will store the code into E2 for the malfunction list resume. The indoor system will continue to operate according to the original status, the malfunction code will not be revealed or processed.

4. transmission abnormality:

If the indoor system can't receive the outdoor system for 8 minutes, the communication abnormality can be confirmed and reported and the outdoor system will be stopped.

7.1.16 Single indoor system operation

* Enter condition: First, set the high speed airflow and 30 centigrade set temperature, then press the dormant

keys for 6 times within 7 seconds, the system will feedback with 6 rings.

* After the system enters the separate indoor system operation mode, the indoor system will operate according to the set mode and neglect the communication signals of the outdoor system. However, it has to send signals to the outdoor system.

* Quitting condition: This mode can be quitted after receiving the quitting signal from the remote control or urgency system. The indoor system thus can quit the single operation mode.

7.1.17 Power cut compensation

* Entering condition: Press dormant button 10 times within 7 second, the buzzer will ring 4 times and the present system status will be stored into the EEPROM of the indoor system.

* After entering the power cut compensation mode, the processing of the indoor system should be as the followings:

Remote control urgency signal: operate according to the remote control and the urgent conditions, the present status will be stored into the EEPROM of the indoor system.

* Quitting conditions: Press dormant button 10 times within 7 seconds and the buzzer will ring twice.

7.1.18 Fixed frequency operation

1. Fixed cooling: a. under G code condition: high speed cooling, set 16°C, press temperature '-' key and the set key at the same time. The system will enter the fixed frequency operation after the buzzer rings twice.

b. The proceeding programs are as the follows:

Entering the fixed frequency operation, you can set the fixed strength location 1 and send the cooling signal to the outdoor system. Meanwhile, you can fix the indoor system at high speed mode, the location of the airflow direction board can be switched to the maximal position.

c. Quitting condition: The fixed frequency cooling can be quitted after receiving the remote signal, and the system will enter the remote setting status.

2. Fixed heating: a. under G code condition: high speed heating, set 30°C, press temperature '+' key and the set key at the same time. The system will enter the fixed frequency operation after the buzzer rings twice.

b. The proceeding programs are as the follows:

Entering the fixed frequency operation, you can set the fixed strength location 1 and send the heating signal to the outdoor system. Meanwhile, you can fix the indoor system at high speed mode, the location of the airflow direction board can be switched to the maximal position.

c. Quitting condition: The fixed frequency heating can be quitted after receiving the remote signal, and the system will enter the remote setting status.

7.1.19 Test program

First, connect the test program terminal on the mainboard. Then connect the system to the power circuit. The test program will operate as follows.

HV series display: The buzzer rings for one time—the signal will be sent to outdoor system for 0.5 second—the violet is sent for 0.5-- the background light turns to white—the back ground light turns to white—the background light turns to white—the background light is fully lighted for 0.5 second—LED screen lights for 0.5 second—the step-in motor fully output for 0.5 second—then the motor doesn't output for 0.5 second—the motor fully output again for 0.5 second. The test program finishes.

7.1.20 Time cutting function:

Connect the test program terminal on the mainboard after connecting the system to the power circuit. The CPU of the main control will be 60 times faster.

7.2 Value of thermistor

Room sensor and Pipe Sensor

R25°C=10KΩ ±3%

B25°C/50°C=3700K±3%

Temp.(°C)	Max.(KΩ)	Normal(KΩ)	Min.(KΩ)	Tolerance(°C)	
-30	165.2170	147.9497	132.3678	-1.94	1.75
-29	155.5754	139.5600	125.0806	-1.93	1.74
-28	146.5609	131.7022	118.2434	-1.91	1.73
-27	138.1285	124.3392	111.8256	-1.89	1.71
-26	130.2371	117.4366	105.7989	-1.87	1.70
-25	122.8484	110.9627	100.1367	-1.85	1.69
-24	115.9272	104.8882	94.8149	-1.83	1.67
-23	109.4410	99.1858	89.8106	-1.81	1.66
-22	103.3598	93.8305	85.1031	-1.80	1.64
-21	97.6556	88.7989	80.6728	-1.78	1.63
-20	92.3028	84.0695	76.5017	-1.76	1.62
-19	87.2775	79.6222	72.5729	-1.74	1.60
-18	82.5577	75.4384	68.8710	-1.72	1.59
-17	78.1230	71.5010	65.3815	-1.70	1.57
-16	73.9543	67.7939	62.0907	-1.68	1.55
-15	70.0342	64.3023	58.9863	-1.66	1.54
-14	66.3463	61.0123	56.0565	-1.64	1.52
-13	62.8755	57.9110	53.2905	-1.62	1.51
-12	59.6076	54.9866	50.6781	-1.60	1.49
-11	56.5296	52.2278	48.2099	-1.58	1.47
-10	53.6294	49.6244	45.8771	-1.56	1.46
-9	50.8956	47.1666	43.6714	-1.54	1.44
-8	48.3178	44.8454	41.5851	-1.51	1.42
-7	45.8860	42.6525	39.6112	-1.49	1.40

-6	43.5912	40.5800	37.7429	-1.47	1.39
-5	41.4249	38.6207	35.9739	-1.45	1.37
-4	39.3792	36.7676	34.2983	-1.43	1.35
-3	37.4465	35.0144	32.7108	-1.41	1.33
-2	35.6202	33.3552	31.2062	-1.38	1.31
-1	33.8936	31.7844	29.7796	-1.36	1.29
0	32.2608	30.2968	28.4267	-1.34	1.28
1	30.7162	28.8875	27.1431	-1.32	1.26
2	29.2545	27.5519	25.9250	-1.29	1.24
3	27.8708	26.2858	24.7686	-1.27	1.22
4	26.5605	25.0851	23.6704	-1.25	1.20
5	25.3193	23.9462	22.6273	-1.23	1.18
6	24.1432	22.8656	21.6361	-1.20	1.16
7	23.0284	21.8398	20.6939	-1.18	1.14
8	21.9714	20.8659	19.7982	-1.15	1.12
9	20.9688	19.9409	18.9463	-1.13	1.09
10	20.0176	19.0621	18.1358	-1.11	1.07
11	19.1149	18.2270	17.3646	-1.08	1.05
12	18.2580	17.4331	16.6305	-1.06	1.03
13	17.4442	16.6782	15.9315	-1.03	1.01
14	16.6711	15.9601	15.2657	-1.01	0.99
15	15.9366	15.2770	14.6315	-0.98	0.96
16	15.2385	14.6268	14.0271	-0.96	0.94
17	14.5748	14.0079	13.4510	-0.93	0.92
18	13.9436	13.4185	12.9017	-0.91	0.90
19	13.3431	12.8572	12.3778	-0.88	0.87
20	12.7718	12.3223	11.8780	-0.86	0.85
21	12.2280	11.8126	11.4011	-0.83	0.83
22	11.7102	11.3267	10.9459	-0.81	0.80
23	11.2172	10.8634	10.5114	-0.78	0.78
24	10.7475	10.4216	10.0964	-0.75	0.75
25	10.3000	10.0000	9.7000	-0.75	0.75
26	9.8975	9.5974	9.2980	-0.76	0.76
27	9.5129	9.2132	8.9148	-0.80	0.80
28	9.1454	8.8465	8.5496	-0.84	0.83
29	8.7942	8.4964	8.2013	-0.87	0.86
30	8.4583	8.1621	7.8691	-0.91	0.90
31	8.1371	7.8428	7.5522	-0.95	0.93
32	7.8299	7.5377	7.2498	-0.98	0.97
33	7.5359	7.2461	6.9611	-1.02	1.00
34	7.2546	6.9673	6.6854	-1.06	1.04
35	6.9852	6.7008	6.4222	-1.10	1.07
36	6.7273	6.4459	6.1707	-1.13	1.11
37	6.4803	6.2021	5.9304	-1.17	1.14
38	6.2437	5.9687	5.7007	-1.21	1.18

39	6.0170	5.7454	5.4812	-1.25	1.22
40	5.7997	5.5316	5.2712	-1.29	1.25
41	5.5914	5.3269	5.0704	-1.33	1.29
42	5.3916	5.1308	4.8783	-1.37	1.33
43	5.2001	4.9430	4.6944	-1.41	1.36
44	5.0163	4.7630	4.5185	-1.45	1.40
45	4.8400	4.5905	4.3500	-1.49	1.44
46	4.6708	4.4252	4.1887	-1.53	1.47
47	4.5083	4.2666	4.0342	-1.57	1.51
48	4.3524	4.1145	3.8862	-1.61	1.55
49	4.2026	3.9686	3.7443	-1.65	1.59
50	4.0588	3.8287	3.6084	-1.70	1.62
51	3.9206	3.6943	3.4780	-1.74	1.66
52	3.7878	3.5654	3.3531	-1.78	1.70
53	3.6601	3.4416	3.2332	-1.82	1.74
54	3.5374	3.3227	3.1183	-1.87	1.78
55	3.4195	3.2085	3.0079	-1.91	1.82
56	3.3060	3.0989	2.9021	-1.95	1.85
57	3.1969	2.9935	2.8005	-2.00	1.89
58	3.0919	2.8922	2.7029	-2.04	1.93
59	2.9909	2.7948	2.6092	-2.08	1.97
60	2.8936	2.7012	2.5193	-2.13	2.01
61	2.8000	2.6112	2.4328	-2.17	2.05
62	2.7099	2.5246	2.3498	-2.22	2.09
63	2.6232	2.4413	2.2700	-2.26	2.13
64	2.5396	2.3611	2.1932	-2.31	2.17
65	2.4591	2.2840	2.1195	-2.36	2.21
66	2.3815	2.2098	2.0486	-2.40	2.25
67	2.3068	2.1383	1.9803	-2.45	2.29
68	2.2347	2.0695	1.9147	-2.49	2.34
69	2.1652	2.0032	1.8516	-2.54	2.38
70	2.0983	1.9393	1.7908	-2.59	2.42
71	2.0337	1.8778	1.7324	-2.63	2.46
72	1.9714	1.8186	1.6761	-2.68	2.50
73	1.9113	1.7614	1.6219	-2.73	2.54
74	1.8533	1.7064	1.5697	-2.78	2.58
75	1.7974	1.6533	1.5194	-2.83	2.63
76	1.7434	1.6021	1.4710	-2.88	2.67
77	1.6913	1.5528	1.4243	-2.92	2.71
78	1.6409	1.5051	1.3794	-2.97	2.75
79	1.5923	1.4592	1.3360	-3.02	2.80
80	1.5454	1.4149	1.2942	-3.07	2.84
81	1.5000	1.3721	1.2540	-3.12	2.88
82	1.4562	1.3308	1.2151	-3.17	2.93
83	1.4139	1.2910	1.1776	-3.22	2.97

84	1.3730	1.2525	1.1415	-3.27	3.01
85	1.3335	1.2153	1.1066	-3.32	3.06
86	1.2953	1.1794	1.0730	-3.38	3.10
87	1.2583	1.1448	1.0405	-3.43	3.15
88	1.2226	1.1113	1.0092	-3.48	3.19
89	1.1880	1.0789	0.9789	-3.53	3.24
90	1.1546	1.0476	0.9497	-3.58	3.28
91	1.1223	1.0174	0.9215	-3.64	3.33
92	1.0910	0.9882	0.8942	-3.69	3.37
93	1.0607	0.9599	0.8679	-3.74	3.42
94	1.0314	0.9326	0.8424	-3.80	3.46
95	1.0030	0.9061	0.8179	-3.85	3.51
96	0.9756	0.8806	0.7941	-3.90	3.55
97	0.9490	0.8558	0.7711	-3.96	3.60
98	0.9232	0.8319	0.7489	-4.01	3.64
99	0.8983	0.8088	0.7275	-4.07	3.69
100	0.8741	0.7863	0.7067	-4.12	3.74
101	0.8507	0.7646	0.6867	-4.18	3.78
102	0.8281	0.7436	0.6672	-4.23	3.83
103	0.8061	0.7233	0.6484	-4.29	3.88
104	0.7848	0.7036	0.6303	-4.34	3.92
105	0.7641	0.6845	0.6127	-4.40	3.97
106	0.7441	0.6661	0.5957	-4.46	4.02
107	0.7247	0.6482	0.5792	-4.51	4.07
108	0.7059	0.6308	0.5632	-4.57	4.12
109	0.6877	0.6140	0.5478	-4.63	4.16
110	0.6700	0.5977	0.5328	-4.69	4.21
111	0.6528	0.5820	0.5183	-4.74	4.26
112	0.6361	0.5667	0.5043	-4.80	4.31
113	0.6200	0.5518	0.4907	-4.86	4.36
114	0.6043	0.5374	0.4775	-4.92	4.41
115	0.5891	0.5235	0.4648	-4.98	4.45
116	0.5743	0.5100	0.4524	-5.04	4.50
117	0.5600	0.4968	0.4404	-5.10	4.55
118	0.5460	0.4841	0.4288	-5.16	4.60
119	0.5325	0.4717	0.4175	-5.22	4.65
120	0.5194	0.4597	0.4066	-5.28	4.70

