2020   Version: 1.1

SERVISE MANUAL

FUNAI

Samurai On-Off

MODEL:

RAC-SM20HP.D03	RAC-SM20HP.D03/S	RAC-SM20HP.D03/U
RAC-SM25HP.D03	RAC-SM25HP.D03/S	RAC-SM25HP.D03/U
RAC-SM35HP.D03	RAC-SM35HP.D03/S	RAC-SM35HP.D03/U
RAC-SM55HP.D03	RAC-SM55HP.D03/S	RAC-SM55HP.D03/U
RAC-SM70HP.D03	RAC-SM70HP.D03/S	RAC-SM70HP.D03/U

Contents

1. Safety Considerations

IMPORTANT!
Please Read Before Starting

This air conditioning system meets strict safety and operating standards. As the installer or service person, it is an important part of your job to install or service the system, so it operates safely and efficiently.

For safe installation and trouble-free operation, you must:
● Carefully read this instruction booklet before beginning.
● Follow each installation or repair step exactly as shown.
● Observe all local, state, and national electrical codes.
● Pay close attention to all warning and caution notices given in this manual.

⚠ **WARNING** This symbol refers to a hazard or unsafe practice which can result in severe personal injury or death.

⚠ CAUTION This symbol refers to a hazard or unsafe practice which can result in personal injury or product or property damage.

If Necessary, Get Help
These instructions are all you need for most installation sites and maintenance conditions. If you require help for a special problem, contact our sales/service outlet or your certified dealer for additional instructions.
In Case of Improper Installation
The manufacturer shall in no way be responsible for improper installation or maintenance service, including failure to follow the instructions in this document.

SPECIAL PRECAUTIONS

When Wiring **WARNING**

⚠ ELECTRICAL SHOCK CAN CAUSE SEVERE PERSONAL INJURY OR DEATH. ONLY A QUALIFIED, EXPERIENCED ELECTRICIAN SHOULD ATTEMPT TO WIRE THIS SYSTEM.
● Do not supply power to the unit until all wiring and tubing are completed or reconnected and checked.
● Highly dangerous electrical voltages are used in this system. Carefully refer to the wiring diagram and these instructions when wiring. Improper connections and inadequate grounding can cause accidental injury or death.
● Ground the unit following local electrical codes.
● Connect all wiring tightly. Loose wiring may cause overheating at connection points and a possible

fire hazard.

When Transporting

Be careful when picking up and moving the indoor and outdoor units. Get a partner to help, and bend your knees when lifting to reduce strain on your back. Sharp edges or thin aluminum fins on the air conditioner can cut your fingers.

When Installing

● In a Ceiling or Wall

Make sure the ceiling/wall is strong enough to hold the unit's weight. It may be necessary to construct a strong wood or metal frame to provide added support.

● In a Room

Properly insulate any tubing run inside a room to prevent "sweating" that can cause dripping and water damage to walls and floors.

● In Moist or Uneven Locations

Use a raised concrete pad or concrete blocks to provide a solid, level foundation for the outdoor unit. This prevents water damage and abnormal vibration.

● In an Area with High Winds

Securely anchor the outdoor unit down with bolts and a metal frame. Provide a suitable air baffle.

● In a Snowy Area (for Heat Pump-type Systems)

Install the outdoor unit on a raised platform that is higher than drifting snow. Provide snow vents.

When Connecting Refrigerant Tubing

△ Use the flare method for connecting tubing.

△ Apply refrigerant lubricant to the matching surfaces of the flare and union tubes before connecting them, then tighten the nut with a torque wrench for a leak free connection.

△ Check carefully for leaks before starting the test run.

When Servicing

△ Turn the power OFF at the main power box (mains) before opening the unit to check or repair electrical parts and wiring.

△ Keep your fingers and clothing away from any moving parts.

△ Clean up the site after you finish, remembering to check that no metal scraps or bits of wiring have been left inside the unit being serviced.

Others

 CAUTION

△ Ventilate any enclosed areas when installing or testing the refrigeration system. Escaped refrigerant gas, on contact with fire or heat, can produce dangerously toxic gas.

△ Confirm upon completing installation that no refrigerant gas is leaking. If escaped gas comes in contact with a stove, gas water heater, electric room heater or other heat source, it can produce dangerously toxic gas.

NOTE:

The figure，size and parameter of the product may not be identical with the service manual, please take the actual product as the standard.

2. Product Specifications

Model No.			RAC-SM20HP.D03	RAC-SM25HP.D03
Type			T1, H/P, ON/OFF	T1, H/P, ON/OFF
Ratings				
Cooling Capacity	W		2050	2500
Heating Capacity	W		2150	2550
Rated Input-Cooling	W		638	780
Rated Input-Heating	W		595	705
Moisture Removal	L/h		0.7	0.9
Air Circulation	High m3/h		500（Super）	550（Super）
EER for Cooling	W/W		3.21	3.21
COP for Heating	W/W		3.61	3.62
Energy Class	Cooling		A	A
Energy Class	Heating		A	A
Refrigerant			R410A	R410A
Refrigerant charge volume （5M）	g		520	530
Additional ref. Volume	g		20	20
Indoor Unit Noise Level	High(dB (A))		33	38
Outdoor Unit Noise Level	dB (A)		50	51
Power Supply				
Voltage, Frequency, Phase	V		220-240V~,50Hz,1P	220-240V~,50Hz,1P
Rated Current	Cooling (A)		2.8	3.5
	Heating (A)		2.7	3.2
System pressures in cooling rated conditions				
Max suction pressure	MPa		1.6	1.6
Max discharge pressure	MPa		4.15	4.15
System				
Compressor				
Compressor type			Rotary	Rotary
Compressor Model No.			39A143BD&54KB	39A173BD&54KZ
Compressor MFG			RECHI	RECHI
Connecting Pipe Diameter				
Liquid Pipe	inch		1/4	1/4
Gas Pipe	inch		3/8	3/8
Cooling Setting Temperature Range	℃		16~30	16~30
Heating Setting Temperature Range	℃		16~30	16~30
Cooling Operating Temperature Range	℃		19~43	19~43
Heating Operating Temperature Range	℃		-7~21	-7~21
Features				

			LED	LED
Display on Front Panel			LED	LED
LCD Wireless Remote Controller			Yes	Yes
Removable and washable Panel			Yes	Yes
Washable PP Filter			Yes	Yes
24 Hours Timer			Yes	Yes
3 Speed and Auto Indoor Fan Control			Yes	Yes
Vertical Auto Swing Louver			Yes	Yes
Manual Adjustable Horizontal Swing Louver			Yes	Yes
Sleep Operation			Yes	Yes
Smart Function			Yes	Yes
Super Function			Yes	Yes
Auto Restart			Yes	Yes
Dimmer			Yes	Yes
Other				
Net Dimensions WxHxD (mm)	Indoor Unit		790×255×200	790×255×200
	Outdoor Unit		660×482×240	660×482×240
Net Weight (Kg)	Indoor Unit		6.7	6.7
	Outdoor Unit		21.5	22
Packing Dimensions WxHxD (mm)	Indoor Unit		850×320×260	850×320×260
	Outdoor Unit		780×530×315	780×530×315
Gross Weight (Kg)	Indoor Unit		8.2	8.2
	Outdoor Unit		23.5	24.5

Note:

1、This table just is for reference, when relate parameters is different from actual specification, please use the parameters of the actual specification which you can get from the product manager.

2、"**" mean code of Front Panel (relate pictures can check in content 4-1)

3、Net Dimensions（Indoor Unit）depend on the panel you used, the panel is different, the Net Dimensions will be different, but they are very close, if you need the accurate data, you can consult the product manager.

4、Packing Dimensions （Indoor Unit）depend on the panel you used, the panel is different, the Packing Dimensions will be different, but they are very close, if you need the accurate data, you can consult the product manager.

5、Gross Weight （Indoor Unit）depend on the panel you used, the panel is different, the Gross Weight will be different, but they are very close, if you need the accurate data, you can consult the product manager.

Model No.		RAC-SM35HP.D03	RAC-SM55HP.D03	RAC-SM70HP.D03
Type		T1, H/P, ON/OFF	T1, H/P, ON/OFF	T1, H/P, ON/OFF
Ratings				
Cooling Capacity	W	3260	5000	6800
Heating Capacity	W	3260	5100	6800
Rated Input-Cooling	W	1015	1780	2120
Rated Input-Heating	W	900	1590	1990
Moisture Removal	L/h	0.9	1.4	/
Air Circulation	High m3/h	580（Super）	950（Super）	900（Super）
EER for Cooling	W/W	3.21	2.81	3.21
COP for Heating	W/W	3.62	3.21	3.42
Energy Class	Cooling	A	C	A
Energy Class	Heating	A	/	B
Refrigerant		R410A	R410A	R410A
Refrigerant charge volume （5M）	g	690	1220	1140
Additional ref. Volume	g	20	20	30
Indoor Unit Noise Level	High(dB (A))	38	44	44
Outdoor Unit Noise Level	dB (A)	53	54	56
Power Supply				
Voltage, Frequency, Phase	V	220-240V~,50Hz,1P	220-240V~,50Hz,1P	220-240V~,50Hz,1P
Rated Current	Cooling (A)	4.7	7.9	9.5
Rated Current	Heating (A)	4.2	7.1	8.9
System pressures in cooling rated conditions				
Max suction pressure	MPa	1.6	1.6	1.6
Max discharge pressure	MPa	4.15	4.15	4.15
System				
Compressor				
Compressor type		Rotary	Rotary	Rotary
Compressor Model No.		PA118M1C-4FZ2	ASH197UV-C7HQL	ASH255MV-C8DQ
Compressor MFG		GMCC	HIGHLY	HIGHLY
Connecting Pipe Diameter				
Liquid Pipe	inch	1/4	1/4	1/4
Gas Pipe	inch	1/2	1/2	5/8
Cooling Setting Temperature Range	℃	16~30	16~30	16~30
Heating Setting Temperature Range	℃	16~30	16~30	16~31
Cooling Operating Temperature Range	℃	19~43	19~43	16~43
Heating Operating Temperature Range	℃	-7~24	-7~24	-7~24
Features				
Display on Front Panel		LED	LED	LED
LCD Wireless Remote Controller		Yes	Yes	Yes
Removable and washable Panel		Yes	Yes	Yes
Washable PP Filter		Yes	Yes	Yes

24 Hours Timer		Yes	Yes	Yes
3 Speed and Auto Indoor Fan Control		Yes	Yes	Yes
Vertical Auto Swing Louver		Yes	Yes	Yes
Manual Adjustable Horizontal Swing Louver		Yes	Yes	Yes
Sleep Operation		Yes	Yes	Yes
Smart Function		Yes	Yes	Yes
Super Function		Yes	Yes	Yes
Auto Restart		Yes	Yes	Yes
Dimmer		Yes	Yes	Yes
Other				
Net Dimensions WxHxD (mm)	Indoor Unit	790x255x200	890×220×300	890×300×220
	Outdoor Unit	715×486×240	780×540×260	860x650x310
Net Weight (Kg)	Indoor Unit	7.5	10	10
	Outdoor Unit	26	36.5	45
Packing Dimensions WxHxD (mm)	Indoor Unit	850×320×260	960×300×365	960×365×300
	Outdoor Unit	830×530×315	910×600×360	995×720×420
Gross Weight (Kg)	Indoor Unit	9	12	12
	Outdoor Unit	28.5	39.5	49

Note:

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5、Gross Weight （Indoor Unit）depend on the panel you used, the panel is different, the Gross Weight will be different, but they are very close, if you need the accurate data, you can consult the product manager.
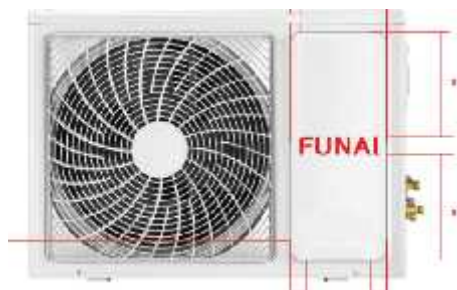
3. Product Picture and Drawing

