Haier Air-conditioner

ENGINEERING DATA

split type air conditioner

MODELS:

HSU-09RG03 HSU-12RG03

Content

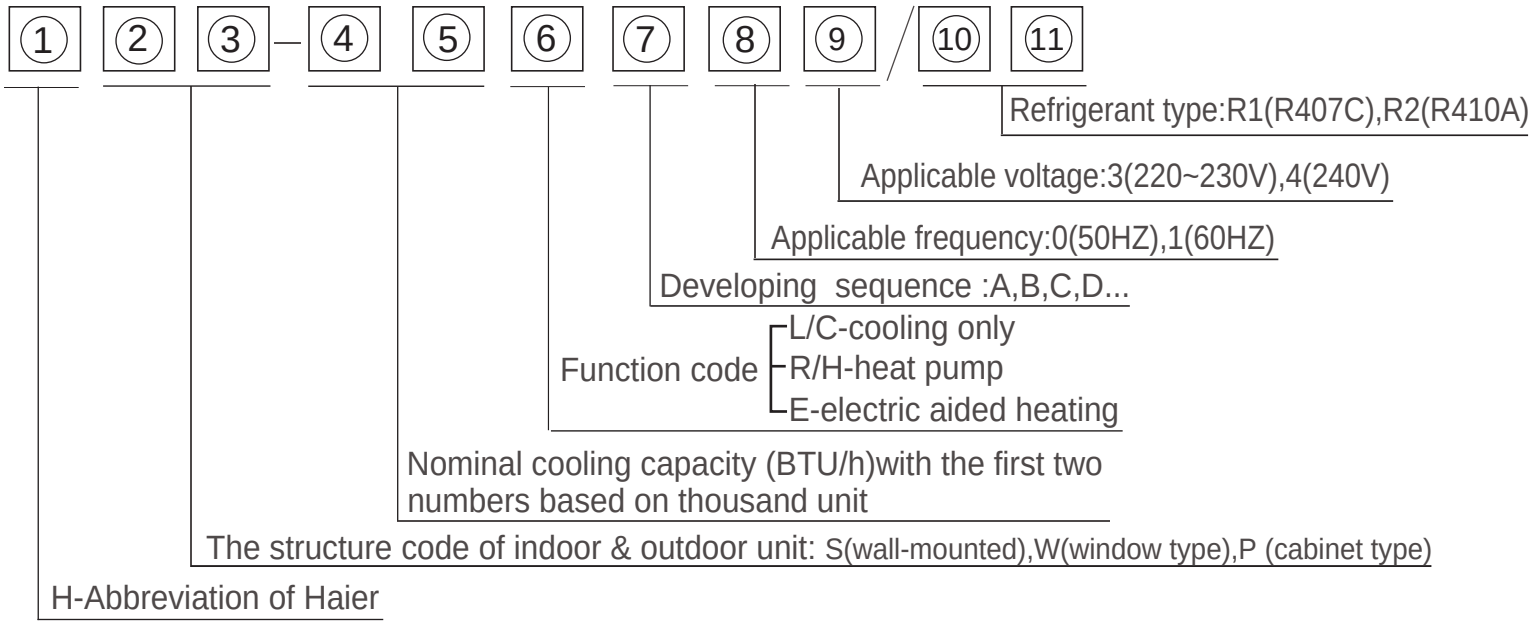
DESCRIPTION OF

PRODUCT MODEL CODING

& SERIES INTRODUCTION

Introductory Remarks

A. Description of coding rules of unit model
Coding rules and descriptions are as follows:



Examples:
HSU-09LG03,It represents wall-mounted split type cooling only air conditioner.The cooling capacity is 9000BTU/h,and the power supply is 220-230V~/50Hz,"G" means the developing sequence.

B.Standard Situation/Conditions

No.	Operating condition	indoor air status		outdoor air status	
		DB°C	WB°C	DB°C	WB°C
1	Norminal cooling	27°C	19°C	35°C	24°C
2	Norminal heating	----	---	----	----
3	Norminal electrical heating	---	---	----	----

C.Series brief introduction

1.Healthy bactericidal UV ray and Fresh air exchanging oxygen bar
The UV light degemring device emits UV ray that can sterilize the harmful bacteria in air
Bi-direction fresh air exchange: supply room with natural air and improve the healthy status

2.High energy efficient
The design of inner-grooved copper tube greatly increases the refrigerant contact area and the efficiency of cooling/heating functions.

3.Comfortable:wide-angle airflow
The vertical dual-flap and horizontal wide-angle louvers ensure the cool/warm air reaches every corner of the room.

4.Health air purifying and negative ion function
An air purifying filter with deodorizing and disinfecting functions keeps the air clean and users healthy.The negative ion generator can produce the negative ion that make the air fresher and cleaner

5.Quiet operation
Fan with random-pitched blades.
Random-pitched blades help reduce operating noise while maintaining a high airflow rate.

6.Convenience
Auto restart and washable panel:
The grille can be removed easily and washed when necessary.Any series have the function then even if the power falls when the unit is operating unit will automatically return to the operating settings in use before the power failure when power is restored.

7.Wide variety of functions
24-Hour Timer:
24-hour timer allows users to select the exact time they would like the air conditioner to turn on and to turn off.Timers on previous models operation based on the number of hours of desired operation.

8.Night-set models
When the air conditioner is operating on the timer-off circuit.The preset room temperature gradually rises(going down in heating)before the unit stops as shown below.Users can sleep comfortably without sudden change in temperature.

9.Program”dry”
This function automatically reduces the level of humidity while maintaining the preset indoor temperature.