8 System configuration

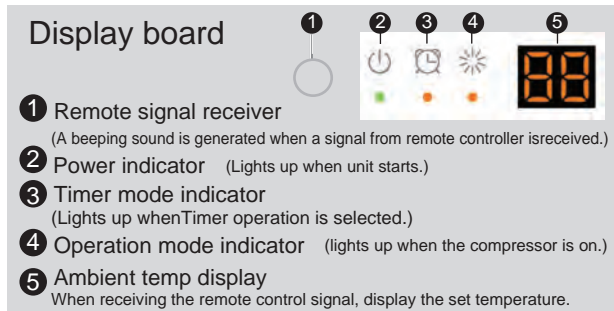
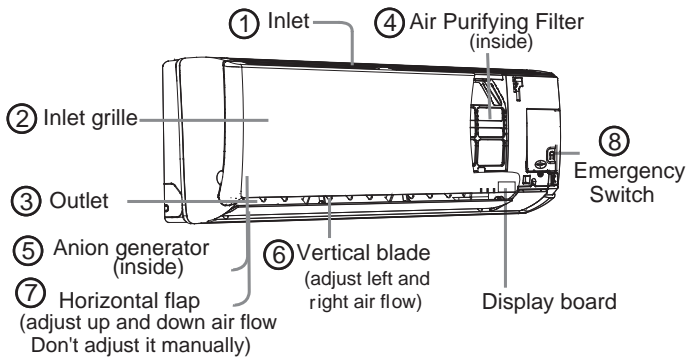
8.1 System configuration

After the installation and test operation of the room air conditioner have been completed, it should be operated and handled as described below. Every user would like to know the correct method of operation of the room air conditioner, to check if it is capable of cooling(or heating) well, and to know a clever method of using it. In order to meet this expectation of the users, giving sufficient explanations taking enough time can be said to reduce about 80% of the requests for servicing. However good the installation work is and however good the functions are, the customer may blame either the room air conditioner or its installation work because of improper handling. The installation work and handing over of the unit can only be considered to have been completed when its handling has been explained to the user without using technical terms but giving full knowledge of the equipment.

8.2 Instruction

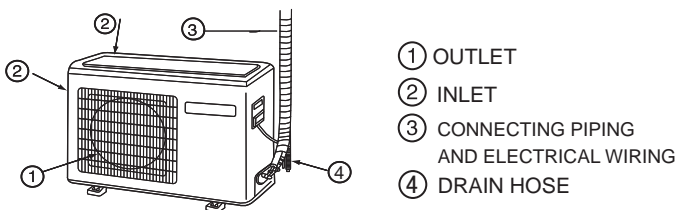
Parts and Functions

Indoor Unit

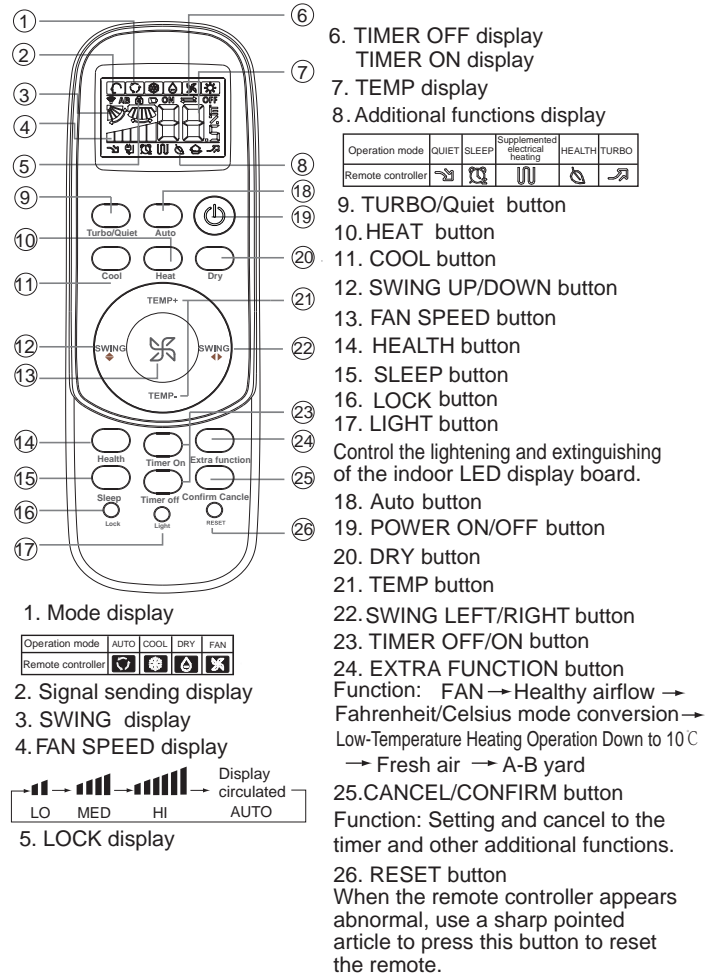


Actual inlet grille may vary from the one shown in the manual according to the product purchased

Outdoor Unit



Remote controller

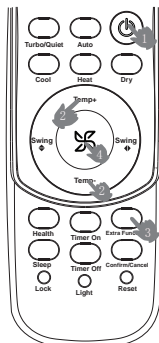


Healthy function is not available for some units.

Operation

Base Operation

Remote controller



1. Unit start

Press ON/OFF on the remote controller, unit starts.

2. Select temp. setting

Press TEMP+ / TEMP- button

TEMP+ Every time the button is pressed, temp.setting increase 1°C,if kept depressed, it will increase rapidly

TEMP- Every time the button is pressed, temp.setting decrease 1°C,if kept depressed, it will decrease rapidly

Select a desired temperature.

3. Fan function

Press **EXTRA FUNCTION** button to enter additional options, when cycle display to , will flash. And then press **CONFIRM/CANCEL** enter to FAN function.

For each press button fan speed changes as follows:

Remote controller:



Air conditioner is running under displayed fan speed. When FAN is set to AUTO, the air conditioner automatically adjusts the fan speed according to room temperature.

Operation Mode	Remote Controller	Note
AUTO		Under the mode of auto operation, air conditioner will automatically select Cool or Heat operation according to room temperature. When FAN is set to AUTO, the air conditioner automatically adjusts the fan speed according to room temperature.
COOL		Cooling only unit do not have displays and functions related with heating
DRY		In DRY mode, when room temperature becomes lower than temp.setting+2°C,unit will run intermittently at LOW speed regardless of FAN setting.
HEAT		In HEAT mode,warm air will blow out after a short periodof the time due to cold-draft prevention function.
FAN		In FAN operation mode, the unit will not operate in COOL or HEAT mode but only in FAN mode ,AUTO is not available in FAN mode.And temp.setting is disabled. When FAN is set to AUTO, the air conditioner automatically adjusts the fan speed according to room temperature. In FAN mode,SLEEP operation is not available.

Emergency operation and test operation

Emergency Operation:

- Use this operation only when the remote controller is defective or lost, and with function of emergency running, air conditioner can run automatically for a while.
- When the emergency operation switch is pressed, the " Pi " sound is heard once, which means the start of this operation.
- When power switch is turning on for the first time and emergency operation starts, the unit will run automatically in the following modes:

Room temperature	Designated temperature	Timer mode	Fan speed	Operation mode
Above 23°C	26°C	No	AUTO	COOL

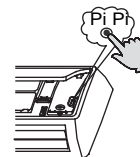


- It is impossible to change the settings of temp. and fan speed,It is also not possible to operate in timer or dry mode.

Test operation:

Test operation switch is the same as emergency switch.

- Use this switch in the test operation when the room temperature is below 16°C, do not use it in the normal operation.
- Continue to press the test operation switch for more than 5 seconds. After you hear the "Pi" sound twice, release your finger from the switch: the cooling operation starts with the air flow speed "Hi".
- Under this operation mode,the fan motor of indoor unit will run in high speed.

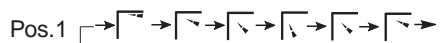


Air Flow Direction Adjustment

1. Status display of air flow Vertical flap

For each press of SWING button, remote controller displays as follows :

remote controller:



Initial state

Pos.2 No initial state displayed on remote controller, the vertical flap will be fixed on the current position

2. Left and right air flow adjustment

For each press of SWING button, remote controller displays as follows :

remote controller:



Cautions:


- When adjusting the flap by hand,turn off the unit.
- When humidity is high,condensate water might occur adjusted to left or at air outlet if all vertical louvers are right.
- It is advisable not to keep horizontal flap at downward position for a long time in COOL or DRY mode , otherwise, condensate water might occur.

Note:

When restart after remote turning off, the remote controller will automatically memorize the previous set swing position.

Operation

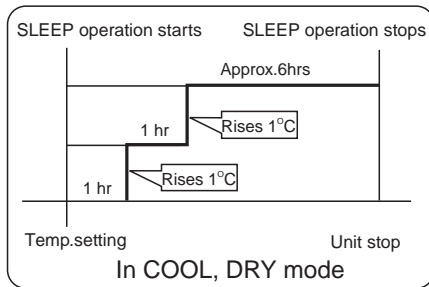
Comfortable SLEEP

Press **SLEEP** button , the remote controller will show  , and then achieve to the sleep function. Press again this **SLEEP** button , the sleep function will be cancelled.

Operation Mode

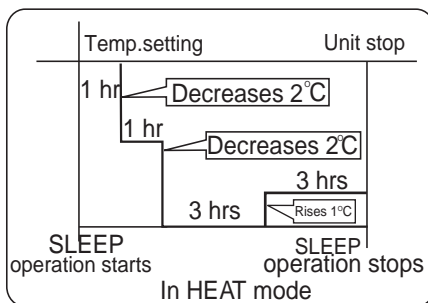
1. In COOL, DRY mode

1 hours after SLEEP mode starts,temp.will become 1°C higher than temp.setting.After another 1 hours, temp.risesby 1°C futher .The unit will run for further 6 hours then stops Temp. is higher than temp.setting so that room temperature won't be too low for your sleep.



2.In HEAT mode

1 hours after SLEEP mode starts, temp will become 2°C lower than temp.setting. After another 1 hours, temp decrease by 2°C further. After more another 3 hours, temp.risesby 1°C further.The unit will run for further 3 hours then stops.Temp. is lower than temp. setting so that room temperature won't be too high for your sleep.



3.In AUTO mode

The unit operates in corresponding sleep mode corresponding sleep mode adapted to the automatically selected operation mode.

4. In FAN mode

It has no SLEEP function.

5. When quiet sleeping function is set to 8 hours the quiet sleeping time can not be adjusted.When TIMER function is set,the quiet sleeping function can't be set up.After the sleeping function is set up,if user resets TIMER function, the sleeping function will be cancelled; the machine will be in the state of timing-on,if the two modes are set up at the same time,either of their operation time is ended first,the unit will stop automatically,and the other mode will be cancelled.

Note

When TIMER function is set, the sleeping function can't be set up .After the sleeping function is set up,if user resets TIMER function, the sleeping function will be cancelled; the machine will be in the state of timing-on.

Note to the power failure resume:

Press the sleep button ten times in five seconds and enter function after hearing four sounds.And press the sleep button ten times within five seconds and leave this function after hearing two sounds.

Power Failure Resume Function

If the unit is started for the first time, the compressor will not start running unless 3 minutes have elapsed. When the power resumes after power failure, the unit will run automatically, and 3 minutes later the compressor starts running.

Healthy airflow Operation

1.Press to starting

Setting the comfort work conditions.