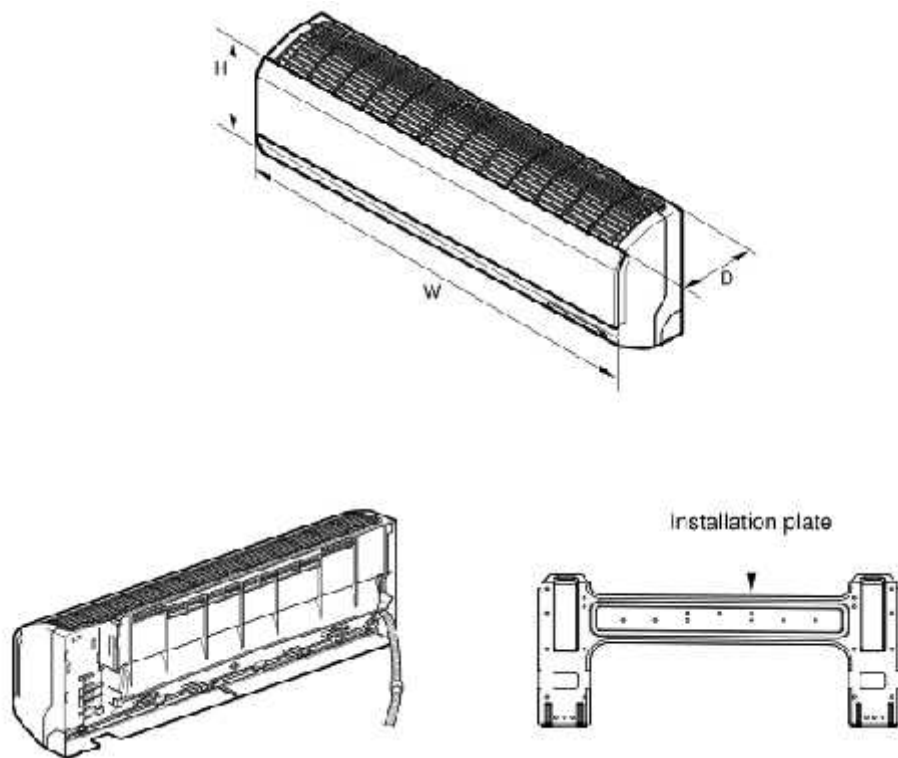## 3-1. Product Pictures

Indoor units:

Front Panel	CA
View	

Outdoor Units:

Remote controller:

3-2. Product dimensions

Indoor units:

Model	W (mm)	H (mm)	D (mm)
RAC-SM20HP.D03	790	255	200
RAC-SM25HP.D03	790	255	200
RAC-SM35HP.D03	790	255	200
RAC-SM55HP.D03	890	300	220
RAC-SM70HP.D03	890	300	220

Outdoor units:
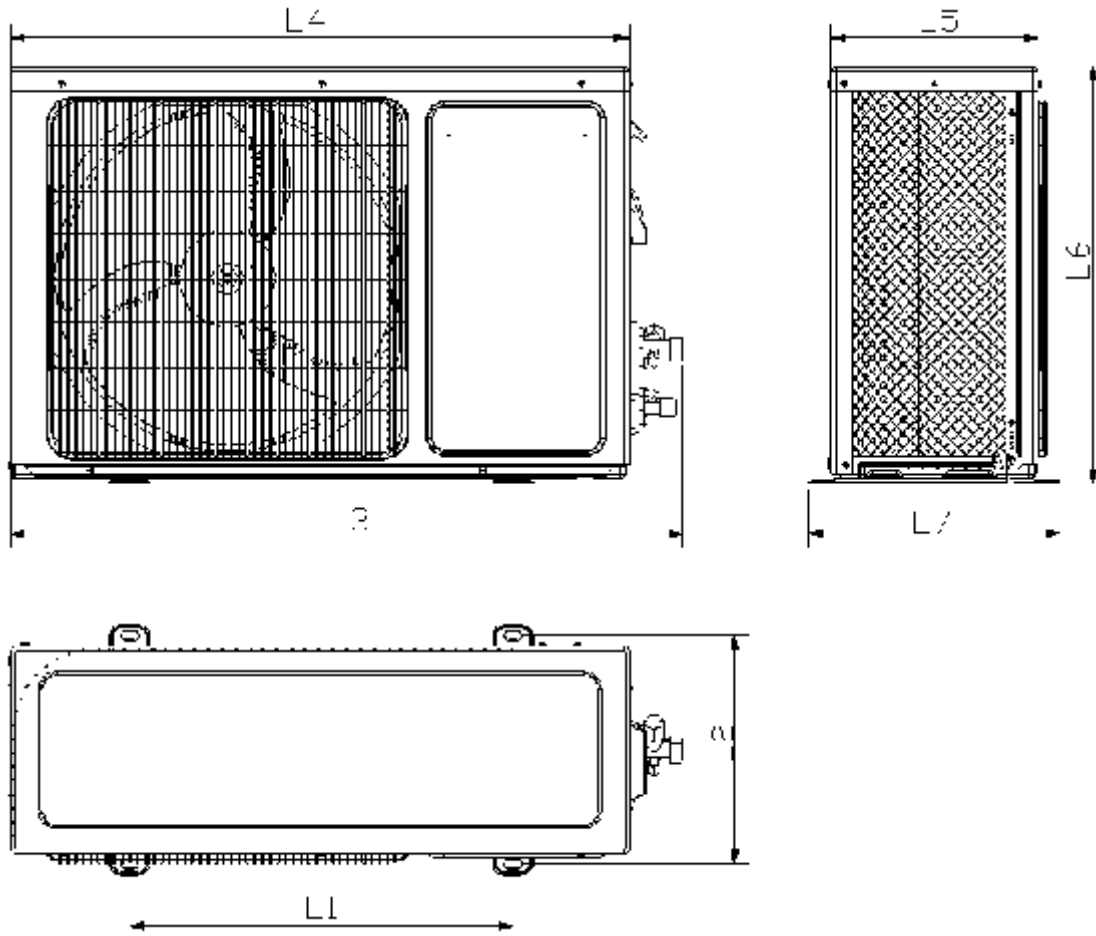
Model	L1 (mm)	L2 (mm)	L3 (mm)	L4 (mm)	L5 (mm)	L6 (mm)	L7 (mm)
RAC-SM20HP.D03	443	264	776	715	240	486	290
RAC-SM25HP.D03	443	264	776	715	240	486	290
RAC-SM35HP.D03	443	264	776	715	240	486	290
RAC-SM55HP.D03	530	290	856	780	260	538	317
RAC-SM70HP.D03	542	341	935	860	310	667	368

4. Installation Instruction

⚠ **WARNING**   To prevent abnormal heat generation and the possibility of fire, do not place obstacles, enclosures and grilles in front of or surrounding the air conditioner in a way that may clock air flow. And, more than 1 meter away from any antenna or power lines or connecting wires used for TV, radio, telephone, security system, or intercom. Electrical noise from any of these sources may affect operation.

4-1. Installation Place and Condition

Indoor unit

Avoid:
∆direct sunlight.
∆nearby heat sources that may affect performance of the unit.
∆areas where leakage of flammable gas may be expected.
∆places where large amounts of oil mist exist.

Do:
∆ Select an appropriate position from which every corner of the room can be uniformly cooled.
∆ Select a location that will hold the weight of the unit.
∆ Select a location where tubing and drain hose have the shortest run to the outside. (See a)
∆ Allow room for operation and maintenance as well as unrestricted air flow around the unit. (See b)
∆ Install the unit within the maximum elevation difference (H) above or below the outdoor unit and within a total tubing length (L) from the outdoor unit as detailed (See table 1 and c)
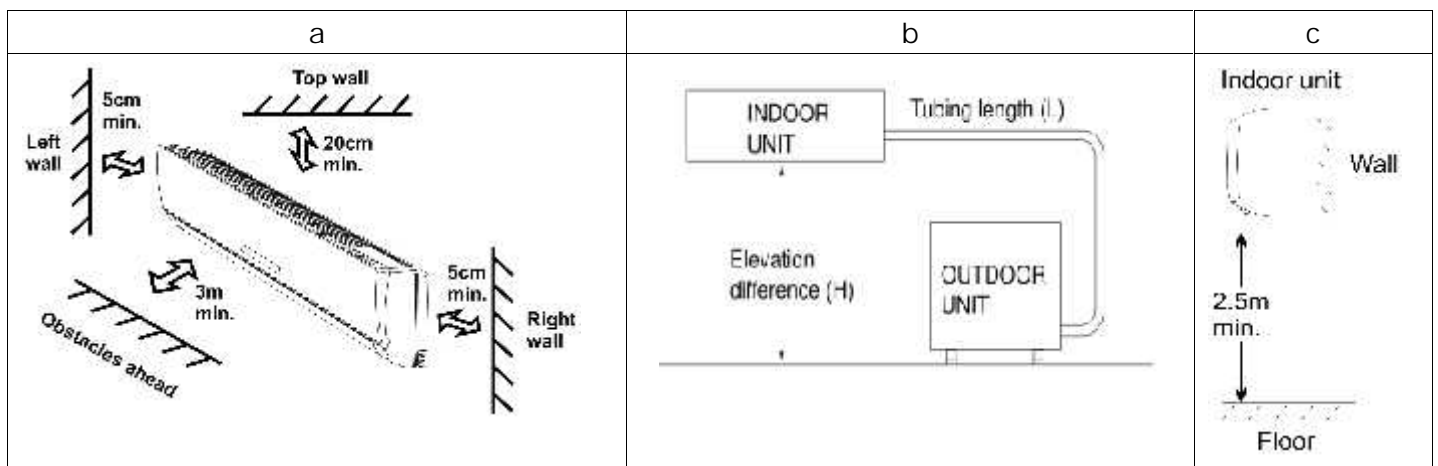
a	b	c

table 1

Capacity (Btu/h)	Pipe Size		Standard Length (m)	Max. Elevation H (m)	Max. Tubing Length L (m)	Additional Refrigerant (g/m)
	GAS	LIQUID				
9k	3/8"(Ø9.52)	1/4"(Ø6.35)	5	5	15	20
	1/2"(Ø12.7)	1/4"(Ø6.35)	5	5	15	20
12k	3/8"(Ø9.52)	1/4"(Ø6.35)	5	5	15	20
	1/2"(Ø12.7)	1/4"(Ø6.35)	5	5	15	20
18k	1/2"(Ø12.7)	1/4"(Ø6.35)	5	5	15	20
	5/8"(Ø15.88)	1/4"(Ø6.35)	5	5	15	20

	5/8"(Ø15.88)	3/8"(Ø9.52)	5	5	15	30
24k	1/2"(Ø12.7)	1/4"(Ø6.35)	5	5	15	20
	5/8"(Ø15.88)	1/4"(Ø6.35)	5	5	15	20
	5/8"(Ø15.88)	3/8"(Ø9.52)	5	5	15	30