SPECIFICATIONS

Model: HSU-09RG03

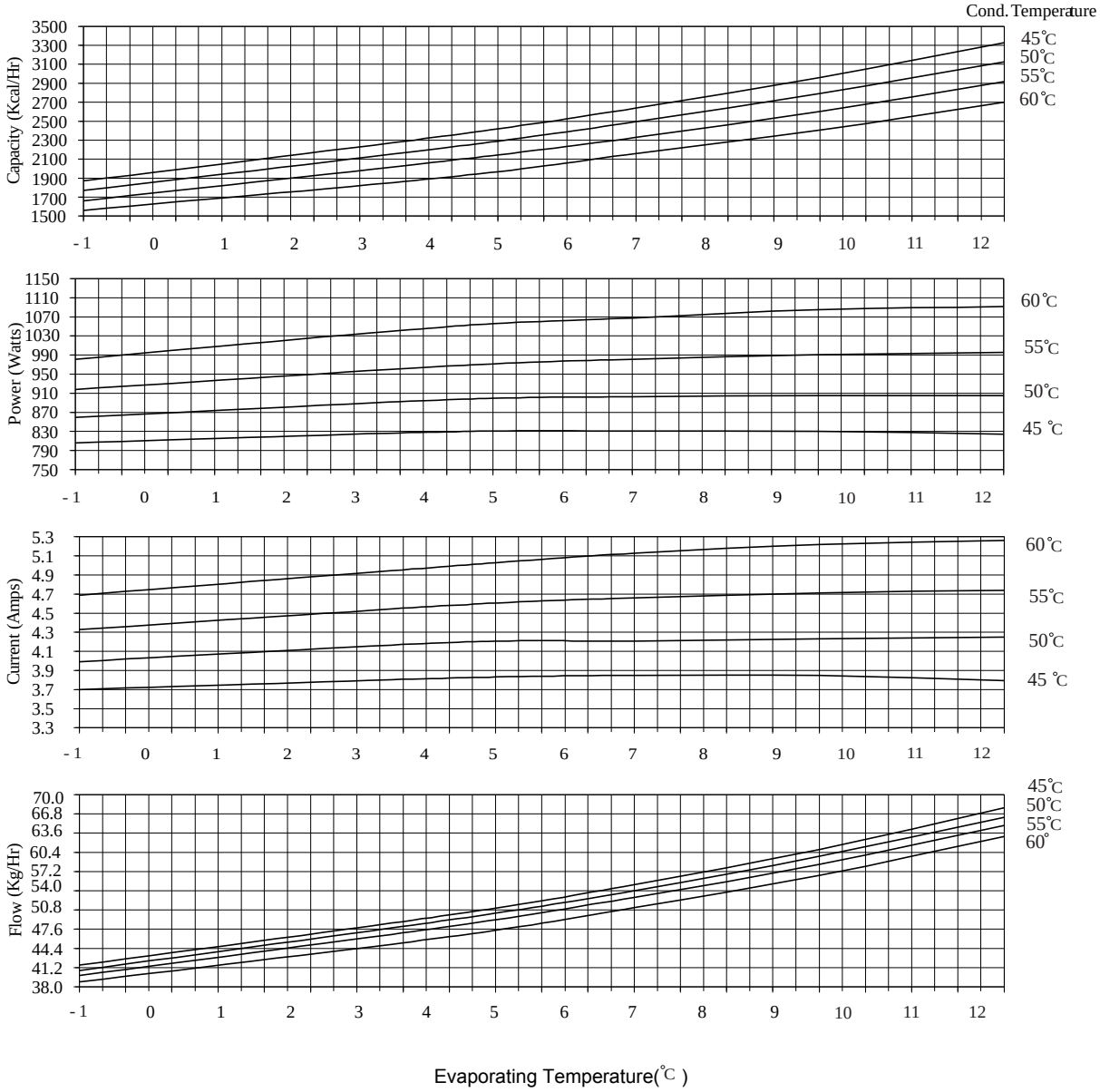
Cooling capacity(W)	2500	Heating capacity(W)		3000W
Cooling coefficient(W/W)	2.75	Heating coefficient(W/W)		3.4
Cooling power input(W)	910	Heating power input(W)		880W
Moiture removal(m^3/h)	$1.0X10^{-3}$	Frequency range(Hz)		50
Operating voltage range(V)	220-230~	Refrigerant type		R22
Operating temp. range(℃)	-7-43	Air sending angle		60°
Variation of temp. adjust(℃)	±1	Fan type	indoor unit	Cross flow fan
			outdoor unit	Axial flow fan
Climate type:	T1	Class of electric shock		I
Indoor unit noise(dB(A)) (cooling)	38/34/30	Outdoor unit noise(dB(A)) (cooling)		48
Indoor unit noise(dB(A)) (heating)	43.9/39.3/36.5	Outdoor unit noise(dB(A)) (heating)		53.1
Net dimensions(mm) (indoor unit)	758x198x250	Net dimensions(mm) (outdoor unit)		745x261x428
Packaging dimensions(mm) (indoor unit)	835x280x320	Packaging dimensions(mm) (outdoor unit)		820X360X520
Net/gross weight (kg) (indoor unit)	8.7/11.2	Net/gross weight (kg) (outdoor unit)		27/32
Max. mounting height difference(m)	5	Piling layers	indoor unit	8
			outdoor unit	4
Refrigerant charge(g) (R22)	600	Current entering side (indoor/outdoor)		indoor
Frequency of filter cleaning	Once/2 weeks	Max. refrigerant charge (g)		1100
Compressor model	2P16S225ANC	Compressor manufacturer		Panasonic
Compressor oil / charge(cc)	350	Compressor protector type		MRA98772
Maxi. length of connecting pipe(m)	15	drain hose	length(mm)	2000
			diametre(mm)	16
Tube type	TP_2Y	Type of tube of evaporator and condenser		Internal threaded
Fan speed(H/M/L)(r/min) (indoor unit)	cool 1150/1050/950	Size of tube of evaporator and condenser(mm)		Ø7/Ø9.52
	heat 1150/1050/950			
Fan speed(r/min) (outdoor unit)	860	Appearance features of indoor unit		plastic
Cut-off vavle(inch) two-way	1/4	Appearance features of outdoor unit		metal
three-way	3/8			
Max. operating pressure at warm side(Mpa)	2.65	Max. operating pressure at cool side(Mpa)		0.65