2.The setting of healthy airflow function

Press **EXTRA FUNCTION** button to enter additional options,Press this button continuously, the louvers location will cycle between in the following three locations, to choose the swing location what you needed,and then press **CONFIRM/CANCEL** button to confirm.




3.The cancel of the healthy airflow function

Press **EXTRA FUNCTION** button to enter additional options,Press this button continuously, the louvers location will cycle between in the following three locations again,and then press **CONFIRM/CANCEL** button to cancel.

Notice: Do not direct the flap by hand. Otherwise, the grille will run incorrectly. If the grille is not run correctly, stop for a minute and then start, adjusting by remote controller.

Note:


- 1.After setting the healthy airflow function, the position grill is fixed.
- 2.In cooling, it is better to select the  mode.
- 3.In cooling and dry, using the air conditioner for a long time under the high air humidity, condensate water may occur at the grille .


Operation

Timer On/Off On-Off Operation

1. After unit starts, select your desired operation mode.

2. Press  /  button to change TIMER mode.

Press  button "ON 0.5 " will appear ,after 10 seconds the time display will be blank.

Press  button "OFF 0.5 " will appear ,after 10 seconds the time display will be blank.

Then select your desired TIMER mode (TIMER ON or TIMER OFF). " ON "or " OFF "will flash.

3. Press  /  button to set time.

Press the button for each time, setting time in the first 12 hours increased by 0.5 hour every time, after 12 hours,increased by 1 hour every time.

4. Confirm timer setting

After adjust the time,press  button and confirm the time ON or OFF button will not flash any more.

5. Cancel timer setting

Press the  button the time display eliminated.


Hints:

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

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

HEALTH Operation

(This function is unavailable on some models.)

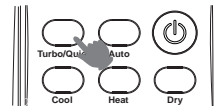
Press HEALTH button , the remote controller will show  and then achieve to the health function.

Press again this HEALTH button , the health function will be cancelled.


The anion generator in the airconditioner can generate a lot of anion effectively balance the quantity of position and anion in the air and also to kill bacteria and speed up the dust sediment in the room and finally clean the air in the room.

TURBO Operation

(This function is unavailable on some models.)



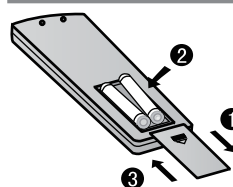
When you need fast cool or fast dehumidification,you can choose the Turob function; when you sleep, read, you can choose Quiet function

Press the  button, you can switch the "Turbo" and "Quiet" function easily. Eevery press,the remote controller will swith as below



When running in Turbo , the fan speed is the highest, when running in Quiet, the fan speed is super slow

Loading of the battery



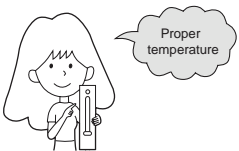
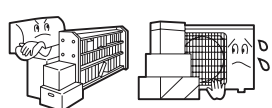


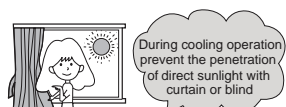
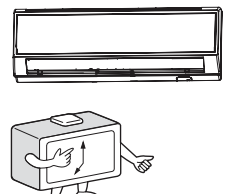



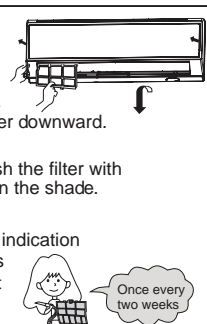
- 1 Remove the battery cover;
- 2 Load the batteries as illustrated. 2 R-03 batteries, resetting key (cylinder);
- 3 Be sure that the loading is in line with the " + " / " - " ;
- 4 Load the battery,then put on the cover again.

Note:


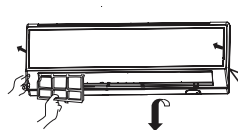
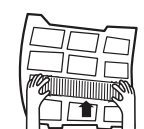
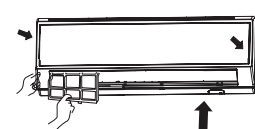
- The distance between the signal transmission head and the receiver hole should be within 7m without any obstacle as well.
- When electronic-started type fluorescent lamp or change-over type fluorescent lamp or wireless telephone is installed in the room, the receiver is apt to be disturbed in receiving the signals, so the distance to the indoor unit should be shorter.
- Full display or unclear display during operation indicates the batteries have been used up. Please change batteries.
- If the remote controller can't run normally during operation, please remove the batteries and reload several minutes later.

Maintenance

For Smart Use of The Air Conditioner

<p>Setting of proper room temperature</p> 	<p>Do not block the air inlet or outlet</p> 	<p>Remote Controller</p>  <p>Do not use water, wipe the controller with a dry cloth. Do not use glass cleaner or chemical cloth.</p>	<p>Indoor Body</p>  <p>wipe the air conditioner by using a soft and dry cloth. For serious stains, use a neutral detergent diluted with water. Wring the water out of the cloth before wiping, then wipe off the detergent completely.</p>
<p>Close doors and windows during operation</p> 	<p>Use the timer effectively</p> 	<p>Do not use the following for cleaning</p>  <p>Gasoline, benzene, thinner or cleanser Hot water over 40°C (104°F) may damage the coating of the unit. cause discoloring or deformation.</p>	
<p>If the unit is not to be used for a long time, turn off the power supply main switch.</p> 	<p>Use the louvers effectively</p> 	<p>Air Filter cleaning</p> <ol style="list-style-type: none"> 1 Open the inlet grille by pulling it upward. 2 Remove the filter. Push up the filter's center tab slightly until it is released from the stopper, and remove the filter downward. 3 Clean the filter. Use a vacuum cleaner to remove dust, or wash the filter with water. After washing, dry the filter completely in the shade. 4 Attach the filter. Attach the filter correctly so that the "FRONT" indication is facing to the front. Make sure that the filter is completely fixed behind the stopper. If the right and left filters are not attached correctly, that may cause defects. 5 Close the inlet grille. 	

Replacement of Air Purifying Filter



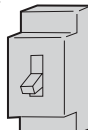
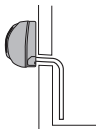



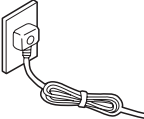
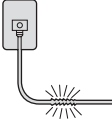
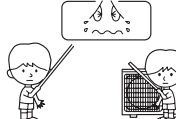


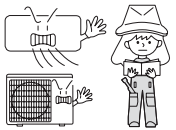

<p>1. Open the Inlet Grille Prop up the inlet grille by using a small device named grille-support which located in the right side of the indoor unit.</p>  <p>2. Detach the standard air filter Slide the knob slightly upward to release the filter, then withdraw it.</p>  <p>3. Attach Air Purifying Filter Put air purifying filter appliances into the right and left filter frames.</p> 	<p>4. Attach the standard air filter (Necessary installation)</p>  <p>ATTENTION: The white side of the photocatalyst air purifying filter face outside, and the black side face the unit. The green side of the bacteria-killing medium air purifying filter face outside, and the white side face the unit.</p> <p>5. Close the Inlet Grille Close the Grille surely</p> <p>NOTE:</p> <ul style="list-style-type: none"> • The photocatalyst air purifying filter will be solarized in fixed time. In normal family, it will be solarized every 6 months. • The bacteria-killing medium air purifying filter will be used for a long time, no need for replacement. But in the period of using them, you should remove the dust frequently by using vacuum cleaner or flapping them lightly, otherwise, its performance will be affected. • Please keep the bacteria-killing medium air purifying filter in the cool and dry conditions avoid long time directly sunshine when you stop using it, or its ability of sterilization will be reduced.
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Cautions


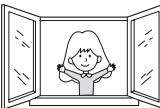
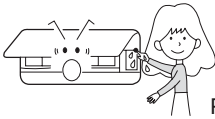
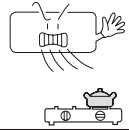
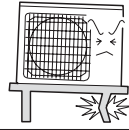
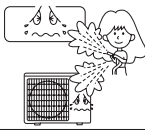


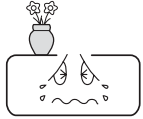
⚠ WARNING

Please call Sales/Service Shop for the Installation.
Do not attempt to install the air conditioner by yourself because improper works may cause electric shock, fire, water leakage.

⚠ WARNING






<p>When abnormality such as burnt-smell found, immediately stop the operation button and contact sales shop.</p>  <p>OFF</p>  <p>STRICT ENFORCEMENT</p>	<p>Use an exclusive power source with a circuit breaker</p> 	<p>Check proper installation of the drainage securely</p>  <p>STRICT ENFORCEMENT</p>	
<p>Connect power supply cord to the outlet completely</p>  <p>STRICT ENFORCEMENT</p>	<p>Use the proper voltage</p>  <p>STRICT ENFORCEMENT</p>	<p>1. Do not use power supply cord extended or connected in halfway 2. Do not install in the place where there is any possibility of inflammable gas leakage around the unit. 3. Do not get the unit exposed to vapor or oil steam.</p>  <p>PROHIBITION</p>	
<p>Do not use power supply cord in a bundle.</p>  <p>PROHIBITION</p>	<p>Take care not to damage the power supply cord.</p>  <p>PROHIBITION</p>	<p>Do not insert objects into the air inlet or outlet.</p>  <p>PROHIBITION</p>	
<p>Do not start or stop the operation by disconnecting the power supply cord and so on.</p>  <p>PROHIBITION</p>	<p>Do not channel the air flow directly at people, especially at infants or the aged.</p>  <p>PROHIBITION</p>	<p>Do not try to repair or reconstruct by yourself.</p> 	<p>Connect the earth cable.</p>  <p>earthing</p>

⚠ CAUTION

<p>Do not use for the purpose of storage of food, art work, precise equipment, breeding, or cultivation.</p>  <p>PROHIBITION</p>	<p>Take fresh air occasionally especially when gas appliance is running at the same time.</p>  <p>STRICT ENFORCEMENT</p>	<p>Do not operate the switch with wet hand.</p>  <p>PROHIBITION</p>
<p>Do not install the unit near a fireplace or other heating apparatus.</p>  <p>PROHIBITION</p>	<p>Check good condition of the installation stand</p>  <p>PROHIBITION</p>	<p>Do not pour water onto the unit for cleaning</p>  <p>PROHIBITION</p>
<p>Do not place animals or plants in the direct path of the air flow</p>  <p>PROHIBITION</p>	<p>Do not place any objects on or climb on the unit.</p>  <p>PROHIBITION</p>	<p>Do not place flower vase or water containers on the top of the unit.</p>  <p>PROHIBITION</p>

Trouble shooting

Before asking for service, check the following first.

	Phenomenon	Cause or check points
Normal Performance inspection	The system does not restart immediately. 	<ul style="list-style-type: none"> When unit is stopped, it won't restart immediately until 3 minutes have elapsed to protect the system. When the electric plug is pulled out and reinserted, the protection circuit will work for 3 minutes to protect the air conditioner.
	Noise is heard 	<ul style="list-style-type: none"> During unit operation or at stop, a swishing or gurgling noise may be heard. At first 2-3 minutes after unit start, this noise is more noticeable. (This noise is generated by refrigerant flowing in the system.) During unit operation, a cracking noise may be heard. This noise is generated by the casing expanding or shrinking because of temperature changes. Should there be a big noise from air flow in unit operation, air filter may be too dirty.
	Smells are generated.	<ul style="list-style-type: none"> This is because the system circulates smells from the interior air such as the smell of furniture, paint, cigarettes.
	Mist or steam are blown out. 	<ul style="list-style-type: none"> During COOL or DRY operation, indoor unit may blow out mist. This is due to the sudden cooling of indoor air.
	In dry mode, fan speed can't be changed.	<ul style="list-style-type: none"> In DRY mode, when room temperature becomes lower than temp. setting+2 °C, unit will run intermittently at LOW speed regardless of FAN setting.
Multiple check		<ul style="list-style-type: none"> Is power plug inserted? Is there a power failure? Is fuse blownout?
	Poor cooling 	<ul style="list-style-type: none"> Is the air filter dirty? Normally it should be cleaned every 15 days. Are there any obstacles before inlet and outlet? Is temperature set correctly? Are there some doors or windows left open? Is there any direct sunlight through the window during the cooling operation?(Use curtain) Are there too much heat sources or too many people in the room during cooling operation?

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.
- This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of appliance by person responsible for their safety. Children should be supervised to ensure that they do not play with the appliance.