* If total tubing length becomes 7.5 to 15 m (max.), charge additional refrigerant as the table1 for reference. And no additional compressor oil is necessary.
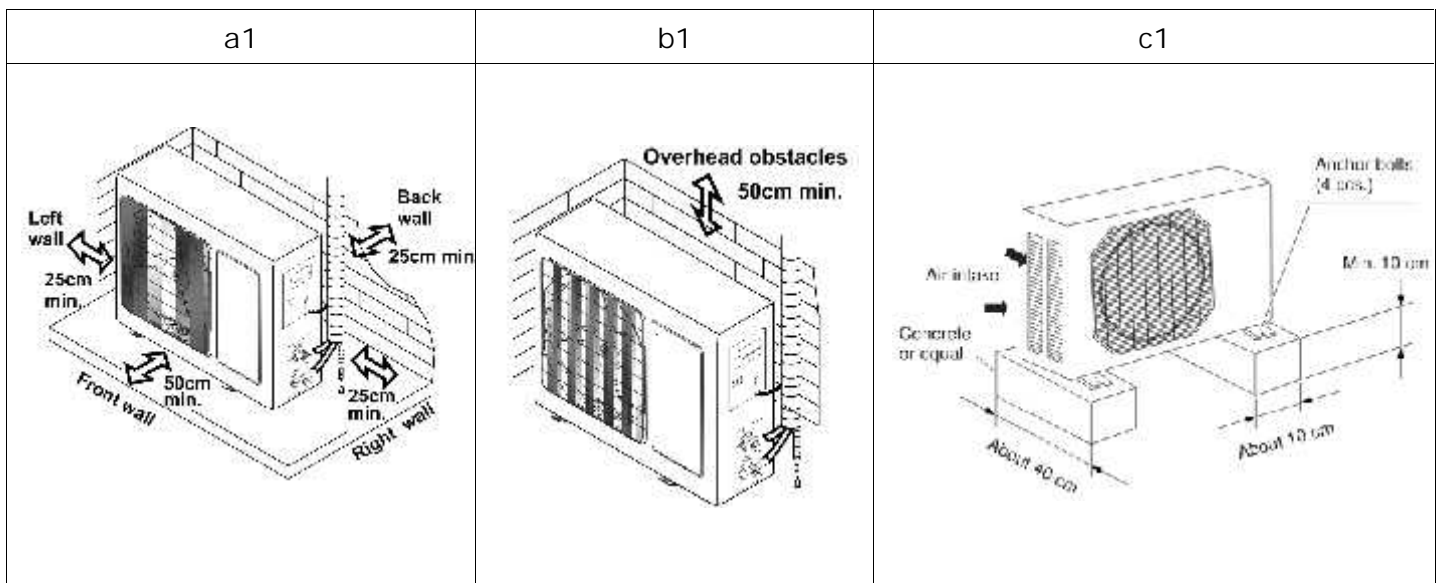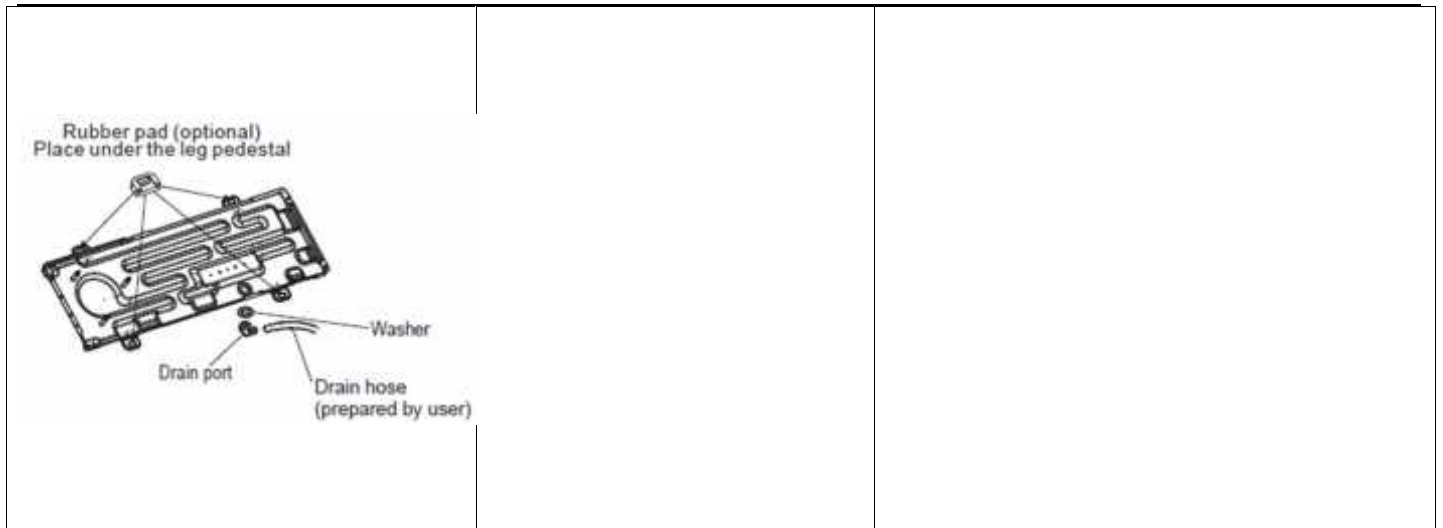
Outdoor unit

Avoid:
△Heat sources, exhaust fans, etc.
△Damp, humid or uneven locations.

DO:
△Choose a place as cool as possible.
△Choose a place that is well ventilated.
△Allow enough room around the unit for air intake or exhaust and possible maintenance. (see a1, b1 & c1)
△Provide a solid base (level concrete pad, concrete block, 10 × 40 cm beams or equal), a minimum of 10 cm above ground level to reduce humidity and protect the unit against possible water damage and decreased service life.
△ If the installation bag has rubber pads, it is strongly recommended for use to reduce vibration and noise.
△Use lug bolts or equal to bolt down unit, reducing vibration and noise.

a1	b1	c1

Rubber pad (optional)
Place under the leg pedestal

Washer

Drain port

Drain hose
(prepared by user)

Recommended Wire Diameter:

Capacity (Btu/h)	Power cord		Power connecting cord		Power connecting cord1		Main power supply
	Type	Normal cross - sectional area	Type	Normal cross - sectional area	Type	Normal cross - sectional area	
5K~13K	H05VV-F	1.0~1.5mm²X3	H07RN-F H05RN-F	1.5mm²X3 1.0mm²X3	H05RN-F	0.75mm²X2 (Heat-pump)	To indoor
14K~24K	H05VV-F	1.5~2.5mm²X3	H07RN-F	1.5-2.5mm²X3	H05RN-F	0.75mm²X2 (Heat-pump)	To indoor
18K~30K	H05VV-F	1.5-2.5mm²X3	H07RN-F	1.5-2.5mm²X4	H05RN-F	0.75mm²X2 (Heat-pump&Optional)	To indoor
18K~30K	H07RN-F	2.5mm²X3	H05RN-F H07RN-F	1.0mm²X3 1.0mm²X4Cooling only	H05RN-F	0.75mm²X3 (Heat-pump)	To outdoor
24K~36K	H07RN-F	2.5~4.0mm²X3	H05RN-F H07RN-F	0.75mm²X4 1.0mm²X4	H05RN-F	0.75mm²X2 (Heat-pump&Optional)	To outdoor
24K~36K	H07RN-F	1.5mm²X5	H05RN-F H07RN-F	0.75mm²X4 1.0mm²X4	H05RN-F	0.75mm²X2 (Heat-pump&Optional)	To outdoor

The cord may be different from the list above. It may be used as the next list. And it can be larger.
0-7A, use 0.75mm² or 18AWG. 0-10A, use 1mm² or 16AWG. 0-16A, use 1.5mm² or 14AWG.
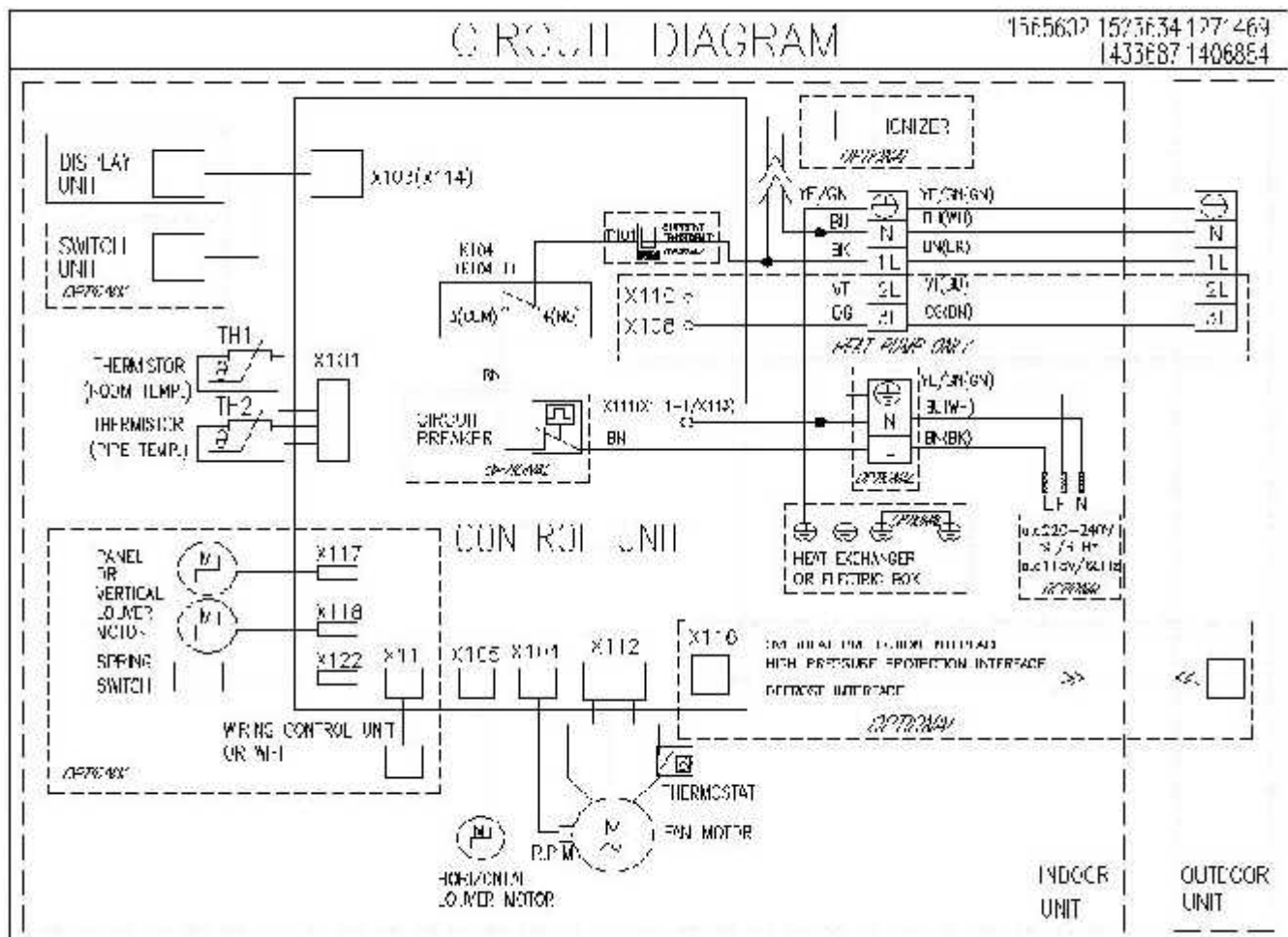0-20A, use 2.5mm² or 14AWG. 0-25A, use 2.5mm² or 12AWG. 0-32A, use 4mm² or 12AWG.

4-2. Electric Wiring Diagram

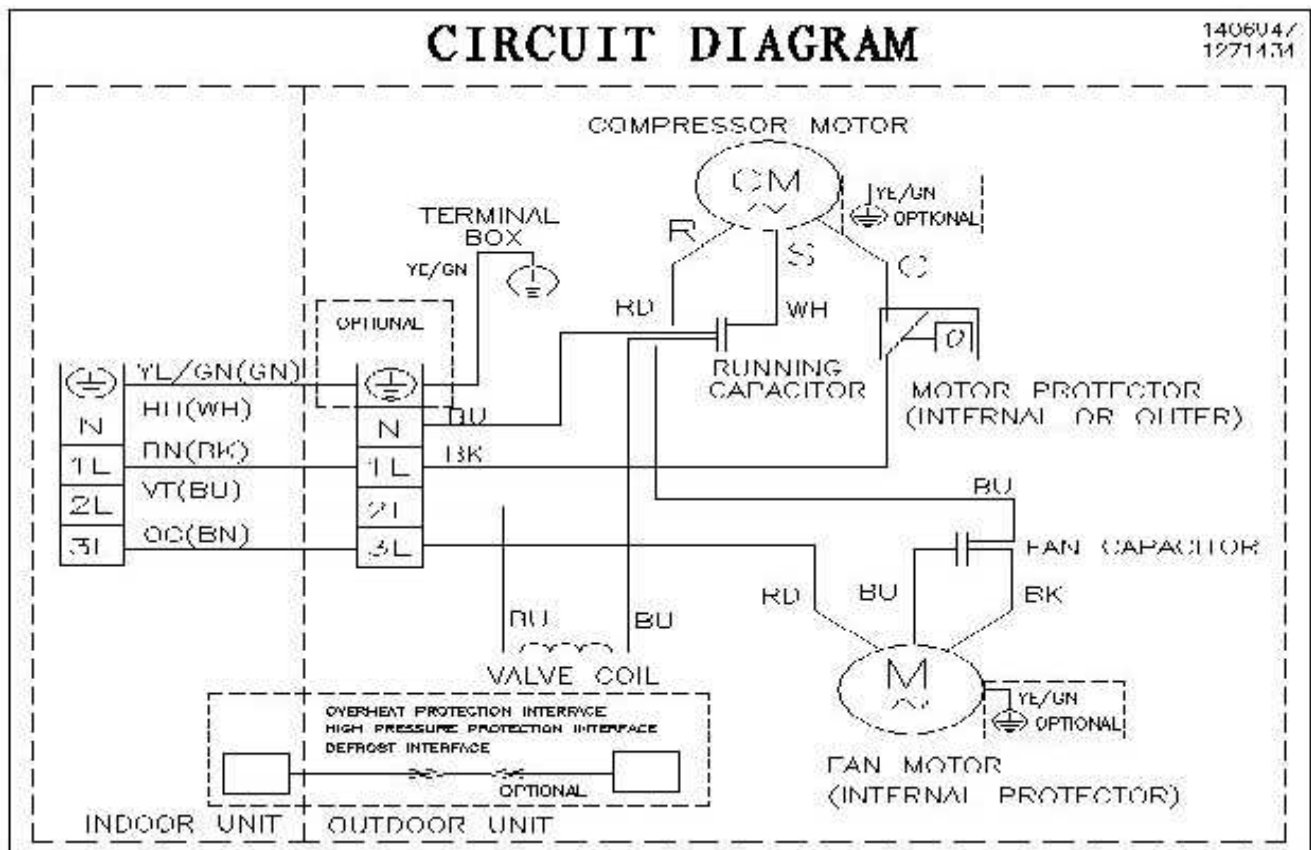| Model	Indoor unit Diagram	Outdoor unit Diagram
RAC-SM20HP.D03	1565602	1406947
RAC-SM25HP.D03	1565602	1406947
RAC-SM35HP.D03	1565602	1406947
RAC-SM55HP.D03	1565602	1406947
RAC-SM70HP.D03	1565602	1855386