Model: HSU-12RG03

Cooling capacity(W)		3500	Heating capacity(W)	3800
Cooling coefficient(W/W)		2.78	Heating coefficient(W/W)	3.0
Cooling power input(W)		1250	Heating power input(W)	1300
Moiture removal(m^3/h)		1.5X10^{-3}	Frequency range(Hz)	50
Operating voltage range(V)		220-230~	Refrigerant type	R22
Operating temp. range(℃)		-7-43	Air sending angle	60°
Variation of temp. adjust(℃)		±1	Fan type: indoor unit	Cross flow fan
			Fan type: outdoor unit	Axial flow fan
Climate type:		T1	Class of electric shock	I
Indoor unit noise(dB(A)) (cooling)		39/36/30	Outdoor unit noise(dB(A)) (cooling)	50
Indoor unit noise(dB(A)) (heating)		39/37/30	Outdoor unit noise(dB(A)) (heating)	55
Net dimensions(mm) (indoor unit)		758x198x250	Net dimensions(mm) (outdoor unit)	745x261x428
Packaging dimensions(mm) (indoor unit)		835x280x320	Packaging dimensions(mm) (outdoor unit)	820X360X520
Net/gross weight (kg) (indoor unit)		8.7/11.2	Net/gross weight (kg) (outdoor unit)	32/34
Max. mounting height difference(m)		5	Piling layers: indoor unit	8
			Piling layers: outdoor unit	4
Refrigerant charge(g) (R22)		880	Current entering side (indoor/outdoor)	indoor
Frequency of filter cleaning		Once/2 weeks	Max. refrigerant charge (g)	1250
Compressor model		QX-23B030g	Compressor manufacturer	Linda
Compressor oil / charge(cc)		400	Compressor protector type	B260-150A-141E
Maxi. length of connecting pipe(m)		15	drain hose: length(mm)	2000
			drain hose: diametre(mm)	16
Tube type		TP_2Y	Type of tube of evaporator and condenser	Internal threaded
Fan speed(H/M/L)(r/min) (indoor unit)	cool	1350/1150/950	Size of tube of evaporator and condenser(mm)	Ø7/Ø9.52
	heat	1350/1150/950		
Fan speed(r/min) (outdoor unit)		1060	Appearance features of indoor unit	plastic
Cut-off vavle(inch)	two-way	1/4	Appearance features of outdoor unit	metal
	three-way	1/2		
Max. operating pressure at warm side(Mpa)		2.65	Max. operating pressure at cool side(Mpa)	0.65

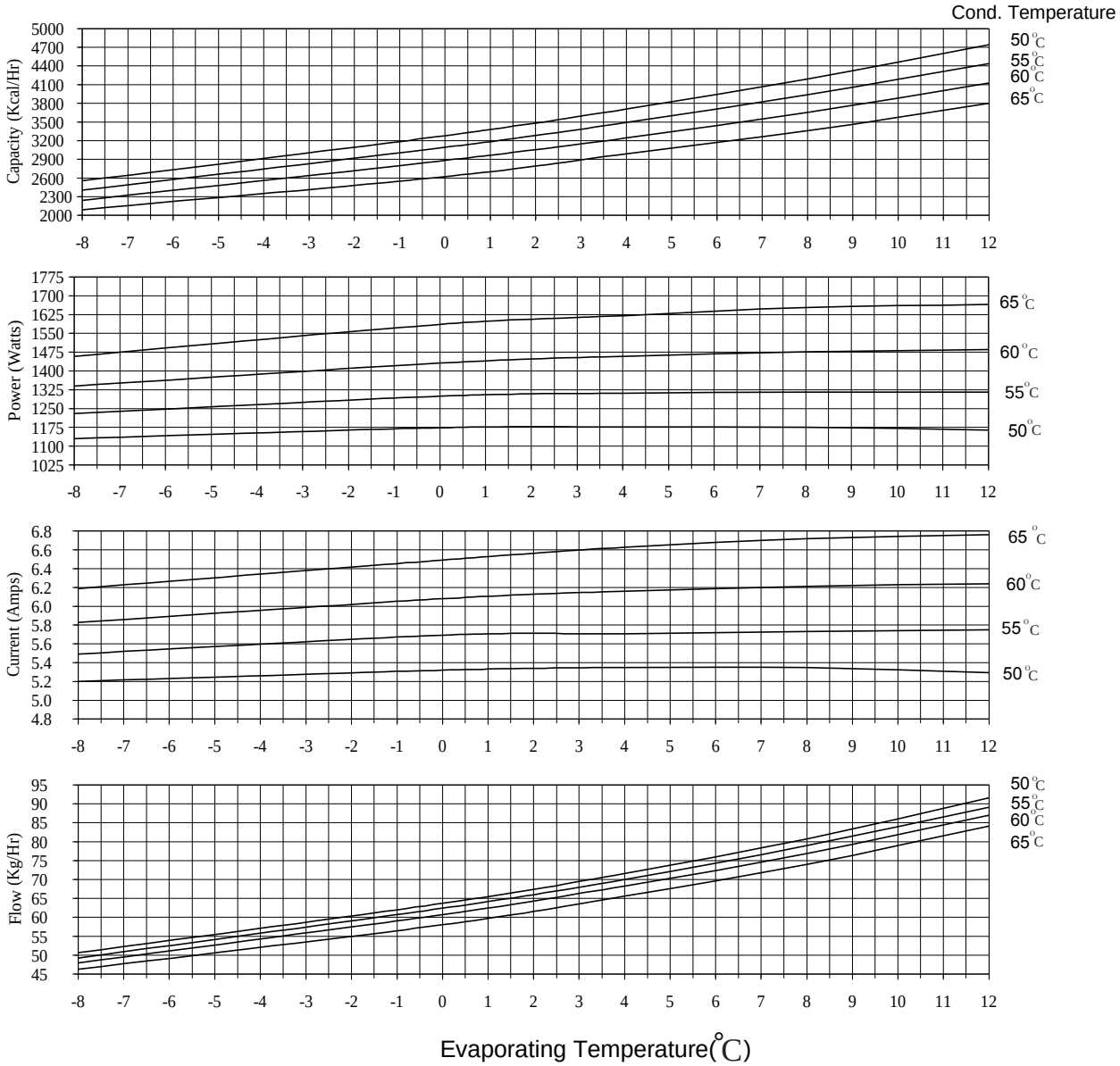
CURVES OF PERFORMANCE

Performance Curve		Return Gas Temperature	35 ℃
Model	2P16S225ANC	Subcooling	8.3 ℃
Power Supply	220-230V / 50Hz / 1PH		
Run Capacitor	30 uF / 450 VAC	Ambient Temperature	35 ℃



			Dwg. Name	Dwg. No.
			Curves OF Compressor	**2P16S225ANC**

Performance Curve		Return Gas Temperature	35 ℃
Model	QX-23B030g	Subcooling	8.3 ℃
Power Supply	220-230V / 50Hz / 1PH		
Run Capacitor	35 μF / 450 VAC	Ambient Temperature	35 ℃