Specifications

- The refrigerating circuit is leak-proof.

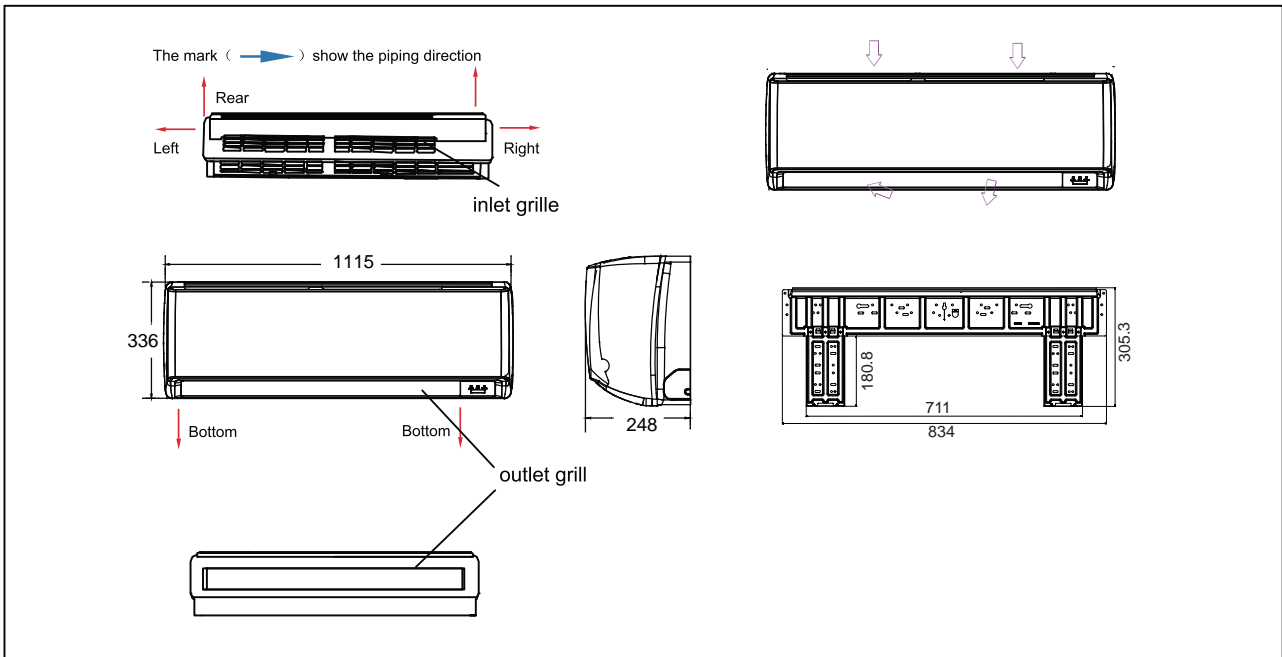
The machine is adaptive in following situation

1. Applicable ambient temperature range:

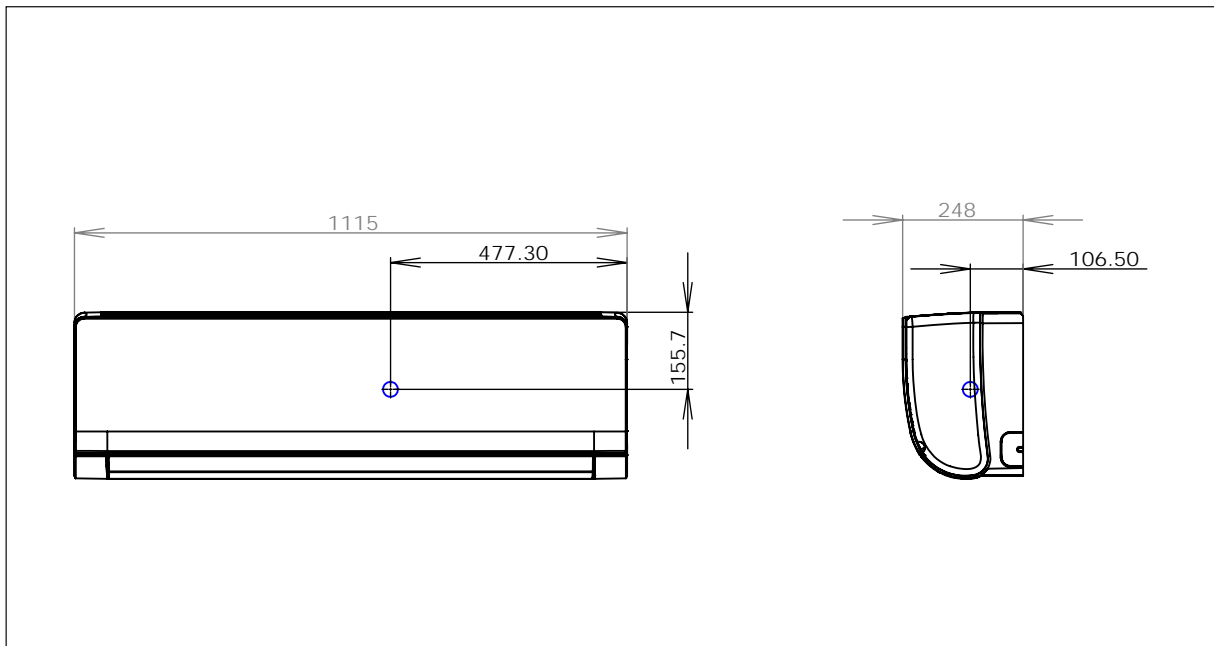
Cooling	Indoor	Maximum:D.B/W.B 32°C/23°C Minimum:D.B/W.B 21°C/15°C
	Outdoor	Maximum:D.B/W.B 46°C/26°C Minimum: D.B 18°C
Heating	Indoor	Maximum:D.B 27°C Minimum: D.B 15°C
	Outdoor	Maximum:D.B/W.B 24°C/18°C Minimum:D.B/W.B -7°C/-8°C
	Outdoor (INVERTER)	Maximum:D.B/W.B 24°C/18°C Minimum:D.B -15°C

- If the power supply cord is damaged, it must be replaced by the manufacturer or its service agent or a similar qualified person.
- If the fuse of indoor unit on PC board is broken, please change it with the type of T. 3.15A/ 250V. If the fuse of outdoor unit is broken, change it with the type of T.25A/250V
- The wiring method should be in line with the local wiring standard.
- After installation, the power plug should be easily reached.
- The waste battery should be disposed properly.
- Please employ the proper power plug, which fit into the power supply cord.
- The power plug and connecting cable must have acquired the local attestation.
- In order to protect the units, please turn off the A/C first, and at least 30 seconds later, cutting off the power.
- Please check the installation instruction of WiFi in the WiFi module

9. Dimensional drawings



10. Center of gravity



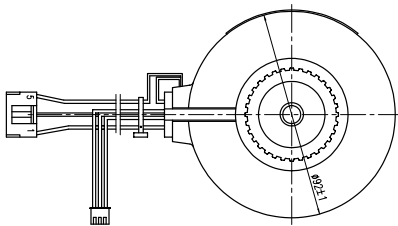
11 Service Diagnosis

11.1 Caution for Diagnosis

The operation lamp flashes when any of the following errors is detected.

1. When a protection device of the indoor or outdoor unit is activated or when the thermistor malfunctions, disabling equipment operation.
2. When a signal transmission error occurs between the indoor and outdoor units. In either case, conduct the diagnostic procedure described in the following pages.

11.2 Parameter of primary electronic appliance

NO	Name	Parameter	Picture
1	Fan motor	Rated voltage: DC310V Rated current: 0.17A Rated frequency: – Resistance: 548Ω	

11.3 Problem Symptoms and Measures

Symptom	Check Item	Details of Measure
None of the units operates	Check the power supply.	Check to make sure that the rated voltage is supplied.
	Check the indoor PCB.	Check to make sure that the indoor PCB is broken.
Operation sometimes stops	Check the power supply.	A power failure of 2 to 10 cycles can stop air conditioner operation.
Equipment operates but does not cool, or does not heat (only for heat pump)	Check for faulty operation of the electronic expansion valve.	Set the units to cooling operation, and compare the temperatures of the liquid side connection pipes of the connection section among rooms to check the opening and closing operation of the electronic expansion valves of the individual units.
	Diagnosis by service port pressure and operating current.	Check for insufficient gas.
Large operating noise and vibrations	Check the installation condition.	Check to make sure that the required spaces for installation (specified in the Technical Guide, etc.) are provided.

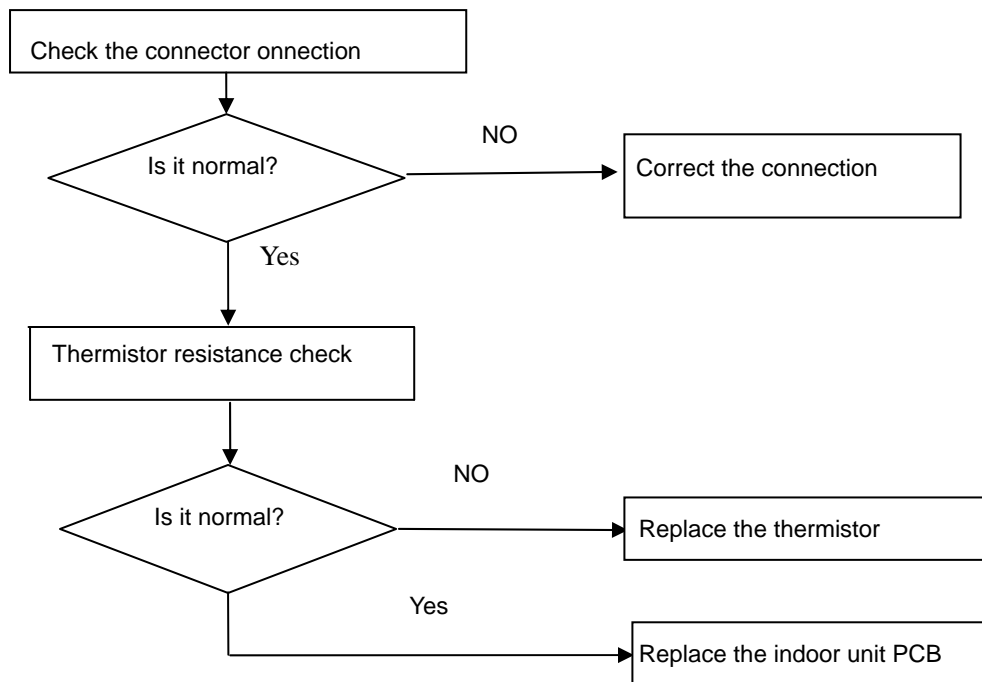
11.4 Error Codes and Description indoor display

	Code indication		fault description	Reference Page
	Indoor displaying panel code indication	Outdoor (LED1 flash times)		
Indoor and Outdoor	E7	15	Communication fault between indoor and outdoor units	Page .45
Indoor Malfunction	E1	--	Room temperature sensor failure	Page .36
	E2	--	Heat-exchange sensor failure	Page .36
	E4	--	Indoor EEPROM error	Page .37
	E14	--	Indoor fan motor malfunction	Page .38
Outdoor Malfunction	F12	1	Outdoor EEPROM error	Page .37
	F1	2	The protection of IPM	Page .41
	F22	3	Overcurrent protection of AC electricity for the outdoor model	Page .42
	F3	4	Communication fault between the IPM and outdoor PCB	Page.43
	F19	6	Power voltage is too high or low	Page .44
	F4	8	Overheat protection for Discharge temperature	Page .45
	F8	9	Outdoor DC fan motor fault	Page .40
	F21	10	Defrost temperature sensor failure	Page .36
	F7	11	Suction temperature sensor failure	Page .36
	F6	12	Ambient temperature sensor failure	Page .36
	F25	13	Discharge temperature sensor failure	Page .36
	F11	18	deviate from the normal for the compressor	Page .48
	F28	19	Loop of the station detect error	Page .48
	F2	24	Overcurrent of the compressor	Page .42
	F23	25	Overcurrent protection for single-phase of the compressor	Page .42
	E9	21	High work-intense protection	Page .49

11.4.1 Thermistor or Related Abnormality

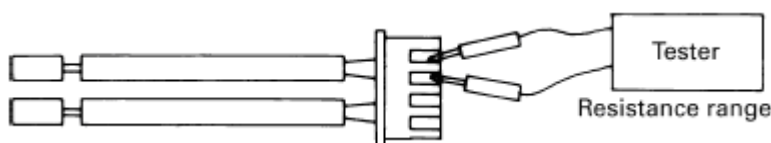
Indoor display	E1: Room temperature sensor failure E2: Heat-exchange sensor failure
	LED1 flash 10 times: Defrost temperature sensor failure
Outdoor display	LED1 flash 11 times: Suction temperature sensor failure LED1 flash 12 times: Ambient temperature sensor failure LED1 flash 13 times: Discharge temperature sensor failure

Method of malfunction section	The temperatures detected by the thermistors are used to determine thermistor errors
Malfunction detection conditions	when the thermistor input is more than 4.92V or less than 0.08V during compressor operation. ● Note: The values vary slightly in some models
*Thermistor resistance check	<ul style="list-style-type: none"> ■ Faulty connector connection ■ Faulty thermistor ■ Faulty PCB
Troubleshooting	* Caution Be sure to turn off power switch before connect or disconnect connector, or else parts damage may be occurred.