Indoor :

1565602
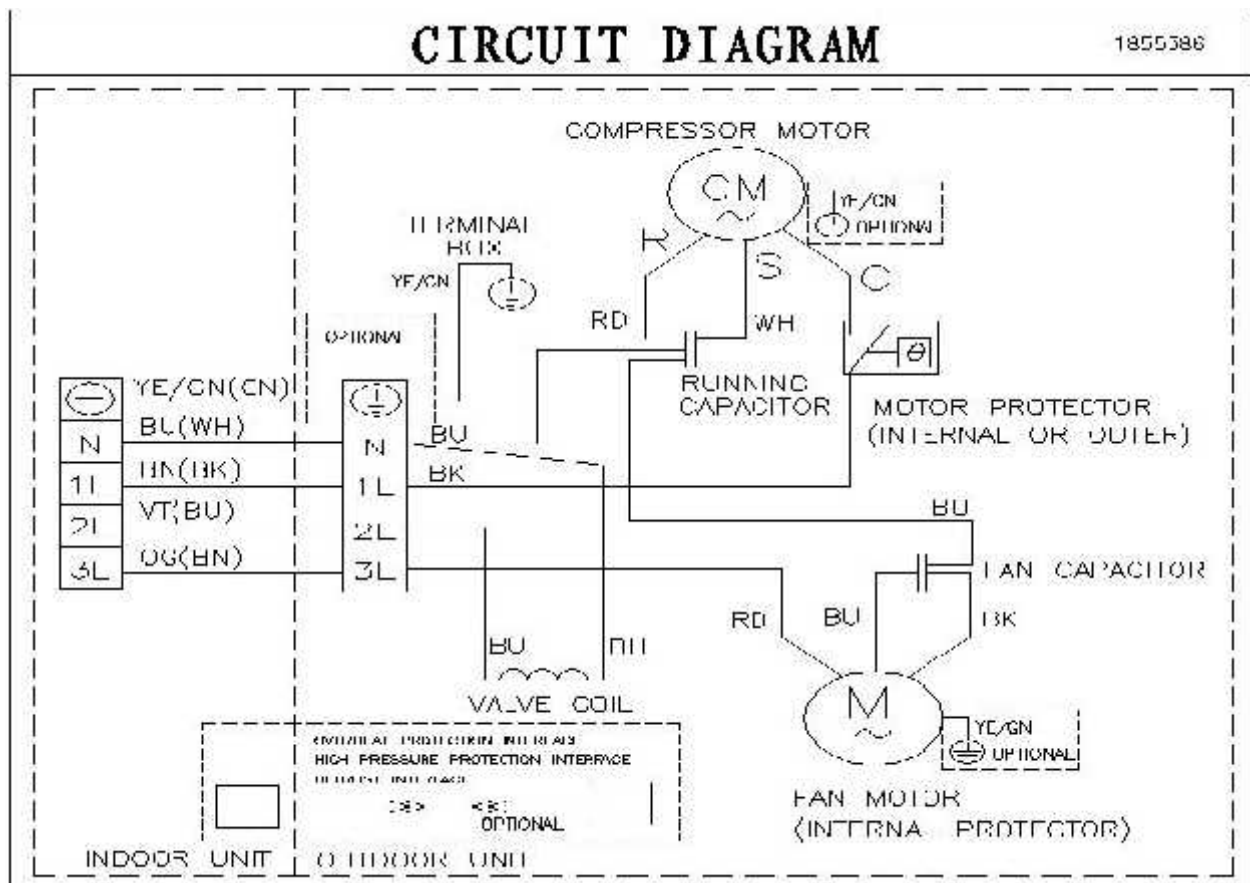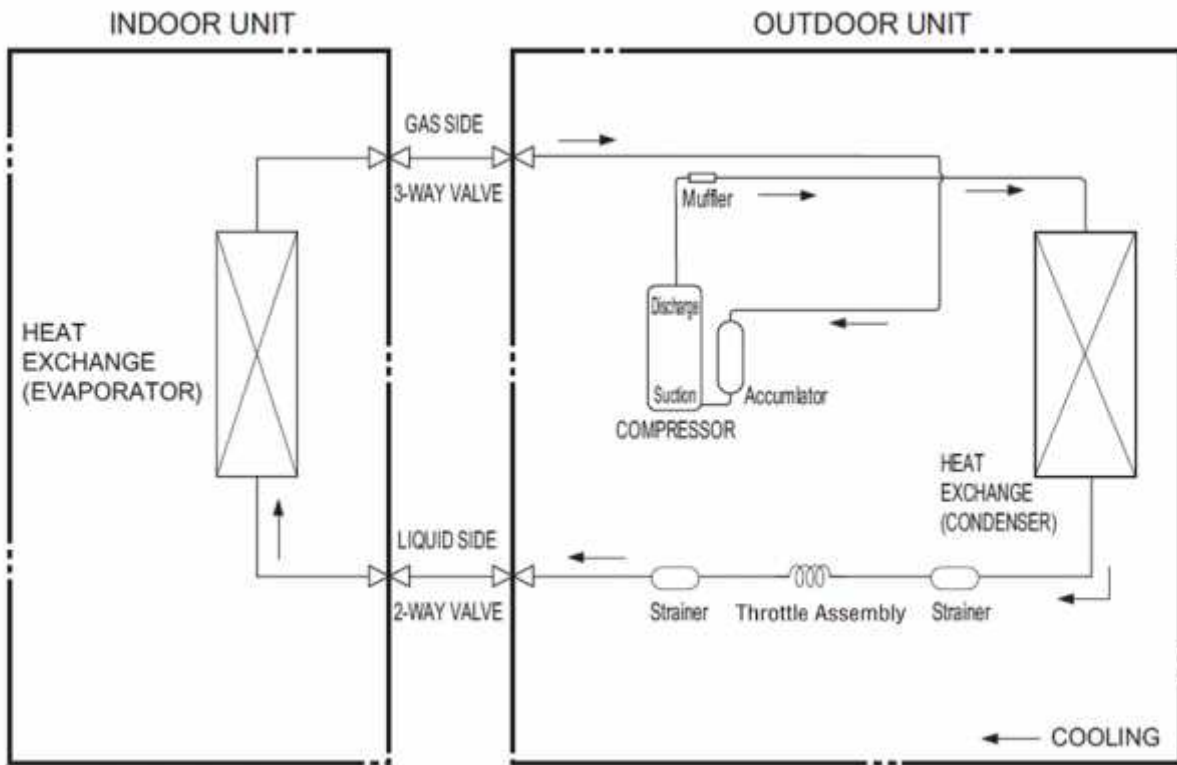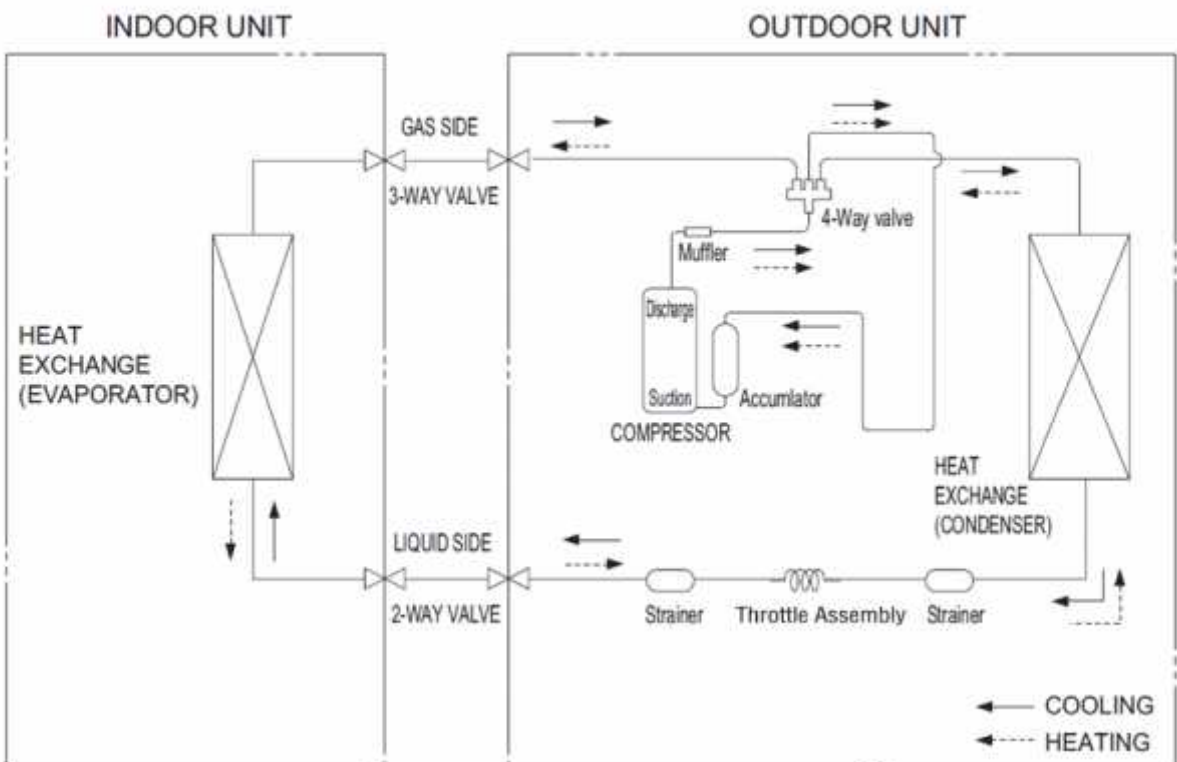
Outdoor：

1406947

1855386

4-3. Refrigerant Flow System
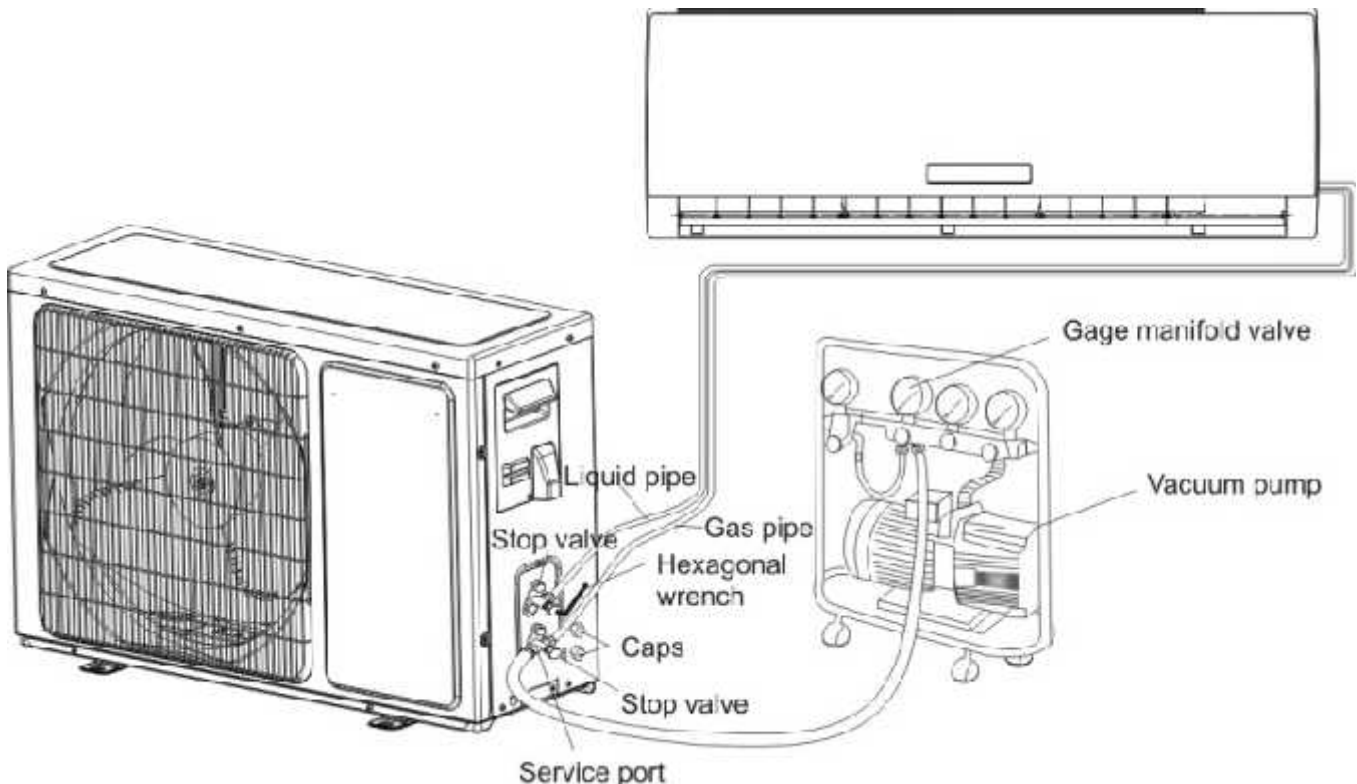
(1)Cooling

(2)Cooling&Heating

NOTE: In different models, the throttle assembly may be Capillary or Electronic expansion valve.