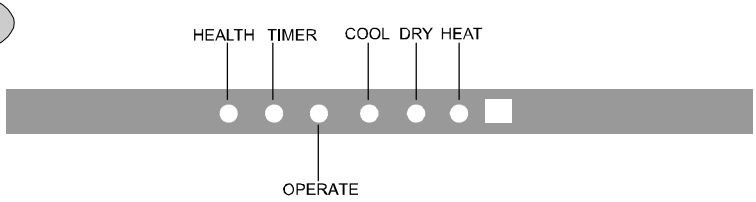


			Dwg. Name	Dwg. No.
			Curves OF Compressor	**QX-23g**

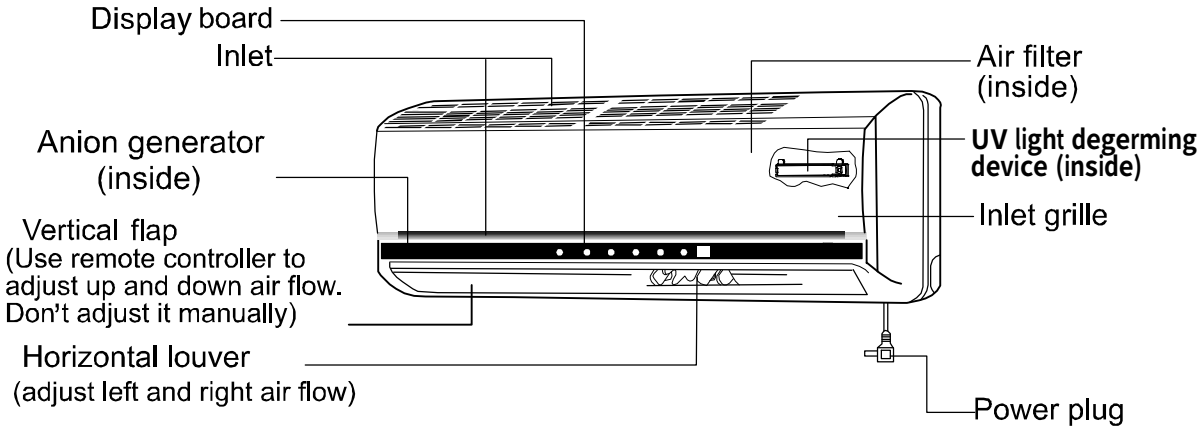
DESCRIPTION,NET DIMENSIONS AND FUNCTIONS OF MAIN COMPONENTS AND ACCESSORIES

Indoor unit

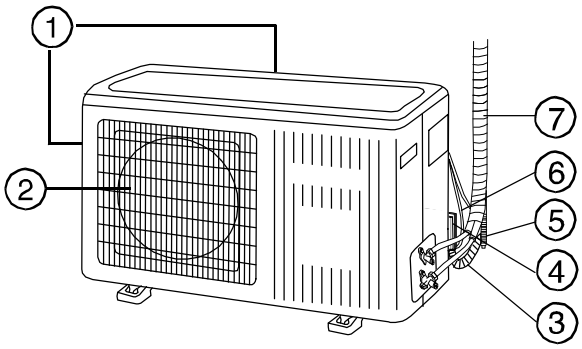
Display board



The indicator light will be displayed as the figure under different operation models