Thermistor resistance check method:

Remove the connector of the thermistor on the PCB, and measure the resistance of thermistor using tester. The relationship between normal temperature and resistance is shown in the value of indoor thermistor.



11.4.2 EEPROM abnormal

Indoor Display E4: indoor EEPROM error
 outdoor display F12: Outdoor EEPROM error; Outdoor LED1 flash 1 times

Method of
malfunction
detection

The Data detected by the EEPROM are used to determine MCU

Malfunction
detection
conditions

when the data of EEPROM is error or the EEPROM is damaged

Supposed
causes

- Faulty EEPROM data
- Faulty EEPROM
- Faulty PCB

Troubleshooting

* Caution Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.

Replace the indoor or outdoor mainboard

11.4.3 Indoor fan motor malfunction

Indoor Display E14

Method of Malfunction Detection

The rotation speed detected by the Hall IC during fan motor operation is used to determine abnormal fan motor operation

Malfunction Decision Conditions

when the detected rotation feedback signal don't received in 2 minutes

Supposed Causes

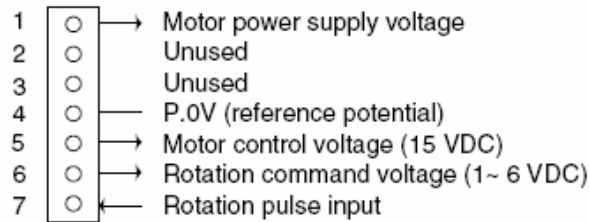
- Operation halt due to breaking of wire inside the fan motor .
- Fan motor overheat protection
- Operation halt due to breaking of the fan motor lead wires
- Detection error due to faulty indoor unit PCB

Troubleshooting

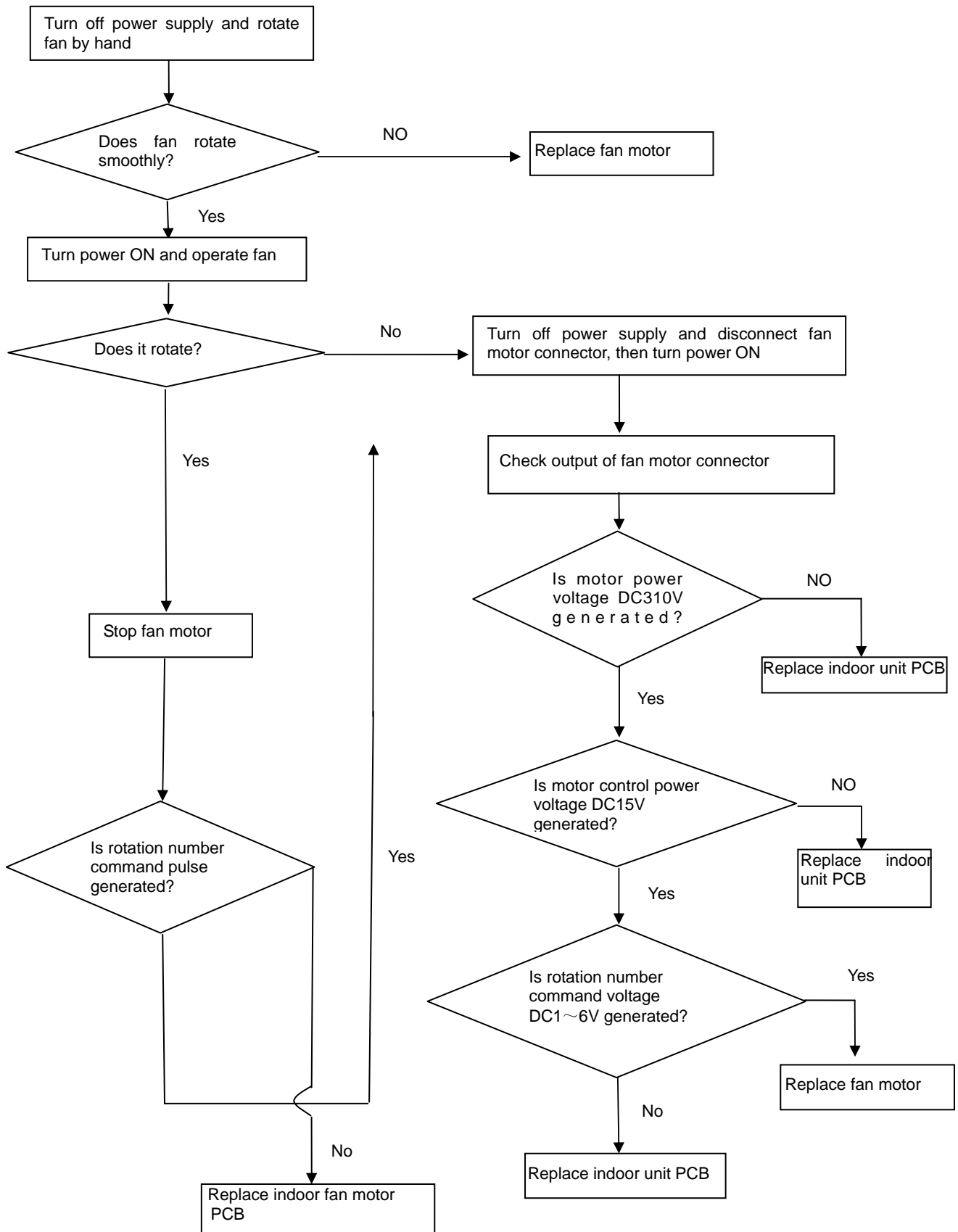
* Caution Be sure to turn off power switch before connect or disconnect connector, or else parts damage may be occurred.

How to check Fan Motor (DC)

1. Check connector connection.
2. Check motor power supply voltage output (pins 1-4).
3. Check motor control voltage (pins 4-5).
4. Check rotation command voltage output (pins 4-6).
5. Check rotation pulse input (pins 4-7).

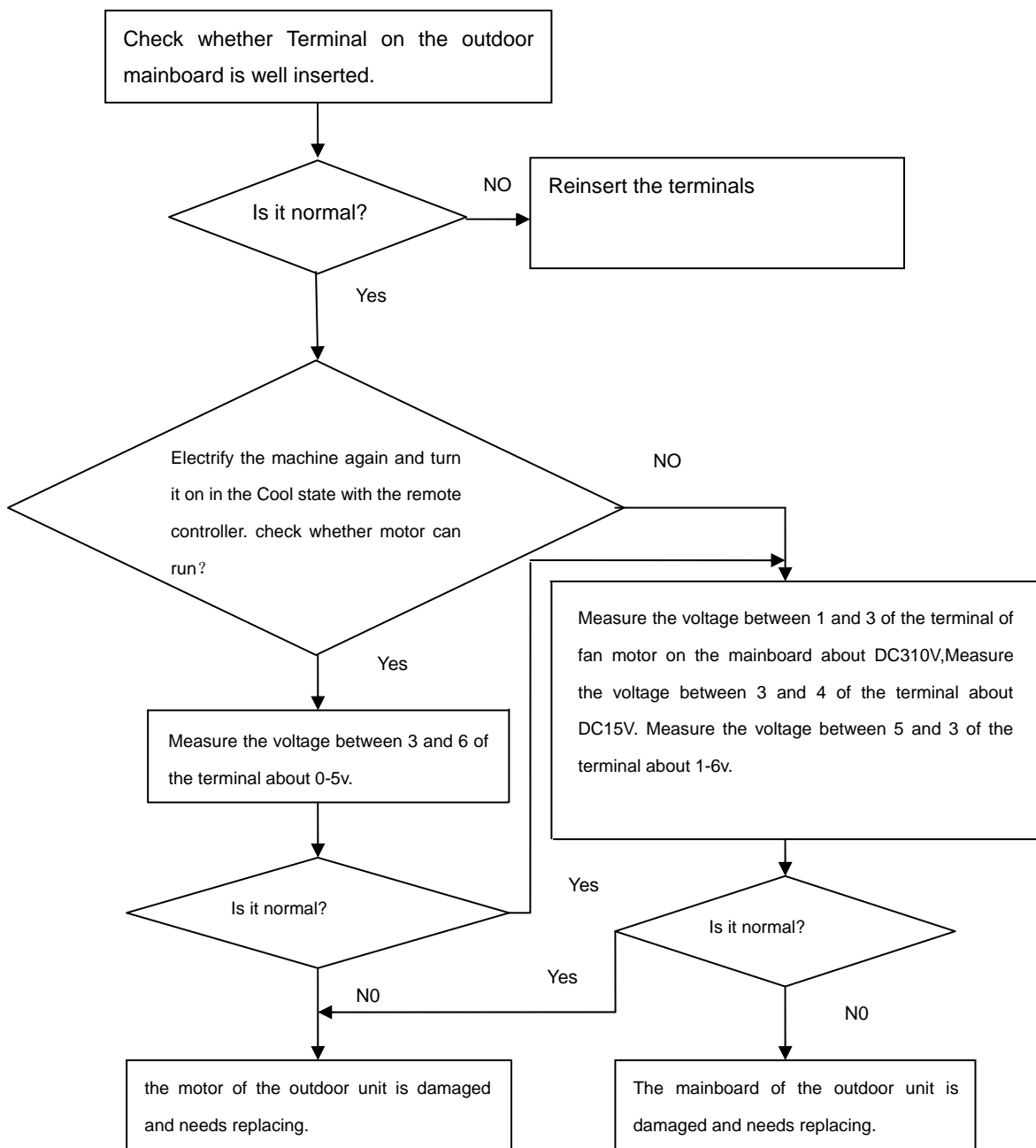


Notes: the a/c is electrifying, don't pull out or insert the terminals of the motor, else the motor would be damaged.