4-4. Air Purging and Leakage Test

1. Connect charging hose of manifold valve to charge end of low pressure valve (both high/low pressure valves must be tightly shut).
2. Connect joint of charging hose to vacuum pump.
3. Fully open the handle of Lo manifold valve.
4. Open the vacuum pump to evacuate. At the beginning, slightly loosen joint nut of low pressure valve to check if there is air coming inside. (If noise of vacuum pump has been changed, the reading of multimeter is 0) Then tighten the nut.
5. Keep evacuating for more than 15mins and make sure the reading of multi-meter is-1.0 X105 pa(-76cmHg).
6. Check the vacuum with the gage manifold valve, then close the gage manifold valve, and stop the vacuum pump.
7.Leave it for one or two minutes. Make sure the pointer of the gage manifold valve remains in the same position.
8.Remove the gage manifold valve quickly from the service port of the stop valve.
After refrigerant pipes are connected and evacuated, fully open all stop valves on gas and liquid pipe sides.
9. Opening without fully opening lowers the performance and cause dangerous.
10. Tighten the cap to the service port to obtain the initial status.
11. Retighten the cap
12. Leak test

4-5. Test Running

∆Check after Installation

Items to be checked	Possible malfunction
Has it been fixed firmly?	The unit may drop, shake or emit noise.
Have you done the refrigerant leakage test?	It may cause insufficient cooling(heating)capacity
Is heat insulation sufficient?	It may cause condensation and dripping.
Is water drainage satisfactory?	It may cause condensation and dripping.
Is the voltage in accordance with the rated voltage marked on the nameplate?	It may cause electric malfunction or damage the product.
Is the electric wiring and piping connection installed correctly and securely?	It may cause electric malfunction or damage the part.
Has the unit been connected to a secure earth connection?	It may cause electrical leakage.
Is the power cord specified?	It may cause electric malfunction or damage the part.
Are the inlet and outlet openings blocked?	It may cause insufficient cooling (heating) capacity.
Is the length of connection pipes and refrigerant capacity been recorded?	The refrigerant capacity is not accurate.

∆Operation Test

1.Before Operation Test
(1)Do not switch on power before installation is finished completely.
(2)Electric wiring must be connected correctly and securely.
(3)Cut-off valves of the connection pipes should be opened.
(4)All the impurities such as scraps and thrums must be cleared from the unit.

2.Operation Test Method
(1)Switch on power and press "ON/OFF" button on the remote controller to start the operation.
(2)Press MODE button to select the COOL, HEAT (Cooling only unit is not available), FAN to check whether the operation is normal or not.

5. Function Operation

5-1. Operation Range (cooling and heating）

Temperature		Cooling operation	Heating operation
Indoor temperature	Max	32℃	27℃
	Min	21℃	7℃
outdoor temperature	Max	43℃	24℃
	Min	*note	-15℃

*Optimum performance will be achieved within these operating temperature. If air conditioner is used outside of the above conditions, the protective device may trip and stop the appliance.

*For Tropical (T3) Climate condition models, the outdoor max temperature is 55 ℃ instead of 43 ℃

*For some models, can keep cooling at -15 ℃ outdoor ambient via unique design. Normally, optimum cooling performance will be achieved above 21 ℃. Please consult the merchant to get more information.

*For some models, can keep heating at -15 ℃ outdoor ambient , some models heat at -20 ℃ outdoor ambient，even heat at lower outdoor ambient

The temperature of some products is allowed beyond the range. In specific situation, please consult the merchant. When relative humidity is above 80%, if the air conditioner runs in COOLING or DRY mode with door or window opened for a long time, dew may drip down from the outlet.

5-2. Remote Controller Operation & Function

△Remote Controller Instruction

R1-01

Remote controller

Remote controller

The remote controller transmits signals to the system.

① MODE
Press this button to select the operation mode.

③ SUPER
Used to start or stop the fast cooling/heating. (Fast cooling operates at high fan speed with 16℃ set temp automatically ; Fast heating operates at auto fan speed with 30℃ set temp automatically)

⑥ SMART (invalid for multi system)
Used to enter fuzzy logic operation directly when the unit is on .

⑧ SLEEP
Used to set or cancel Sleep Mode operation.

⑦ ON TIMER
Used to set or cancel the timer operation.

⑩ OFF TIMER
Used to set or cancel the timer operation.

⑪ CLEAN/Nanoe (optional)
When the model is off, click this button to enter the auto-clean mode and then the indicator "CL" will display on LCD . Press POWER or MODE button can escape from auto-clean mode. Mode operation.
When the model is on, press this button about 5 seconds to enter Nanoe mode operation and then the Nanoe indicator will display on LCD . Press about 5 seconds again to escape from Nanoe mode operation.

⑫ QUIET
Used to set or cancel Quiet Mode operation.

⑯ 8℃ HEAT (optional)
Used to start or stop 8℃ HEAT Mode.

② TEMP + -
Used to adjust the room temperature and the timer, also real time.

④ POWER
The appliance will be started when it is energized or will be stopped when it is in operation, if you press this button.

⑤ FAN
Used to select fan speed in sequence auto, higher, high, medium, low and lower.

⑨ SWING
Used to stop or start vertical adjustment louver swinging and set the desired up/downairflow direction.

⑬ SWING (optional)
Used to stop or start Horizontal adjustment louver swinging and set the desired left/right airflow direction.

⑭ LOCK
Press this button for about 5 seconds once to start LOCK mode. Press this button for about 5 seconds once again to stop it.

⑮ iFEEL
Press to set iFEEL Mode operation. In iFEEL mode, the Air Conditioner operates basis temperature sensor fitted in remote instead of machine, Advice to use iFEEL mode and the remote put where the indoor unit receive signal easily.Press this button above 5 seconds, start or stop iFEEL mode.

⑰ CLOCK
Used to set the current time.

⑱ ECONOMY
Used to set or cancel Economy Mode operation.

⑲ DIMMER
When you press this button, all the display of indoor unit will be closed. Press any button to resume display.

⑳ RESET
Used to reset the remoter and all operations.

Indication symbols on LCD:

COOLING Cooling indicator	DRY Dry indicator	FAN ONLY Fan only indicator	8℃ Heating indicator	HEATING Heating indicator
Auto Auto fan speed	Higher fan speed	High fan speed	Medium fan speed	Low fan speed
Lower fan speed	Sleep 1 indicator	Sleep 2 indicator	Sleep 3 indicator	Sleep 4 indicator
SMART Smart indicator	Quiet indicator	Economy indicator	Super indicator	88:88 Display set timer / Display current time
CL Clean indicator	Signal transmit	Nanoe indicator	Ifeel	Display temperature / LOCK

Note: Each mode and relevant function will be further specified in following pages.

— 1 —

△Function Instruction

1．Major general technical parameters

1-1 Remote receiver distance（front of the air conditioner）: 8 m.

1-2 Remote receiver angle: Less than 60 degrees.

1-3 Temperature control accuracy: ±1℃.

1-4 Time error: Less than 1%.、

2. Functions of the controller

2-1 Display panel

I. Control functions of the remote controller (See operating and installation manual)

II. Display of the indoor unit

Information on the screen:

Displaying Scheme:

7-segment tube：Display set temperature or indoor temperature , and display fault code in trouble indicating. An error code is displayed according to the signal from the indoor CPU. The error code will flash for 5 seconds while displayed.

Running LED：It is on during operation. It is flashing when the unit defrost.

TIMER LED：When the timer mode works, the LED will be lighted.

Sleep LED：When the sleep mode works, the LED will be lighted, and after 10s, the LED will be off.

Compressor LED：It lights up when compressor is running.

Remote control receiver：This section receives signals from the remote control.

3. Control function

3-1 Emergency switch

If the appliance under the Stand-by state, all the Operation Mode, Air volume, Temperature Setting , Forced Cooling function will be restored as the last time setting when you press on the "ON/OFF" button, but lost the Air flow direction setting.

If the appliance was connected to the power at first time, it would operate in the auto mode, It will keep in stand-by state if you press the "ON/OFF" button during the normal operation.

When the appliance under the Stand-by state, press and hold the emergency switch for 5 seconds, the buzzer rings for 1 times, and it will operate in cooling mode, and the indoor fan speed is set to high-speed, it running has nothing to do with the room temperature.

When press the emergency switch or receive the signal of the remote control, it will exit this mode, and it will operate with the corresponding order.

3-2 Operator-machine communication

If the unit has I feel function, when the I feel function is set by the remote control, the room temperature will depend on the remote control and it will be detected by the sensor of the remote control. Normally the remote control will automatically transmits a signal at an interval of 10 minutes（only for H1 remote control, it is 9 minutes）, but if the room temperature changed exceed 1℃ in a short period of time, the remote control will transmits a signal within 2 minutes. If the indoor unit has not received a remote signal within 30 minutes, the room temperature will depend on the room temperature sensor of indoor unit.

3-3 Timer function

Real time of Timer setting

   (1) The max Timer ranges is 24 hours.

   (2) Timer ON/OFF

   (3) Timer ON/OFF can be set available in turn.

   (4) The Timer accurate more than 97%

   (5) The Timer can be adjusted by 1 min increase.

   (6) The appliance can be set the ON-Timer and OFF-Timer in the same time, but no any timer setting indicated.

3-4 Sleep

   (1)The Sleep mode can only be set during Cool, Heat and Dry mode.

   （2）When the appliance run in the Sleep mode, it will stop after 8 hours operation, then it will cancel the Sleep setting. When the appliance operate under the OFF-Timer setting condition, if the OFF-Timer setting less than 8 hours, it will keep the Sleep mode till the OFF-Timer setting; if the OFF-Timer setting more than 8 hours, it will cancel the OFF-Timer setting after the Sleep mode OFF.

   （3）When the Sleep mode is select with Cooling mode, if the room temperature not less than 26℃, the setting temperature will not be adjusted, otherwise, the setting temperature will be raised by 1℃ per hour, but the max setting temperature raise is 1℃.

   （4）When the Sleep mode is select with Heat mode, the setting temperature will be decreased by 1℃ per hour during the successive 3 hour, but the max setting temperature decrease is 3℃.

   （5） When the appliance operate with Sleep mode, the indoor fan run in the LOW setting, and the air flow direction same as the last setting and the temperature and air flow direction can be adjusted by user. The Running indicator will be flashed 10 times per 1 Hz frequency, then all the indicators turn OFF except the Sleep light after 5 min elapse. Those indicators will be recovery when the temperature or Time setting is adjusted, after the setting, the indicators will be lit in 10 sec, then turn OFF.

3-5 Automatic run (SMART) mode

   When the appliance operates at the smart, the air flow direction can be adjusted.

   (1) H/C appliance

   a. When the setting temperature is 26℃, the appliance will be ran in the Cool if the room temperature exceeds 26℃.

   b. When the room temperature exceeds 23℃, but below 26℃, it will be ran in the Dry mode(It will turn in Automatic setting After 3 min LOW air volume running.).

   c. When the room temperature exceeds 21℃, but below 23℃, it will be operated in the Fan only, the air volume is set by LOW and the fan speed can be adjusted

   d. When the room temperature is not more than 21℃, it will be operated in Heat mode, and the temperature is set to 22℃.

   (2) Cool only appliance

   a. When the room temperature exceeds 26℃, it will be ran in Cool mode, and the temperature is set to 26℃.

   b. When the room temperature exceeds 23℃, but not more than 26℃, it will be operated in the

Dry mode.

    c. When the room temperature is not more than 23℃, it will be operated in the Fan only, the air volume is set to LOW and the fan speed can be adjusted

    After the appliance start the smart operation, the setting temperature can be adjusted 2℃ or 7℃ (based on the remote mode)(the min accuracy is 1℃) up and down base on the automatic temperature setting, also the presetting temperature of PCB circuit.

    In case of the specific operation selected, it could be re-select the other modes after the compressor ceased for 5 min or the setting temperature changed.

3-6 Cooling-run mode

3-6-1 Outdoor Fan

The outdoor fan's speeds except the single speed motor can be changed according to outdoor ambient temperatures.

When operating at a fixed frequency, the outdoor fan is forced to operate at the high speed.

3-6-2 Indoor fan operation

    (1）When the indoor fan keep in running condition, this operation state could be controlled by the remote control with High, Median, Low and Automatic setting.