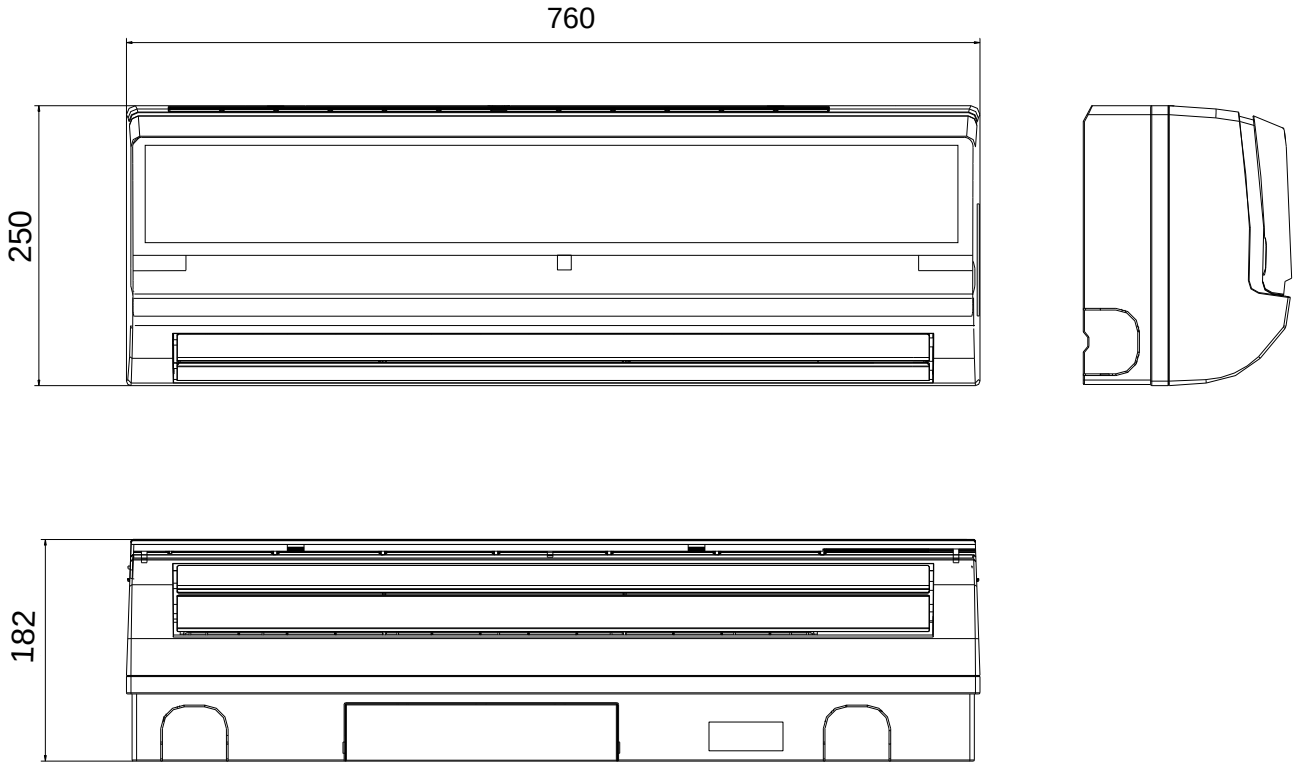


Outdoor unit

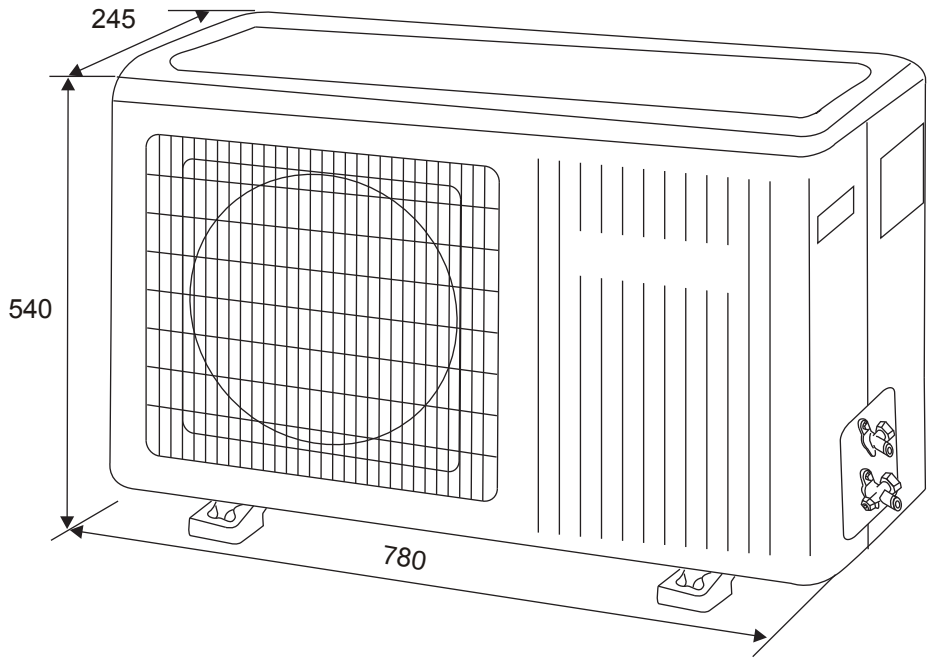


① OUTLET
② INLET
③ CHANGE-FOR-FRESH-AIR TUBE
④ CHANGE-FOR-FRESH-AIR BOX
⑤ DRAIN HOSE
⑥ CHANGE FOR FRESH AIR SIGNAL WIRE
⑦ CONNECTING PIPING AND ELECTRICAL WIRING

Net dimensions for indoor unit HSU-09RG03 HSU-12RG03



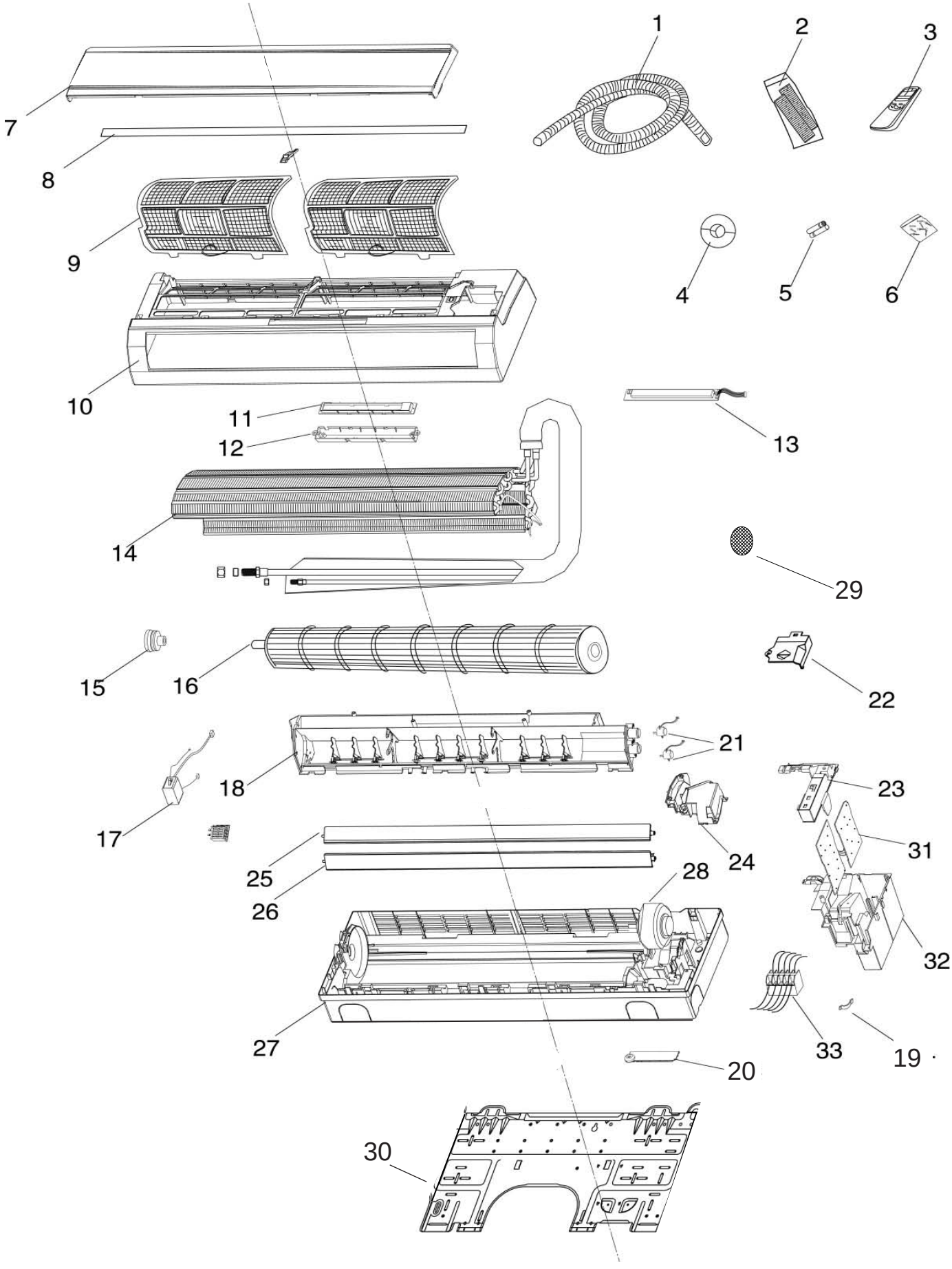
Net dimensions for outdoor unit:



KNOCK-DOWN DRAWINGS

AND PART LISTS

HSU-09RG03 HSU-12RG03 INDOOR UNIT



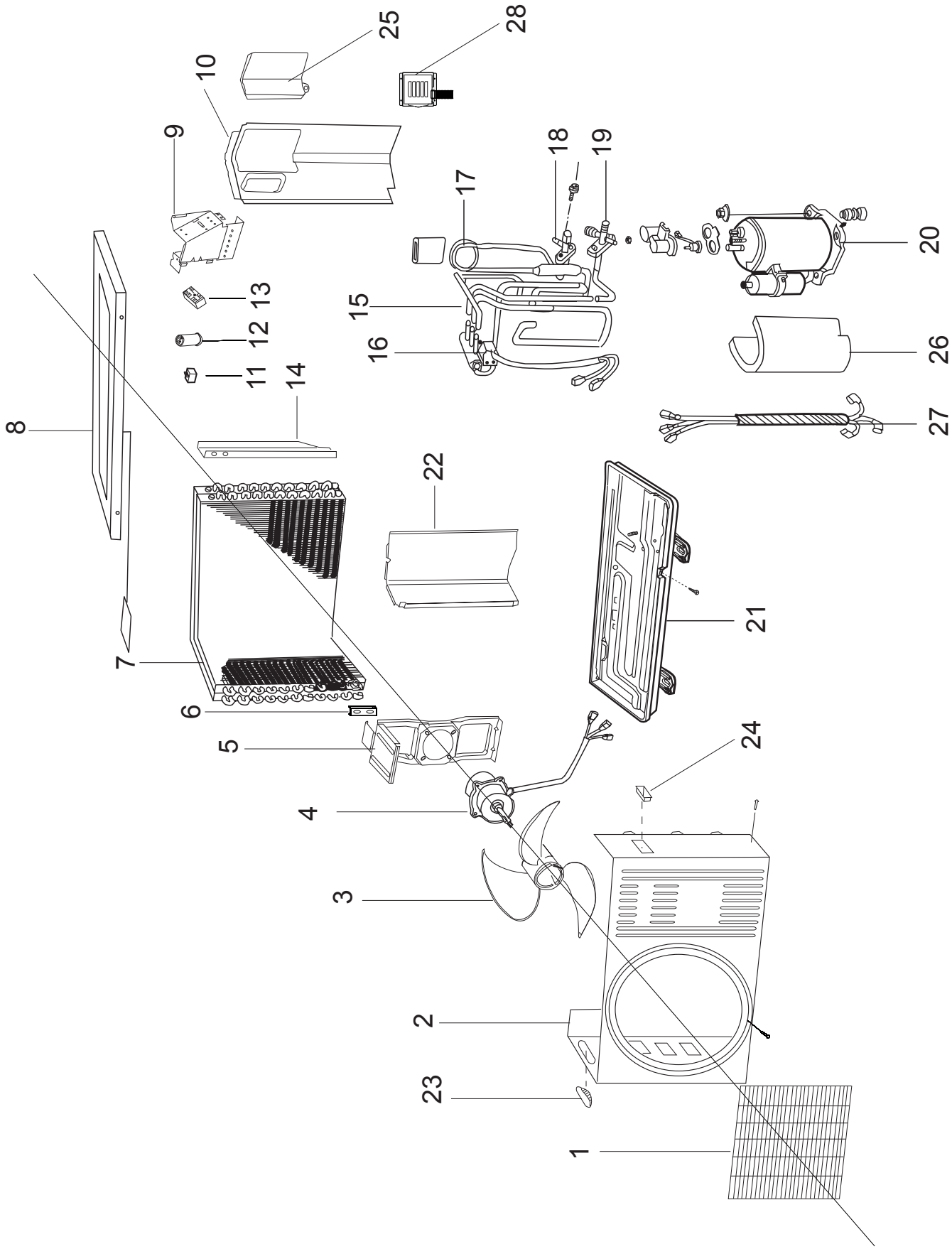
MODEL: HSU-09RG03 INDOOR UNIT

No. in exploded view.	Name of part	Specialized code	QTY.	Remark
1	Drain hose	001A1434039	1	
2	Air purifying	0010802963	1	
3	Remote controller	0010403455	1	
4	Guarding ring	001A1433544	1	
5	Battery	001A4600001	2	
6	Screw assembly	0010600115	1	
7	Inlet grille	0010202782	1	
8	Decorate piece	0010202763	1	
9	Air filter	0010201841	2	
10	Front panel assy.	0010801557	1	
11	Display panel fixation 1	0010202643	1	
12	Display panel fixation 2	0010201857	1	
13	Display panel	0010402917	1	
14	Evaporator assy	0010704344	1	
15	Bearing	0010801543	1	
16	Cross flow fan	0010202133	1	
17	Negative ion generator	0010401985	1	
18	Drain pan assy.	0010803055	1	
19	Wiring clip	0010201995	1	
20	Piping support	0010201858	1	
21	Stepping motor	0010401869	1	
22	Electric box cover I	0010201852	1	
23	Electric box cover II	0010201853	1	
24	Cover for fan motor	0010201860	1	
25	Louver 1	0010202709	1	
26	Louver 2	0010202710	1	
27	Frame assy.	0010801540	1	
28	Fan motor	0010401823	1	
29	Mesh for fresh air	0010202408	1	
30	Mounting plate	0010101274	1	
31	PCB	0010403128	1	
32	Electric box	0010201851	1	
33	Terminal block	0010401858	1	

MODEL: HSU-12RG03 INDOOR UNIT

No. in exploded view.	Name of part	Specialized code	QTY.	Remark
1	Drain hose	001A1434039	1	
2	Air purifying	0010802963	1	
3	Remote controller	0010403455	1	
4	Guarding ring	001A1433544	1	
5	Battery	001A4600001	2	
6	Screw assembly	0010600115	1	
7	Inlet grille	0010202782	1	
8	Decorate piece	0010202763	1	
9	Air filter	0010201841	2	
10	Front panel assy.	0010801557	1	
11	Display panel fixation 1	0010202643	1	
12	Display panel fixation 2	0010201857	1	
13	Display panel	0010402917	1	
14	Evaporator assy	0010704344	1	
15	Bearing	0010801543	1	
16	Cross flow fan	0010202133	1	
17	Negative ion generator	0010401985	1	
18	Drain pan assy.	0010803055	1	
19	Wiring clip	0010201995	1	
20	Piping support	0010201858	1	
21	Stepping motor	0010401869	1	
22	Electric box cover I	0010201852	1	
23	Electric box cover II	0010201853	1	
24	Cover for fan motor	0010201860	1	
25	Louver 1	0010202709	1	
26	Louver 2	0010202710	1	
27	Frame assy.	0010801540	1	
28	Fan motor	0010401823	1	
29	Mesh for fresh air	0010202408	1	
30	Mounting plate	0010101274	1	
31	PCB	0010403128	1	
32	Electric box	0010201851	1	
33	Terminal block	0010401858	1	