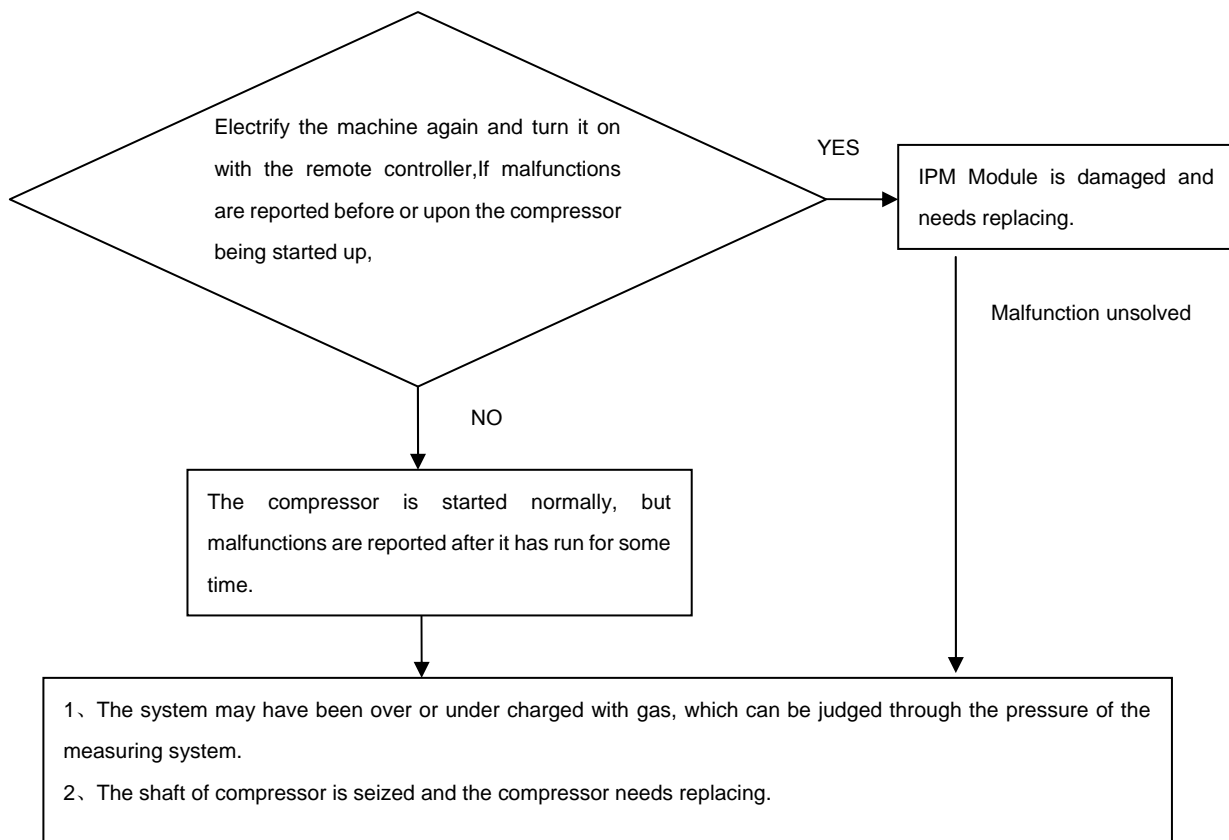
11.4.4 Outdoor DC fan motor fault

Outdoor display	LED1 flash 9 times
Method of malfunction detection	DC fan motor is detected by checking the fan running condition and so on
Malfunction detection conditions	when the data of EEPROM is error or the EEPROM is damaged
Supposed causes	<ul style="list-style-type: none"> ■DC fan motor protection dues to the DC fan motor faulty ■DC fan motor protection dues to faulty PCB
Troubleshooting	<p>* Caution</p> <p>Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.</p>



11.4.5 IPM protection

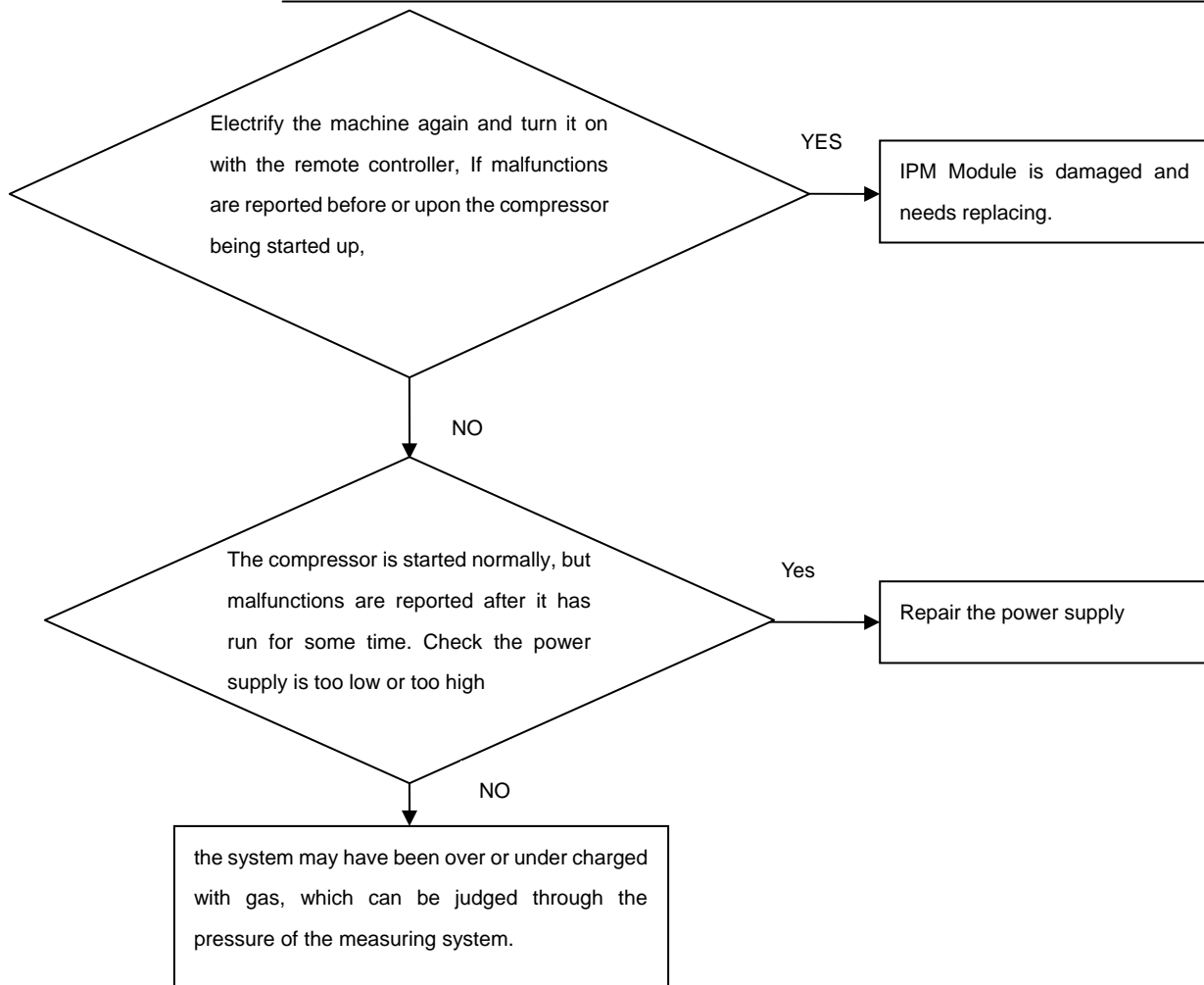
Outdoor display	LED1 flash 2 times
Method of malfunction detection	IPM protection is detected by checking the compressor running condition and so on
Malfunction detection conditions	<ul style="list-style-type: none"> ■The system leads to IPM protection due to over current ■The compressor faulty leads to IPM protection ■circuit component of IPM is broken and led to IPM protection
Supposed causes	<ul style="list-style-type: none"> ■IPM protection dues to the compressor faulty ■IPM protection dues to faulty PCB of IPM module ■Compressor wiring disconnected
Troubleshooting	<p>* Caution</p> <p>Be sure to turn off power switch before connect or disconnect connector, or else parts damage may be occurred..</p>



11.4.6 Over-current of the compressor

Outdoor display LED1 flash 3 or 24 or 25 times

Method of malfunction detection	the current of the compressor is too high
Malfunction detection conditions	when the IPM Module is damaged or the compressor is damaged. power supply voltage is too low or too high
Supposed causes	<ul style="list-style-type: none"> ■ Faulty IPM Module ■ Faulty compressor ■ Faulty power supply
Troubleshooting	<p>* Caution</p> <p>Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred...</p>

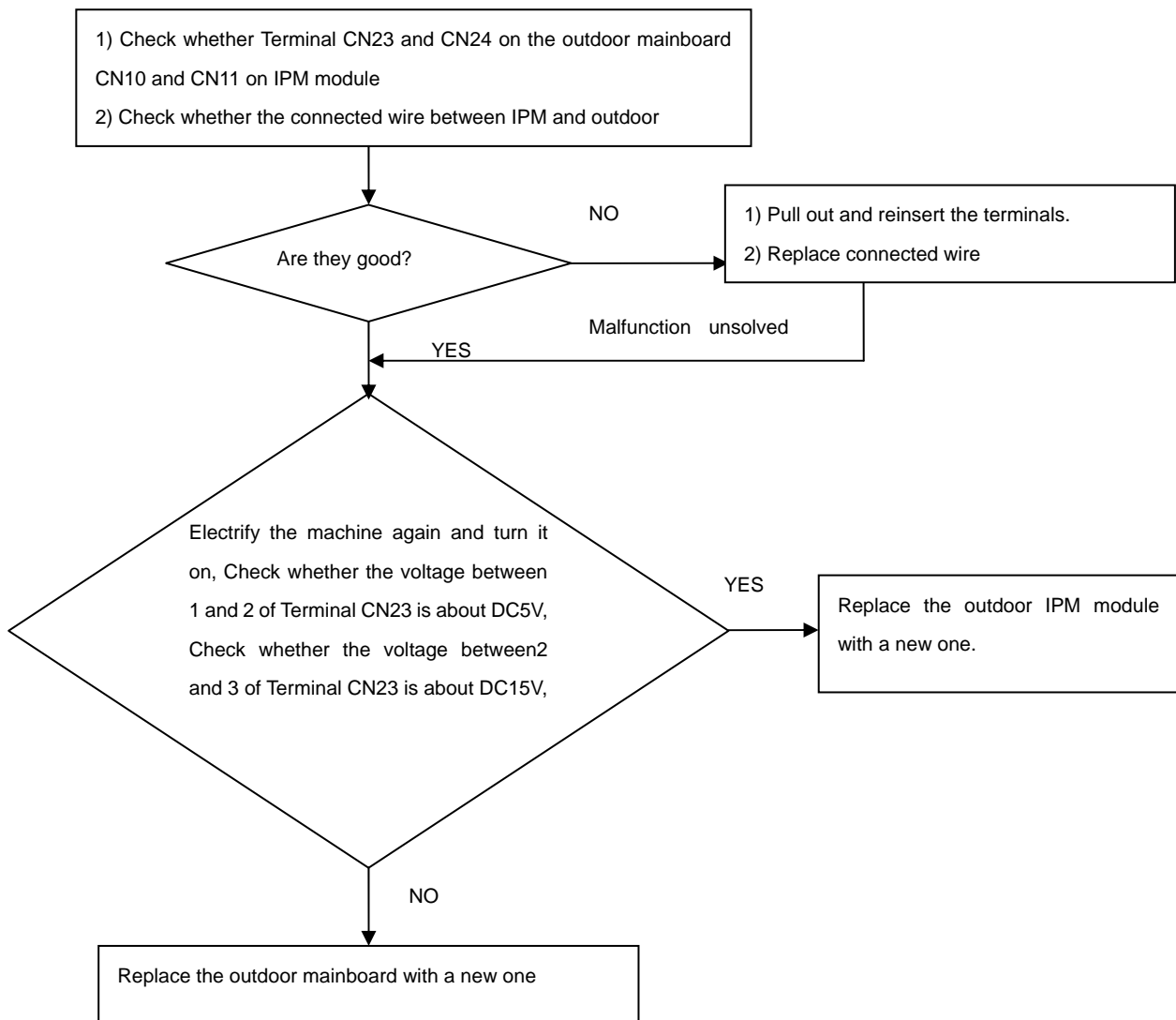


11.4.7 The communication fault between IPM and outdoor PCB

Outdoor display

LED1 flash 4 times

Method of malfunction detection	Communication is detected by checking the IPM module and the outdoor PCB
Malfunction detection conditions	<ul style="list-style-type: none"> ■The outdoor PCB broken leads to communication fault ■The IPM module broken leads to communication fault
Supposed causes	<ul style="list-style-type: none"> ■The outdoor PCB is broken ■The IPM module is broken ■Communication wiring disconnected
Troubleshooting	<p>* Caution</p> <p>Be sure to turn off power switch before connect or disconnect connector, or else parts damage may be occurred</p>