    (2）When the appliance is set Automatic condition in the Cool mode for the first time, the fan speed will run at Low setting. After that, temperature and fan speed is shown as following.
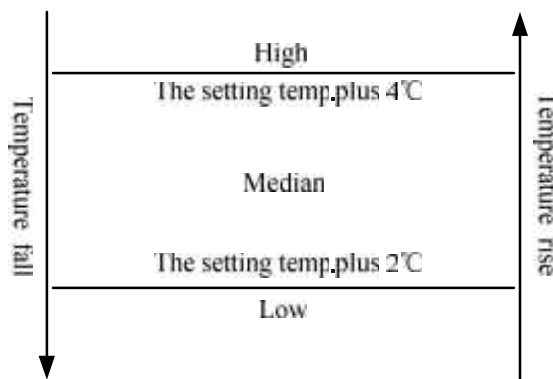
    When the difference between the setting temperature and the room temperature equal to 2℃ or 4℃, the indoor fan speed will keep in current speed.

3-6-3 Air flow direction control

    The louver is derived by a step motor, and it swings the horizontal louver automatically. Press the SWING button to swing or stop the louver.

    During the louver swing in normal operation, the current position will be stored. When the appliance turn off and louver swing automatically to the default position, it will position at the close position plus 5°.

3-6-4 4-way valve

State: It is interrupted in cooling.

Switchover: When initially powered on for cooling, the 4-way valve is interrupted immediately.
When the heating is changed to the cooling, it needs an interval of 50 seconds for the 4-way valve to
change over from being activated to being interrupted.

3-7 Heating-run mode

3-7-1 Temperature compensation

The temperature compensation is 5° in heating mode. For example, if the set temperature is 25℃
by the remote control, when the room temperature is detected with 31℃, the compressor will turn off.
The main reason is that the hot air is condensed at the top of the house.

Note: The compensation is available only if the room temperature sensor of indoor unit is used
and it is not available when it is subject to the sensor on the remote control.

3-7-2Indoor fan motor operation

Anti-cold air system:

When the appliance run in Heat mode condition, the indoor fan motor operation is shown as
following to prevent the cooling air come out during the appliance operation.
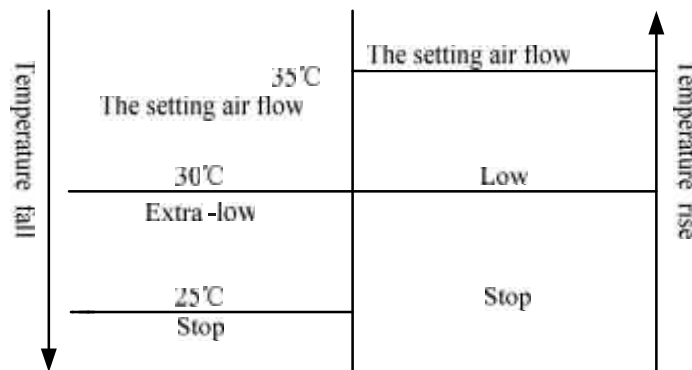
When the appliance turn in the anti-cold air system in the Extra-LOW (Tapped motor set in LOW,
sic passim) during the compressor operation, the louver swang to the Cool air protection position, the
louver recovers to the original position after the air volume change to LOW. When the room
temperature reach to the setting temperature, the compressor will be turn off, and the air flow
change to LOW, the louver swang to the Cool air protective position to prevent the air drop into
human body directly; when the indoor pipe coil temperature drop continuously, it will turn in the
Cooling air protective system in the Extra-LOW or stop the fan motor.

The indoor fan motor is only controlled by the signal of indoor pipe coil temperature, no matter
the compressor turn ON/OFF, even the appliance turn in Heat mode at first time.

The indoor fan motor will operate according to the different setting(High, Median, Low and
Automatic) by the remote control, but the anti-cold air system is prior.

When the appliance run in the Heat mode with the Automatic setting at first time, the fan speed
will be in the LOW setting, and the operation diagram is shown as following
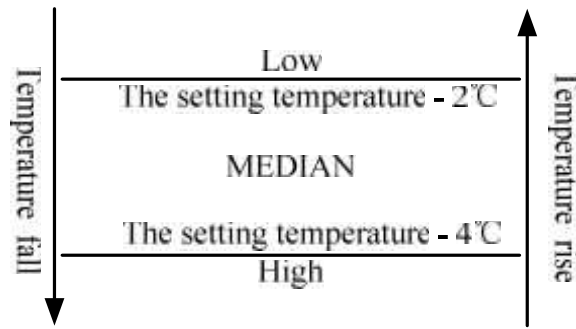
When the difference between the setting temperature and the room temperature equal to 2℃ or 4℃, the indoor fan speed will keep in current speed.

3-7-3Air flow direction control

The horizontal louver is controlled by a step motor, press the SWING button to swing or stop the louver.

During the louver run in normal operation, the current position will be stored. When the appliance turn off and louver swing automatically to the default position, it will position at the default position plus 5°.

4-3-8-4 Outdoor fan

The outdoor fan speeds except single speed motor can be changed according to outdoor ambient temperatures.

3-7-6 4-way valve

State: It is electrified in heating.

Switchover: When initially powered on for heating, the 4-way valve is activated immediately.

In the change from cooling to heating, it needs an interval of 50 seconds for the 4-way valve to change over from being interrupted to being activated.
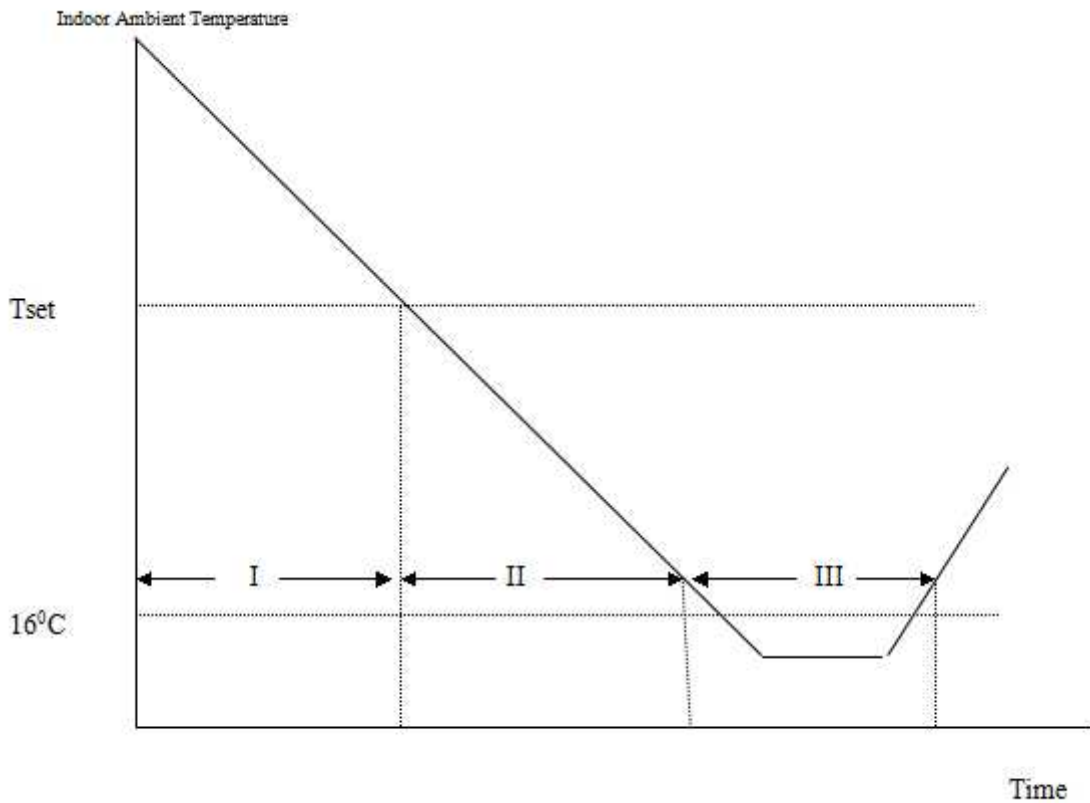
3-8The super function (option)

In cooling mode, when you press the SUPER button by remote control, the unit will operate for 15 minutes with the following setting:

a. The set temperature is 16℃;

b. The fan speed with highest speed;

c. The compressor runs with high frequency.

3-9 Dehumidifying mode

The dehumidifying mode is illustrated as follows:

Dehumidifying area I: Operation at the frequency in the range (30–60Hz) according to Dt (T indoor ambient-Test).

Dt(℃)	f(Hz)
0	30
0.5	30
1	40
1.5	50
2	60

Dehumidifying area II: The compressor stops for 5 minutes and operators for 5 minutes at the lowest frequency.

Dehumidifying area III: The compressor stops.

3-10   Fan Only Mode Operation

During the appliance run in this mode, the compressor and outdoor fan stop, the indoor fan operate under the pre-setting of air volume, and the louver swing, and the indoor fan speed same as the Heating Mode.

5-3. Special Function Instruction

Conditions of anti-freezing prohibition of frequency rising:

Condition 1: in the case of anti-freezing frequency decreasing, the temperature of indoor heat exchanger rises to

"anti-freezing frequency decreasing temperature".

Condition 2: in normal operation, the temperature of indoor heat exchanger reaches "anti-freezing prohibition of frequency rising temperature".

Either of the above two conditions is met, the product will enter anti-freezing prohibition of frequency rising state.

Anti-freezing prohibition of frequency rising operation: the compressor is kept at the current frequency, which may decrease according to situations while cannot rise. The outdoor fan runs.

Condition for the end of anti-freezing prohibition of frequency rising state: when the temperature of indoor heat exchanger rises to "anti-freezing releasing temperature", the state of anti-freezing prohibition of frequency rising is released.

Conditions for defrosting:

   A:When the heating compressor consecutively runs for 40 minutes (EEPROM setting value at the current operating mode);

   B: If the ambient temperature minus the temperature of coiled pipe is equal to or higher than six degrees centigrade (EEPROM setting value in the current operating mode);

   C:If the temperature of coiled pipe is equal to or lower than minus two degrees centigrade (EEPROM setting value in the current operating mode);

   If the above three conditions are met simultaneously, defrosting begins.

Defrosting actions:

   The compressor stops, and the outdoor fan stops after delay of 30 seconds; in 50 seconds the four-way valve is power off; and in 10 seconds the compressor starts and runs at "defrosting frequency".

Conditions for ending defrosting:

   Defrosting is over if either of the below conditions is met.

   A：The accumulated time of defrosting is longer than 12 minutes (EEPROM setting value in the current operating mode);

   B：If the temperature of coiled pipe is equal to or higher than 14 degrees centigrade (EEPROM setting value in the current operating mode);

Actions of exiting the defrosting state:

   The compressor stops, and 50 seconds later the four-way valve opens, and another 10 seconds later the compressor and outdoor fan restart and begin normal operation.

6. Electrical Characteristics

6-1. Print Circuit Board (Indoor & Outdoor)

Model	Print Circuit Board of Indoor unit	Print Circuit Board of Indoor unit
RAC-SM20HP.D03	2008800	/
RAC-SM25HP.D03	2008800	/
RAC-SM35HP.D03	2008800	/
RAC-SM55HP.D03	2017096	/
RAC-SM70HP.D03	2017096	/

Note:

2、These colds are not spare parts' cold, Please don't use these colds to order spare parts.