KNOCK-DOWM DRAWINGS FOR OUTDOOR UNIT(HSU-12H03/VA(ZXF))



Model: HSU-09RG03 OUTDOOR UNIT

No. in exploded view	Spare parts number	Spare parts description in english	Model	QTY.	Failure rate	The proportion of the spare part stock	remark
1	0010100777	Front grille	HSU-12H03/VA(ZXF)	1			
2	0010100775	Front panel	HSU-12H03/VA(ZXF)	1			
3	0010200212	Fan	HSU-12H03/VA(ZXF)	1			
4	0010402642	Motor	HSU-12H03/VA(ZXF)	1			*
5	0010803049	Frame for motor	HSU-12H03/VA(ZXF)	1			
6	0010149003	Heat exchanger left plank	HSU-12H03/VA(ZXF)	1			
7	0010705148	Heat exchanger	HSU-12H03/VA(ZXF)	1			
8	0010100774	Top panel	HSU-12H03/VA(ZXF)	1			
9	0010100779	Electric box	HSU-12H03/VA(ZXF)	1			
10	0010100776	Right panel	HSU-12H03/VA(ZXF)	1			
11	001A3600007A	Fan Motor Capacitor	HSU-12H03/VA(ZXF)	1			*
12	001A3600032	Compressor Capacitor	HSU-12H03/VA(ZXF)	1			*
13	0010402287	Terminal block	HSU-12H03/VA(ZXF)	1			*
14	0010100781	Heat exchanger right plank	HSU-12H03/VA(ZXF)	1			
15	… … … … … …	Tube assy	HSU-12H03/VA(ZXF)	1			
16	001A2500004	4-way valve winding	HSU-12H03/VA(ZXF)	1			
17	0010704718	Capillary Tube	HSU-12H03/VA(ZXF)	1			
18	0010703597	Stop valve	HSU-12H03/VA(ZXF)	1			
19	0010703598	Stop valve	HSU-12H03/VA(ZXF)	1			
20	0010700520	Compressor	HSU-12H03/VA(ZXF)	1			*
21	0010100778	Bottom plate	HSU-12H03/VA(ZXF)	1			
22	0010100782	Separating plate	HSU-12H03/VA(ZXF)	1			
23	0010200491	Left handle	HSU-12H03/VA(ZXF)	1			
24	001A1436160	Right handle	HSU-12H03/VA(ZXF)	1			
25	0010203305	Service cover	HSU-12H03/VA(ZXF)	1			
26	0010202004	Sound insulating cushion	HSU-12H03/VA(ZXF)	1			
27	0010402288	Wires group	HSU-12H03/VA(ZXF)	1			
28	0010802091	Fresh air device	HSU-12H03/VA(ZXF)	1			

1,The failer rate and the proportion of the spare-part stock are regarded as the reference of the stock for spare-parts;The first time should be stocked accroded with the proportion of the spare-parts,and it should be adjusted with the actual quantity 3 months later.

2,easy-damaged;The spare-part which is often damaged and the customer must stock in the spare-parts warehouse,and should be marked with"*"

3,possible damaged:The spare-part which is not often damaged like the easy damaged one and the customer may stock in the spare-part warehouse accord with the actual case,should be marked with " ".

4,not need provided :The spare-part which is seldom damaged or the maintenance man could not maitmains.The spare parts may be air freighted by the factory if they were damaged.The customer nees not stock in the spare-part warehouse,should be marked with " x ".

5,Above should be improved accord with the reply of the market half a year per time.

6.The spare parts price on net is FOB Qingdao term.

Model:HSU-12RG03 OUTDOOR UNIT

No. in exploded view	Spare parts number	Spare parts description in english	Model	QTY.	Failure rate	The proportion of the spare part stock	remark
1	0010100777	Front grille	HSU-12H03/VA(ZXF)	1			
2	0010100775	Front panel	HSU-12H03/VA(ZXF)	1			
3	0010200212	Fan	HSU-12H03/VA(ZXF)	1			
4	0010402289	Motor	HSU-12H03/VA(ZXF)	1			*
5	0010802042	Frame for motor	HSU-12H03/VA(ZXF)	1			
6	0010149003	Heat exchanger left plank	HSU-12H03/VA(ZXF)	1			
7	0010705188	Heat exchanger	HSU-12H03/VA(ZXF)	1			
8	0010100774	Top panel	HSU-12H03/VA(ZXF)	1			
9	0010100779	Electric box	HSU-12H03/VA(ZXF)	1			
10	0010100776	Right panel	HSU-12H03/VA(ZXF)	1			
11	001A3600007A	Fan Motor Capacitor	HSU-12H03/VA(ZXF)	1			*
12	001A3600021	Compressor Capacitor	HSU-12H03/VA(ZXF)	1			*
13	0010402287	Terminal block	HSU-12H03/VA(ZXF)	1			*
14	0010101027	Heat exchanger right plank	HSU-12H03/VA(ZXF)	1			
15	… … … … … …	Tube assy	HSU-12H03/VA(ZXF)	1			
16	001A2500004	4-way valve winding	HSU-12H03/VA(ZXF)	1			
17	0010705268	Capillary Tube	HSU-12H03/VA(ZXF)	1			
18	0010703597	Stop valve	HSU-12H03/VA(ZXF)	1			
19	0010703596	Stop valve	HSU-12H03/VA(ZXF)	1			
20	0010703960	Compressor	HSU-12H03/VA(ZXF)	1			*
21	0010100778	Bottom plate	HSU-12H03/VA(ZXF)	1			
22	0010100782	Separating plate	HSU-12H03/VA(ZXF)	1			
23	0010200491	Left handle	HSU-12H03/VA(ZXF)	1			
24	001A1436160	Right handle	HSU-12H03/VA(ZXF)	1			
25	0010203305	Service cover	HSU-12H03/VA(ZXF)	1			
26	0010202004	Sound insulating cushion	HSU-12H03/VA(ZXF)	1			
27	0010402288	Wires group	HSU-12H03/VA(ZXF)	1			
28	0010802091	Fresh air device	HSU-12H03/VA(ZXF)	1			

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2,easy-damaged;The spare-part which is often damaged and the customer must stock in the spare-parts warehouse,and should be marked with"*"

3,possible damaged:The spare-part which is not often damaged like the easy damaged one and the customer may stock in the spare-part warehouse accord with the actual case,should be marked with " ".