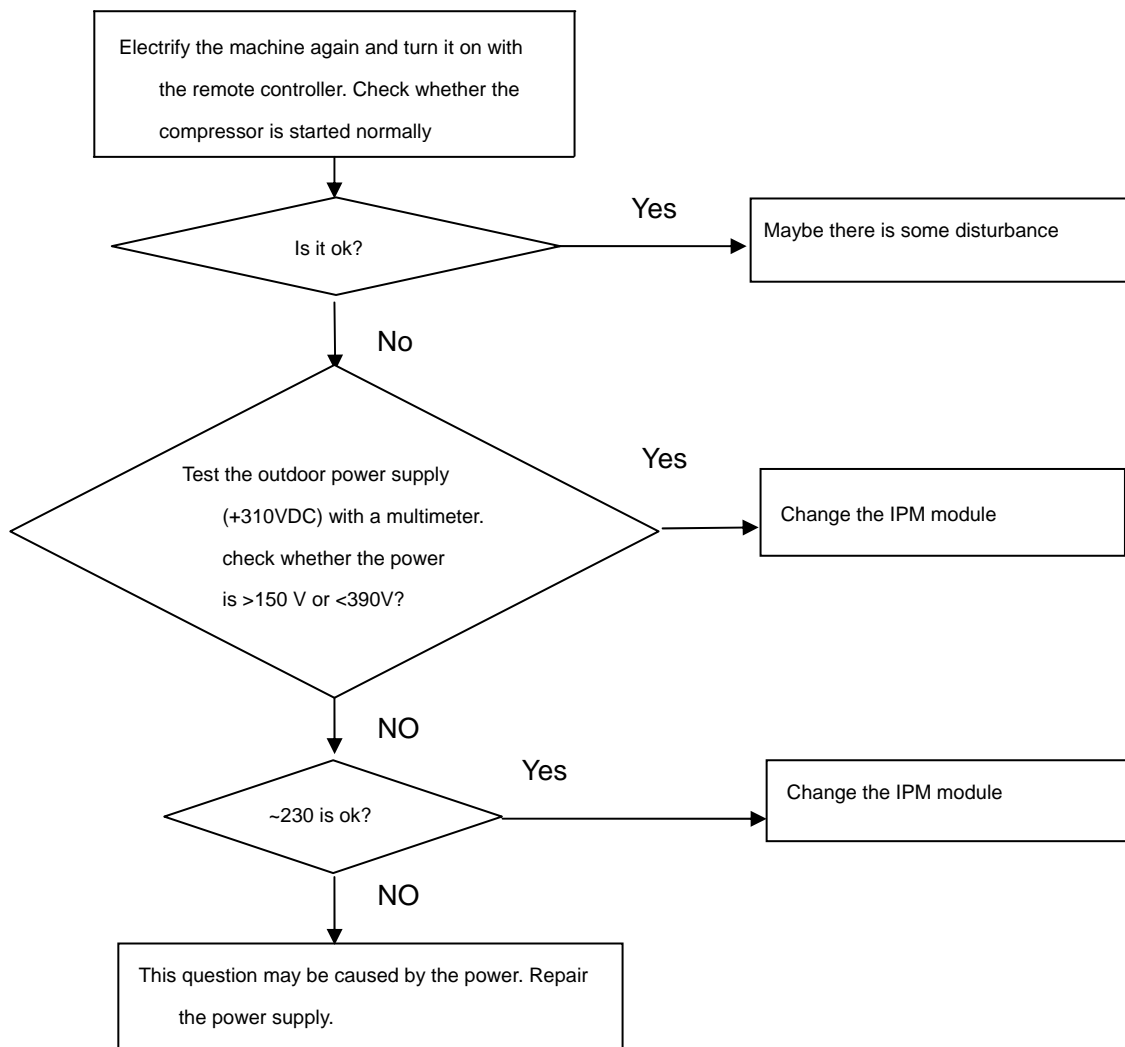


11.4.8 Power Supply Over or under voltage fault

Outdoor display

LED1 flash 6 times The power supply is over voltage

Method of malfunction detection	An abnormal voltage rise or fall is detected by checking the specified voltage detection
Malfunction detection conditions	An voltage signal is fed from the voltage detection circuit to the microcomputer
Supposed causes	<ul style="list-style-type: none"> ■Supply voltage not as specified. ■The IPM module is broken. ■The outdoor PCB is broken.
Troubleshooting	<p>* Caution</p> <p>Be sure to turn off power switch before connect or disconnect connector, or else parts damage may be occurred.</p>

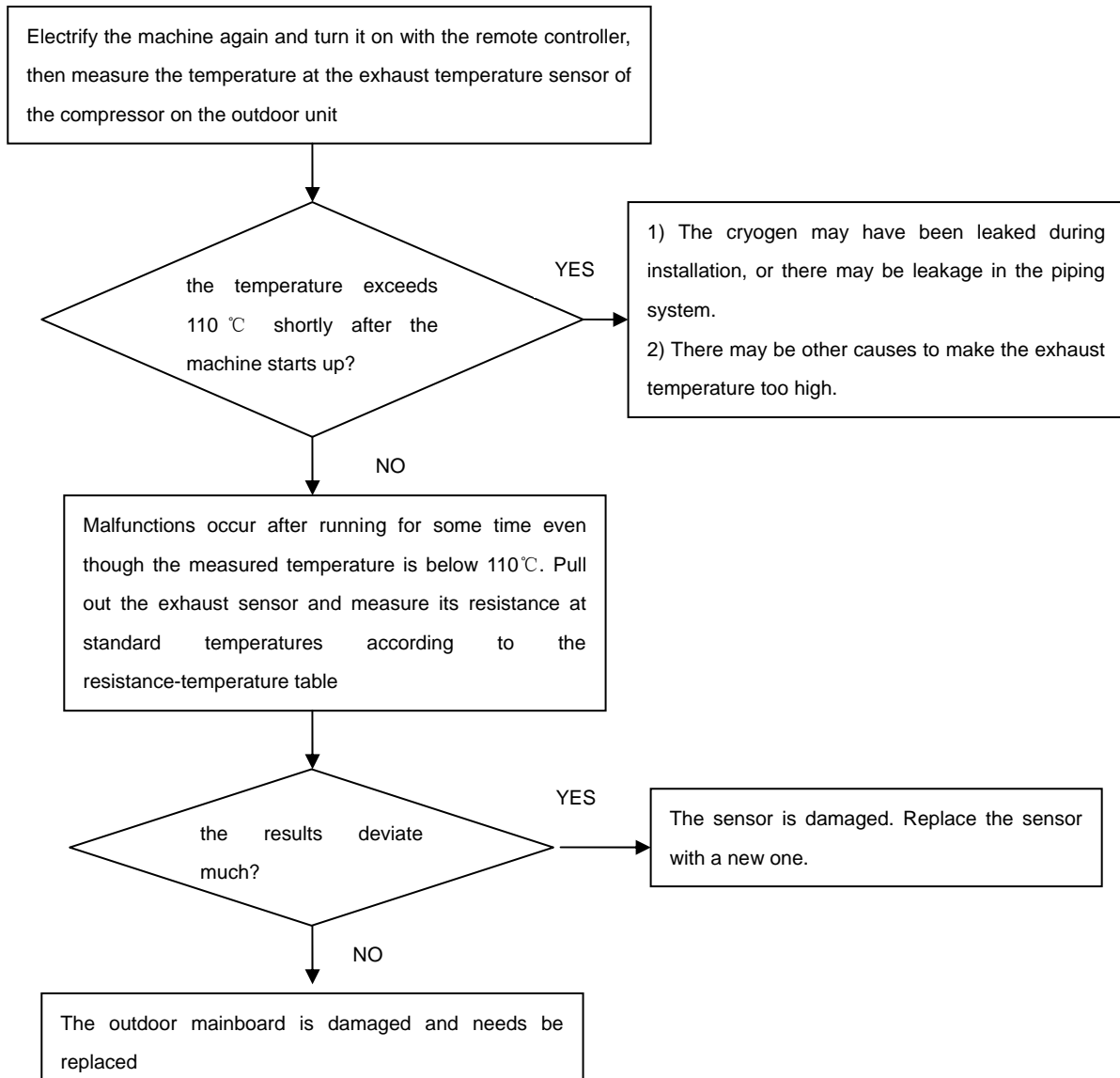


11.4.9 Overheat Protection For Discharge Temperature

Outdoor display

LED1 flash 8 times

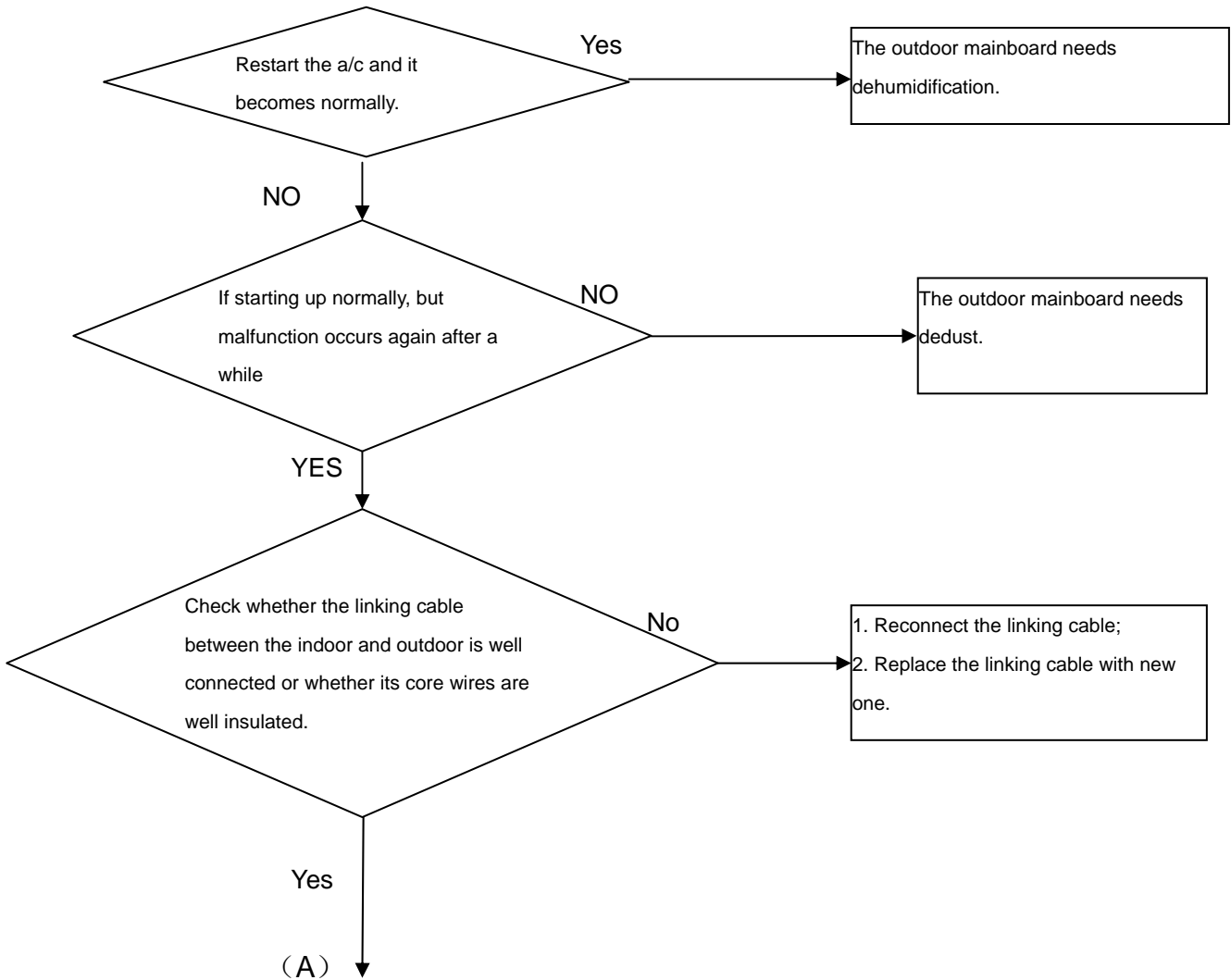
Method of malfunction detection	The Discharge temperature control is checked with the temperature being detected by the Discharge pipe thermistor
Malfunction detection conditions	when the compressor discharge temperature is above 110°C
Supposed causes	<ul style="list-style-type: none"> ■ Electronic expansion valve defective ■ Faulty thermistor ■ Faulty PCB
Troubleshooting	<p>* Caution</p> <p>Be sure to turn off power switch before connect or disconnect connector, or else parts damage may be occurred.</p>