1、FM:FAN MOTOR POWER WIRES

2、FMF:FAN MOTOR FEEDBACK

3、FMC:FAN CAPACITOR

4、SEN:PIPE&ROOM TEMPERATURE SENSOR

5、SM:SWING MOTOR

6、OF:OUTDOOR FAN

7、VAL:VALVE

8、CP:COMPRESSOR

9、L:POWER L

10、N:POWER N

11、ON/OFF:EMERGENCY BOTTON

12、SI:SIGNAL

13、HP:HIGH PERSSURE SWITCH

14、TRS:TRANSFORMER

Model of indoor unit:

2017096

2008800
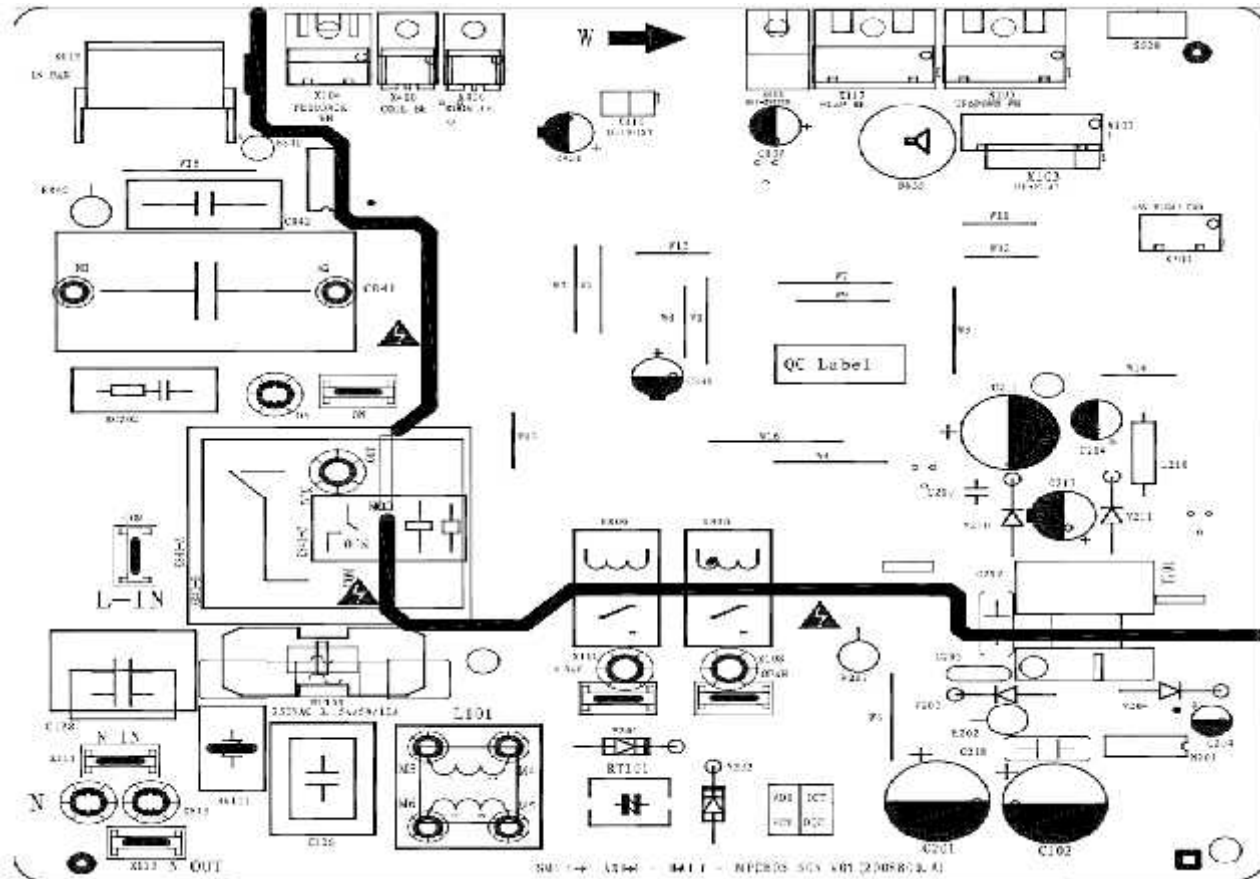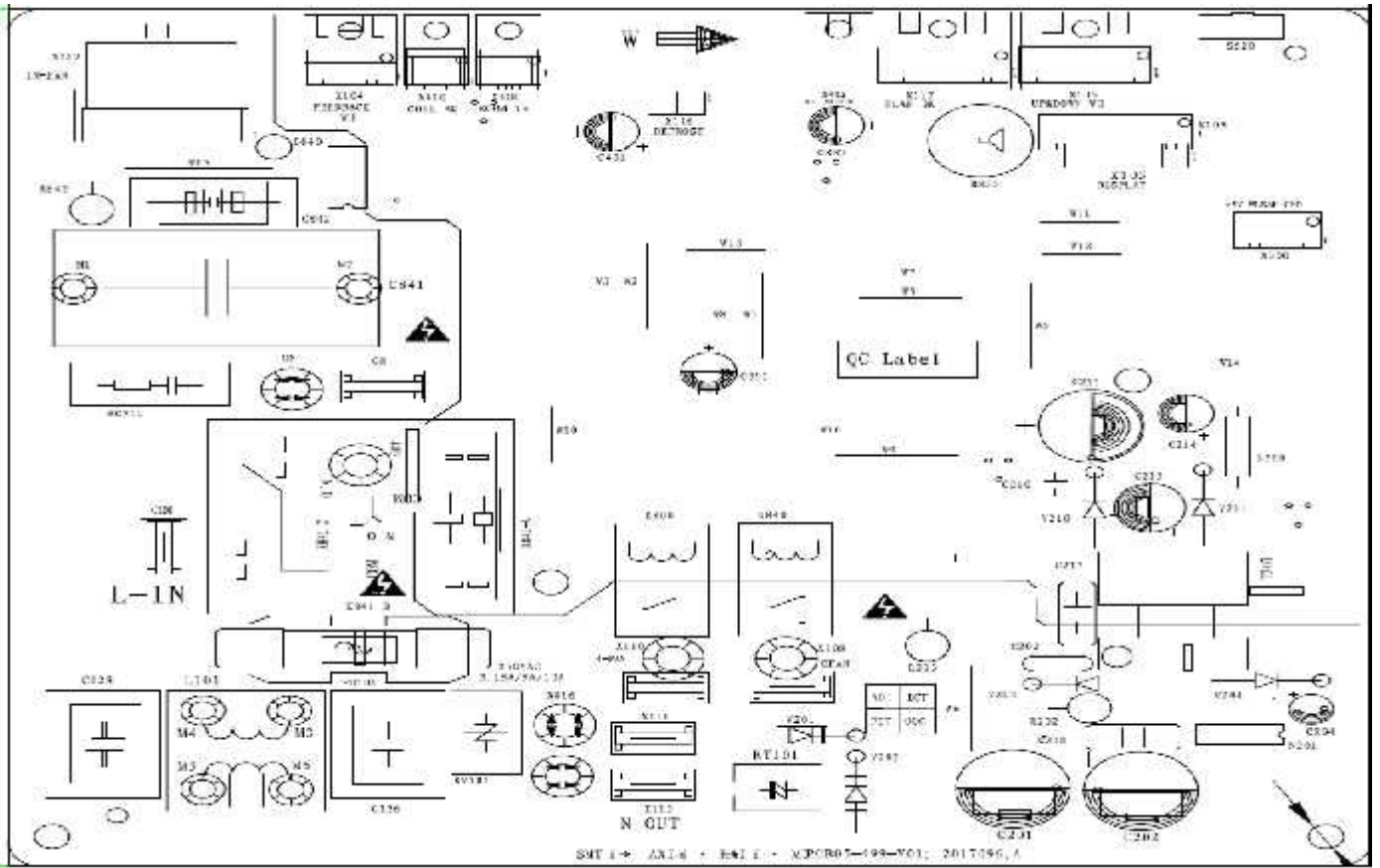
6-2. Fan Motor

Drawings attached:
INDOOR AC FAN

DIAGRAM

BLACK

CAPACITOR

M

A

WHITE

RED

PROTECTOR

M: Main Winding
A: Aux Winding

PG

1 Vcc +5V

2 Vout

3 GND

OUTDOOR AC FAN

DIAGRAM

A

M

PROTECTOR

BLUE

CAPACITOR

BLACK

RED

A

M

PROTECTOR

RED

CAPACITOR

ORANGE

BLACK

WHITE
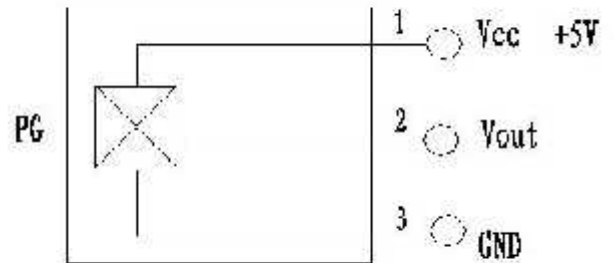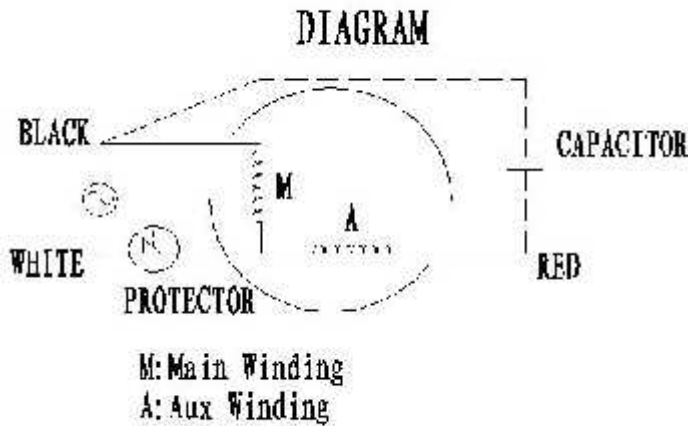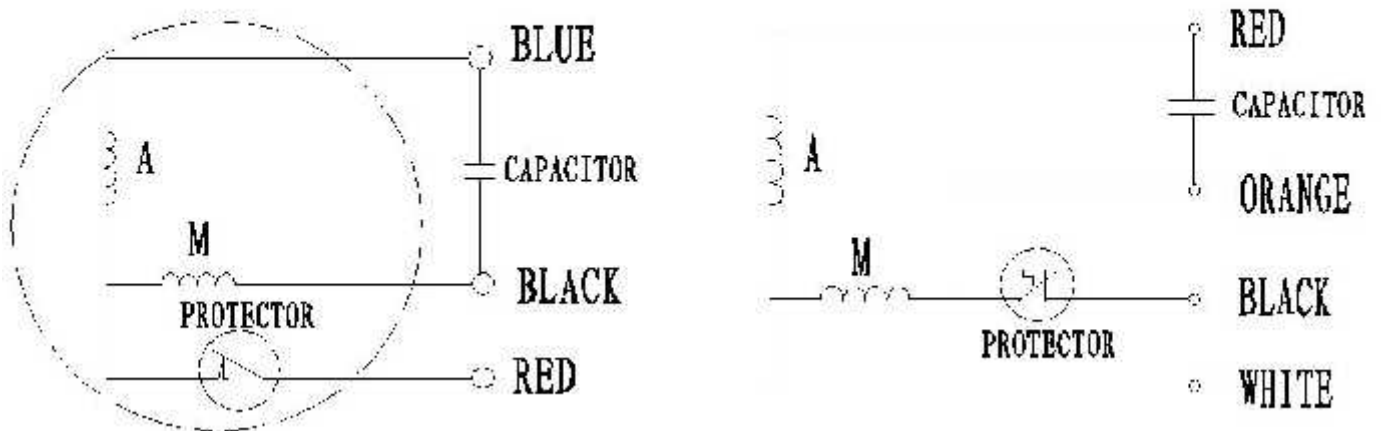
Test in resistance.

TOOL: Multimeter.

Test the resistance of the main winding. The indoor fan motor is fault if the resistance of main winding 0(short circuit)or∞（open circuit）.

Test in voltage

TOOL: Multimeter.

Insert screwdriver into to rotate indoor fan motor slowly for 1 revolution or over, and measure voltage "YELLOW" and "GND" on motor. The voltage repeat 0V DC and 5V DC.

Notes:

1) Please don't hold motor by lead wires.

2) Please don't plug IN/OUT the motor connecter while power ON.

3)Please don't drop hurl or dump motor against hard material. Malfunction may not be observed at early stage after such shock. But it may be found later, this type of mishandling void our warranty.