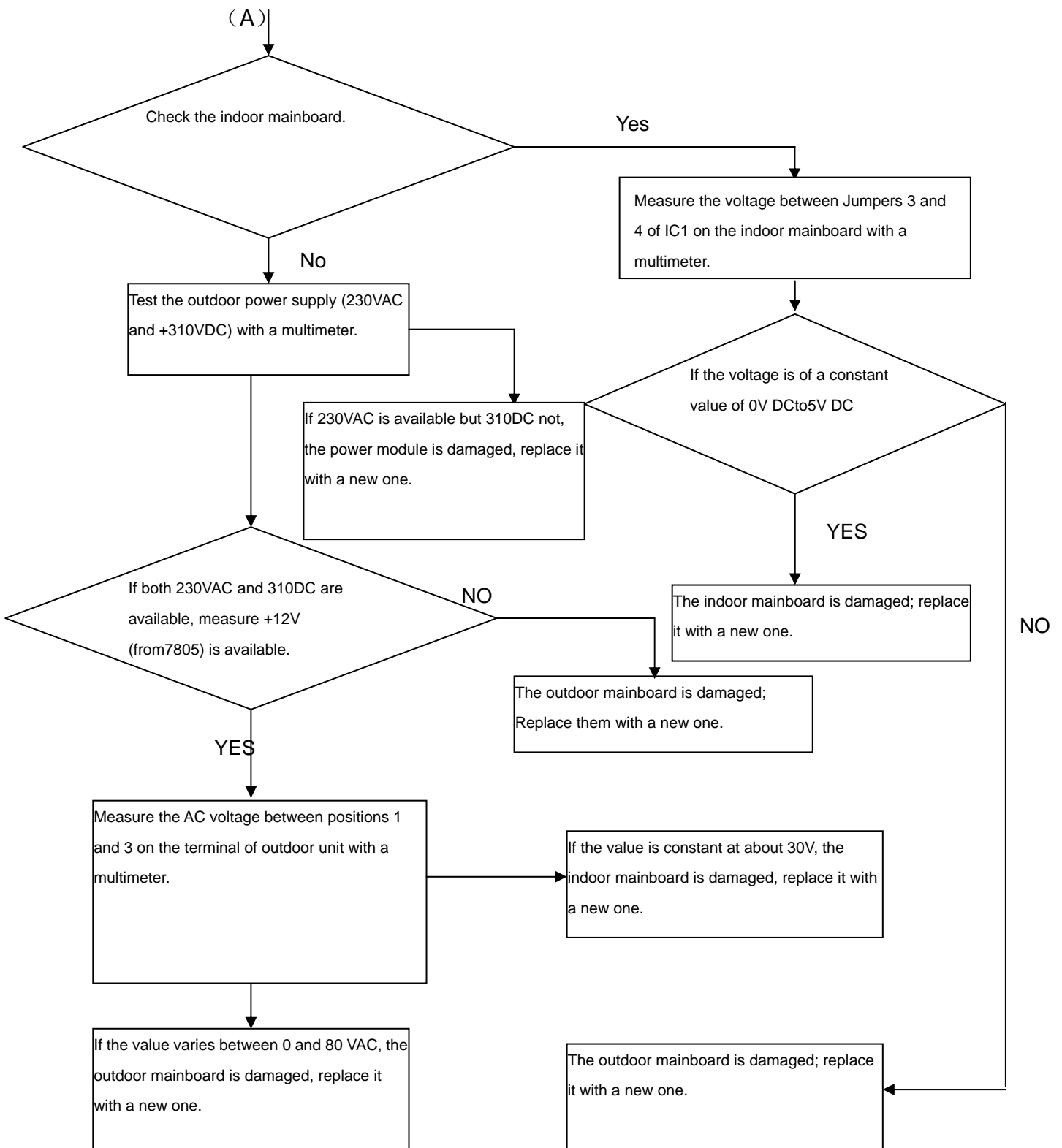


11.4.10 The communication fault between indoor and outdoor

indoor display: E7
 Outdoor display: LED1 flash 15 times

Method of malfunction detection	Communication is detected by checking the indoor PCB and the outdoor PCB
Malfunction detection conditions	<ul style="list-style-type: none"> ■ The outdoor PCB broken leads to communication fault ■ The indoor PCB broken leads to communication fault
Supposed causes	<ul style="list-style-type: none"> ■ Communication wiring disconnected ■ The indoor PCB is broken ■ The outdoor PCB is broken ■ The module PCB is broken
Troubleshooting	<p>* Caution</p> <p>Be sure to turn off power switch before connect or disconnect connector, or else parts damage may be occurred.</p>



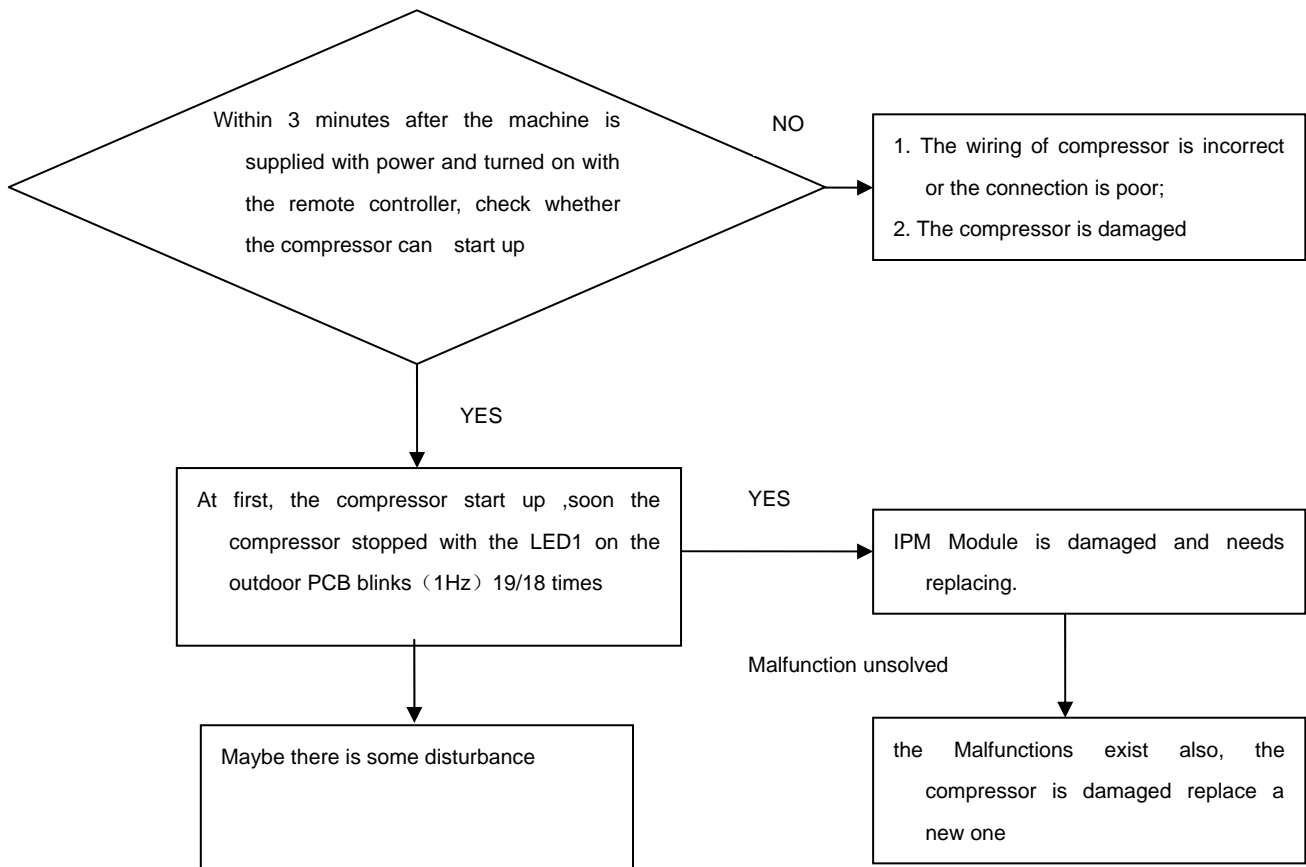


11.4.11 Loss of synchronism detection

Inverter side current detection is abnormal

Outdoor display LED1 flash 18 times
 LED1 flash 19 times

Method of malfunction detection	The position of the compressor rotor can not detected normally
Malfunction detection conditions	when the wiring of compressor is wrong or the connection is poor; or the compressor is damaged
Supposed causes	<ul style="list-style-type: none"> ■Faulty The wiring of compressor ■Faulty compressor ■Faulty PCB
Troubleshooting	<p>* Caution</p> <p>Be sure to turn off power switch before connect or disconnect connector, or else parts damage may be occurred.</p>

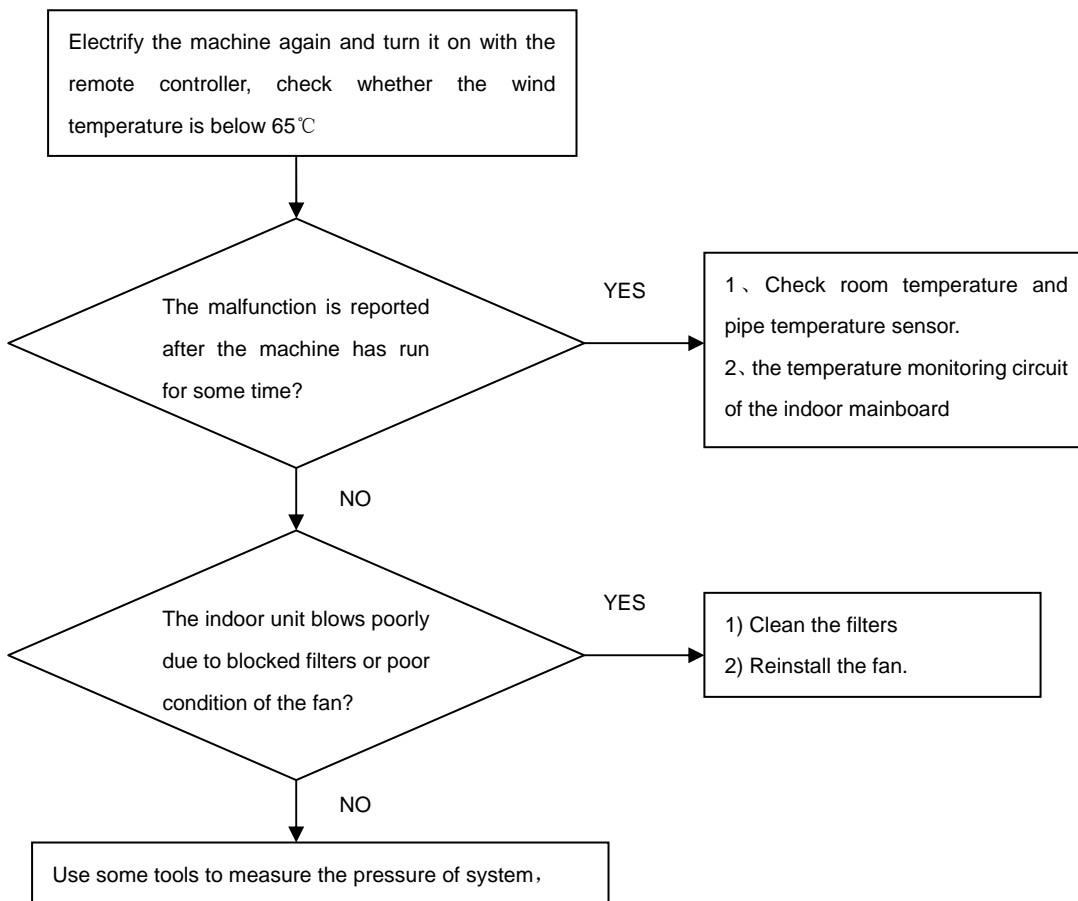


11.4.12 High work-intense protection

Outdoor display

LED1 flash 21 times

Method of malfunction detection	High work-intense control is activated in the heating mode if the temperature being sensed by the heat exchanger thermistor exceeds the limit.
Malfunction detection conditions	Activated when the temperature being sensed by the heat exchanger rises above 65°C twice in 30 minutes.
Supposed causes	<ul style="list-style-type: none"> ■ Faulty electronic expansion valve ■ Dirty heat exchanger ■ Faulty heat-exchange sensor ■ Insufficient gas
Troubleshooting	<p>* Caution</p> <p>Be sure to turn off power switch before connect or disconnect connector, or else parts damage may be occurred.</p>



12. Circuit diagrams