Indoor DC Fan Motor
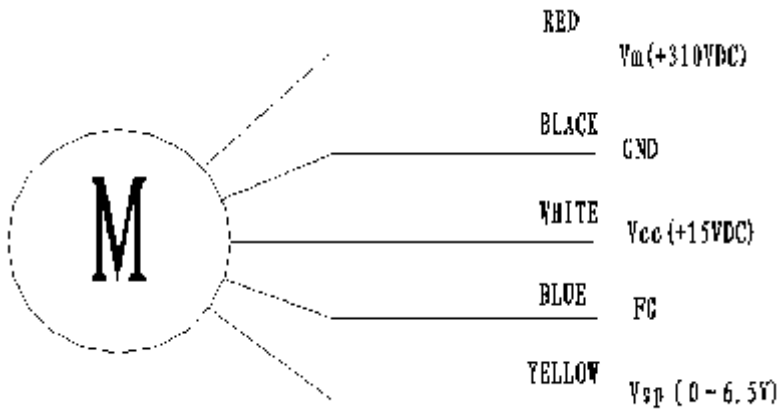
1	RED	Vm(+310VDC)
2	--	————
3	--	————
4	BLACK	GND
5	WHITE	Vcc(+15VDC)
6	BLUE	FG
7	YELLOW	Vsp (0 ~ 6.5V)

RED Vm(+310VDC)
BLACK GND
WHITE Vcc(+15VDC)
BLUE FG
YELLOW Vsp (0 ~ 6.5V)

Outdoor DC Fan Motor

BLUE FG
YELLOW Vsp (0 ~ 6.5V)
WHITE Vcc(+15VDC)
BLACK GND
RED Vm(+310VDC)
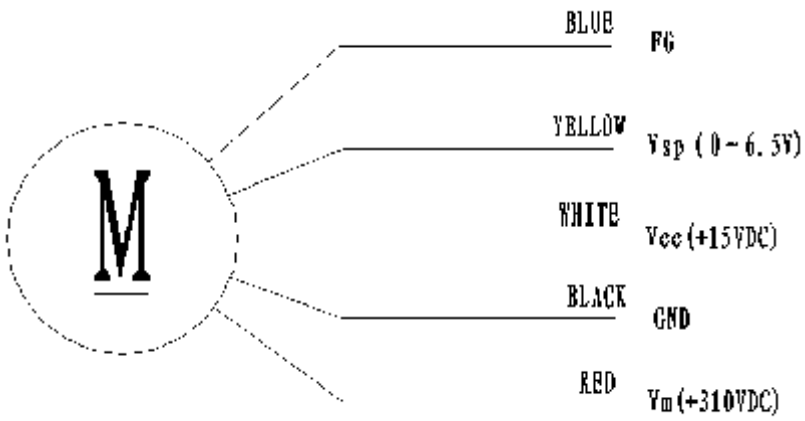
1	BLUE	FG
2	YELLOW	Vsp (0 ~ 6.5V)
3	WHITE	Vcc(+15VDC)
4	BLACK	GND
5	--	————
6	RED	Vm(+310VDC)

33

6-3. Temperature Sensor

Parameter table attached:

THE PARAMETER OF THE INDOOR COIL AND INDOOR ROOM SENSOR
（R(0)=15k   B(0/100)=3450）

Temperature(℃)	Resistance(k)	Voltage(V)		Temperature(℃)	Resistance(k)	Voltage(V)
-20	38.757	0.58143512		31	4.292	2.715076661
-19	36.844	0.60795346		32	4.137	2.76063657
-18	35.038	0.63530819		33	3.989	2.805589174
-17	33.331	0.66352684		34	3.847	2.850117358
-16	31.719	0.69257720		35	3.711	2.894109636
-15	30.196	0.72246147		36	3.58	2.937788018
-14	28.755	0.75321223		37	3.455	2.980713033
-13	27.392	0.78480857		38	3.335	3.023117961
-12	26.103	0.81722911		39	3.219	3.065272268
-11	24.882	0.85051031		40	3.108	3.106725146
-10	23.727	0.88458737		41	3.001	3.147759536
-9	22.632	0.91951536		42	2.899	3.187898487
-8	21.594	0.95527085		43	2.801	3.227439565
-7	20.611	0.99179340		44	2.706	3.266717909
-6	19.678	1.02913875		45	2.615	3.305249514
-5	18.794	1.06721353		46	2.528	3.342947037
-4	17.954	1.10609872		47	2.444	3.380169671
-3	17.158	1.14565549		48	2.363	3.416856492
-2	16.401	1.18599135		49	2.286	3.45247766
-1	15.683	1.22696435		50	2.211	3.487894953
0	15	1.26865672		51	2.139	3.522585993
1	14.351	1.31098658		52	2.07	3.556485356
2	13.734	1.35393437		53	2.003	3.590032381
3	13.148	1.39741342		54	1.939	3.622673675
4	12.589	1.44157386		55	1.877	3.654865988
5	12.058	1.48618720		56	1.818	3.686036427
6	11.553	1.53125563		57	1.76	3.717201166
7	11.071	1.57689691		58	1.705	3.747244673
8	10.613	1.62286005		59	1.652	3.776658768
9	10.176	1.66928515		60	1.6	3.805970149
10	9.76	1.71601615		61	1.551	3.834009923
11	9.363	1.76311968		62	1.503	3.861880963
12	8.985	1.81043663		63	1.457	3.888973616
13	8.624	1.85805887		64	1.413	3.91524643
14	8.279	1.90597205		65	1.37	3.941267388
15	7.951	1.95387327		66	1.328	3.967019291
16	7.637	2.00204130		67	1.289	3.991234935
17	7.337	2.05033368		68	1.25	4.015748031
18	7.051	2.09859271		69	1.213	4.039284017
19	6.778	2.14682606		70	1.177	4.062450215

20	6.516	2.19524793		71	1.142	4.085229093
21	6.267	2.24333597		72	1.109	4.106941536
22	6.028	2.29151689		73	1.076	4.12888601
23	5.8	2.33944954		74	1.045	4.149715216
24	5.581	2.38741691		75	1.015	4.17007359
25	5.372	2.43506494		76	0.986	4.189944134
26	5.172	2.48247664		77	0.957	4.210004953
27	4.981	2.52951096		78	0.93	4.228855721
28	4.797	2.57653834		79	0.904	4.247168554
29	4.622	2.62291710		80	0.878	4.265640683
30	4.453	2.66931854				

Note: the AD value in the table is calculated on the basis of the pull-down resistor is 5.1K.

（R(25)=15k   B(25/50)=3950）

Temperature(℃)	Resistance(k)	Voltage(V)	A/D	Temperature(℃)	Resistance(k)	Voltage(V)	A/D
−20	152.5	4.5522388	E8	30	11.99	2.221193	71
−19	143.9	4.528005	E7	31	11.47	2.1666037	6E
−18	135.8	4.5026525	E6	32	10.98	2.113164	6C
−17	128.3	4.4766225	E4	33	10.51	2.0599765	69
−16	121.1	4.4489346	E3	34	10.06	2.0071828	66
−15	114.5	4.4208494	E1	35	9.634	1.9554275	64
−14	108.2	4.3912338	E0	36	9.229	1.9045359	61
−13	102.3	4.3606138	DE	37	8.842	1.8542907	5F
−12	96.73	4.3287389	DD	38	8.474	1.8049757	5C
−11	91.51	4.2958408	DB	39	8.123	1.7564762	5A
−10	86	4.2574257	D9	40	7.789	1.7089385	57
−9	81.97	4.2265649	D8	41	7.47	1.6622163	55
−8	77.62	4.1902397	D6	42	7.165	1.6162869	52
−7	73.52	4.1527338	D4	43	6.875	1.5714286	50
−6	69.05	4.107674	D1	44	6.597	1.5272955	4E
−5	66.01	4.0741884	D0	45	6.333	1.4843201	4C
−4	62.58	4.033256	CE	46	6.08	1.4421252	4A
−3	58.34	3.9773657	CB	47	5.838	1.4008062	47
−2	56.29	3.947959	C9	48	5.608	1.3606366	45
−1	53.41	3.9036691	C7	49	5.387	1.3211851	43
0	50.69	3.8582737	C5	50	5.177	1.2828964	41
1	48.12	3.8117871	C2	51	4.976	1.2454946	40
2	45.7	3.7644152	C0	52	4.783	1.2088662	3E
3	43.41	3.7159733	BE	53	4.599	1.1732741	3C
4	41.25	3.6666667	BB	54	4.423	1.1385986	3A
5	39.2	3.6162362	B8	55	4.255	1.1049078	38
6	37.27	3.5651425	B6	56	4.093	1.0718588	37
7	35.44	3.5130849	B3	57	3.939	1.0399176	35
8	33.71	3.4602751	B0	58	3.792	1.00894	33
9	32.08	3.4069669	AE	59	3.65	0.9785523	32
10	30.63	3.3563445	AB	60	3.515	0.9492304	30

11	29.06	3.2977758	A8		61	3.385	0.9205874	2F
12	27.68	3.2427366	A5		62	3.261	0.8928865	2E
13	26.36	3.1866538	A3		63	3.142	0.8659464	2C
14	25.12	3.1306082	A0		64	3.028	0.8398047	2B
15	23.84	3.069001	9D		65	2.918	0.814265	2A
16	22.82	3.0169223	9A		66	2.813	0.7895919	28
17	21.76	2.9597388	97		67	2.713	0.7658217	27
18	20.75	2.9020979	94		68	2.618	0.7429901	26
19	19.79	2.8442081	91		69	2.524	0.7201552	25
20	18.88	2.7863046	8E		70	2.436	0.6985547	24
21	18.03	2.729337	8B		71	2.36	0.6797235	23
22	17.21	2.6715306	88		72	2.268	0.656706	21
23	16.44	2.6145038	85		73	2.189	0.6367444	20
24	15.7	2.5570033	82		74	2.114	0.617623	1F
25	15	2.5	80		75	2.041	0.5988498	1F
26	14.33	2.4428912	7D		76	1.971	0.5806965	1E
27	13.7	2.3867596	7A		77	1.905	0.5634428	1D
28	13.1	2.3309609	77		78	1.84	0.5463183	1C
29	12.53	2.2756992	74		79	1.778	0.5298605	1B
					80	1.719	0.5140858	1A

7.Trouble Shooting

7-1. Error Code Table

7.1 The LED of indoor display board will show the error sequence automatically when the unit has the following trouble.

Error code	Remark：★Light　　o Flash　　x OFF		
	Content	Remark	**The root cause is may be one of the following**
E2	When the evaporator pipe temperature is higher than 63 ℃, the error code will display		a. It is normally for protection, When the indoor pipe temperature between 53℃<T<63℃, the outdoor fan motor will stop running. When the indoor coil temperature is higher than 63℃, the error code will display. After the indoor pipe temperature is lower than 49℃, the air conditioner will restart normally. b. The indoor coil temperature sensor is loose; c. The indoor coil temperature sensor is failure; d. The indoor control board is failure.
E4	When the indoor fan speed is lower than 200 rpm, the error code will display		a. There are something block the indoor fan motor; b. The fan motor cord connect loose; c. The fan motor is failure; d. The indoor control board is failure
EA	the error code will display when the communication between display board and control board have in trouble		a. The connection between the display board and control board is loose; b. The indoor control board is failure. c. The wiring of the display board is failure.

7.2.The Error inquiry should be operate in the stand-by state, keep 5 sec press and hold on the Emergency button in the indoor unit, the LED of indoor display board will be shown in 10 sec, then the indoor display will recovery to the original. If two or more malfunction happened, each error sequence will be displayed alternatively. If the appliance could save information under no power condition, then LED can be inquired as aforesaid with stand-by state after power resume.

NOTE:　If the troubleshooting inquiry display by 7-segment tube, then the error code will be displayed, otherwise only the LED of the display board can show.

Error code	Remark：**★Light　　o Flash　　x OFF**		
	Content	Remark	**The root cause is may be one of the following**
1	The failure for temperature sensor of outdoor coil	Heat pump	a. The outdoor temperature sensor loose; b. The outdoor temperature sensor is failure; c. The indoor control board is failure

20	The failure for outdoor DC motor		a. The motor cord connection loose b. The motor is invalid c. The outdoor fan is blocked d. The outdoor control board is invalid
27	High or Low pressure protection for outdoor unit		a. The pressure switch is working b. The pressure switch is invalid c. The outdoor control board is invalid
33	The failure for temperature sensor of indoor room		a. The indoor room temperature sensor loose; b. The indoor room temperature sensor is failure; c. The indoor control board is failure.
34	The failure for temperature sensor of indoor coil temperature		a. The indoor coil temperature sensor loose; b. The indoor coil temperature sensor is failure; c. The indoor control board is failure.
36	The failure for communication of indoor and outdoor units		a. The interconnection cord loose b. The interconnection cord is not in proper order c. The indoor control board is invalid d. The outdoor control board is invalid
38	Indoor EEPROM failure		a. The EEPROM chip loose; b. The indoor control board is failure
39	Indoor fan motor run abnormally		a. There are something block the indoor fan motor; b. The fan motor cord connect loose; c. The fan motor is failure; d. The indoor control board is failure
41	The failure for Indoor grounding protective		The indoor control board is failure
42	Overcooling protection		a. It is normally for protection, When the indoor pipe temperature below T<-1℃(-7℃).Outdoor fan motor and compressor will stop running. When the Indoor pipe temperature is higher than -1(-7℃),the unit will restart normally b. The indoor coil temperature sensor is loose; c. The indoor coil temperature sensor is failure; d. The indoor control board is failure.
43	Overheating protection		a. It is normally for protection, When the indoor pipe temperature between 53℃<T<63℃, the outdoor fan motor will stop running. When the indoor coil temperature is higher than 63℃, the error code will display. After the indoor pipe temperature is lower than 49℃, the air conditioner will restart normally. b. The indoor coil temperature sensor is loose;

			c. The indoor coil temperature sensor is failure; d. The indoor control board is failure.

Remark:

The failure is detected when the room temperature sensor broken or shorted over 5 sec.

The failure is detected when the temperature sensor of heater exchange broken or shorted over 5 sec.

The failure is detected when each setting data is not match after the EEPPOM self-check two times.

The failure is occur when the grounding signal is not detected after the appliance power ON.