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BRIEF INTRODUCTION TO

ELECTRICAL CONTROL FUNCTIONS

1. Automatic mode:

cold/warm type run mode:

After entering into this mode, the main control "MCU" determines the corresponding work pattern according to the indorr temperature so as to maintain the preset temperature (the temperature is 23℃ in heating mode, and 26℃ in cooling mode). When Starting the machine for the first time, the machine enter heating mode if the indoor temperature is or below 23℃ or enter cooling mode if the indoor temperature is 23℃. After the unit enters heating mode and conducts heating programme (the preset temperature is 23℃), When reaching halt temperature of compressor, the compressor stops for 15 minutes. Then the machine enter cooling mode if the temperature of inlet air detected is or above 27℃, or the unit is still in heating mode.When the unit enters cooling mode conducts cooling programme (the preset temperature is 26℃), compensation temperature difference is cancelled automatically. When reaching halt temperature of compressor, the compressor stops for 15 minutes. Then the machine enter heating mode if the temperature of inlet air detected is or below 23℃ and compensation temperature is added automatically, or the unit is still in cooling mode. When the machine is transfered to the automatic mode from other modes, it will stop for 3 minutes if operating mode is changed (judge first and then work), and then enter the judged temperature according to the temperature of indoor inlet air.

*This mode includes the functions of timing, sleeping and so on. The machine enter cooling sleep mode when entering heating mode and enter cooling sleep mode when entering cooling mode.

2.Cooling run mode:

*cooling indicator is on.(runing indicator is on For HSU-09RA03)

*temperature control range : 16℃—30℃

*temperature control precision: ±1℃

*compressor can't be controlled by temperature sensor within 2 minutes after it starts.

*control character: when Tr (inlet air) ≥ Ts (temperature setting), outlet air from compressor is on and indoor fan motor run at fixed wind speed. When Tr (inlet air) < Ts (temperature setting), outlet air from compressor is off , and when Tr > Ts, outlet air from compressor is on.

*wind speed control: (the temperature difference is 1℃)

auto: when Tr>=Ts+3℃, the wind speed is high;
when Ts+1℃≤Tr<Ts+3℃, the wind speed is medium.
When Tr<Ts+1℃, the wind speed is low.
When temperature sensor is off, the fan motor runs at low speed.
when the wind speed changes from low to high, there is no delay, and when it changes from high to low, there is a 3-minutes delay before conversion.

Manual operation: When unit is on the wind speed can be set to high, medium,

low or automatic as required (execute instruction 2 seconds later after receiving remote signal)

*compressor control: The compressor can't be controlled by temperature sensor within 2 minutes after startup and can be only restarted at least 3 minutes later after shutdown. There is no 3-minute protection with power on for the first time (over 3 minutes with power off). The compressor must stands by for 3 minutes before it is restarted after shutdown.

*There is no 2-minute limit when changing the temperature setting or shutting down the machine through the remote controller, and the machine can be shut down immediately.

* Avoiding electrical shock: outlet air is available 2 seconds later after startup.

*Controlling the position of air door: set the position of air door as required.

*Protection of temperature expiration is available: The compressor and outdoor fan motor will be shut down when the indoor temperature is above 72℃ and lasts 2 seconds. Only when 3 minutes pass by after shutdown and the temperature of coil pipe is below 64℃, can the compressor be started, while indoor fan motor is controlled as the temperature sensor is off.

*Protection of expiration of current peak value is available: Current cross detection is available in order to avoid burning out the compressor when the current is too big. The action character as follows:

The compressor can't be detected in 60 seconds after startup. when current is above "CT 1.6 V" and lasts 3 seconds, the system enter protection mode and shut off compressor with outdoor air blower and indoor fan motor controlled as the temperature sensor is off. After 3 minutes the machine can be started again.

*Protection of frost is available (disable in test run or heating mode): In order to prevent the indoor heat exchanger from freezing (in refrigation or dehumidifying mode), the compressor will be shut off when the temperature of the indoor coil pipe is or below 0℃ and the compressor runs for over 5 minutes. When the temperature of the indoor coil pipe ascends to over 7℃, the compressor is restarted (must meet a 3-minutes delay)

*Timer on, Timer off and sleep control are available.

3. Dry mode: (the temperature difference is 1℃)

*dry indicator is on.(runing indicator is on For HSU-09RA03)

*Temperature control range : 16℃—30℃

*Temperature control precision: ±1℃

*control character:

- When Tr (indoor temperature) > Ts (temperature setting) +2℃, compressor and outdoor fan motor run continuosly with indoor fan motor runnig in accordance with the wind speed setting.
- When Tr ranges from Ts to Ts +2℃, outlet air from compressor is on for 10 minutes and off for 6 minutes, the indoor fan motor is off in 3 minutes after shutdown of compressor and gives breeze in other time.
- When Tr < Ts, outlet air from compressor is unavailable, and the indoor fan

motor enter breeze mode 3 minutes later after after shut down of compressor.

- When all the ranges alternate, there is ±1℃ difference.

*Fan speed control:

Automation: When Ti >= Ts + 5℃, the fan speed is high.

When Ts+3℃≤Ti<Ts+5℃, the fan speed is medium.

When Ts+2℃≤Ti<Ts+3℃, the fan speed is low.

When Ts≤Ti<Ts+2℃, the machine gives breeze intermittently.

When Ti<Ts, there are 3 minutes to stand by before the indoor fan motor is shut off.

When Ti<Ts, there are 3 minutes to stand by before entering of breeze from outside.

Manual operation: When the temperation sensor is off or the indoor fan motor runs intermittently, the indoor fan motor can not be operated by hand (compelling automatic operation), along with the indoor fan motor can be operated in cooling mode. While controlling fan motor by hand in cooling mode, the cooling ranges include fan speed setting and refriferation range, others are the same as fan motor in automation mode.

*compressor control： The compressor can't be controlled by temperature sensor in 2 minutes after startup and also can't be started again at least 3 minutes later after shutdown. There are 3-minutes protection with power on for the first time (over 3 minutes with power off). The compressor must be started again 3 minutes later after shutdown.

*There is no 2-minutes limit when changing the temperature setting or shutting off the machine through the remote controller, and the machine can be shut down immediately.

*Avoiding electrical shock: outlet air is available 2 seconds later after startup.

*Controlling the position of air door: set the position of air door as required.

*Protection of temperature expiration is available: The compressor and outdoor fan motor will be shut down when the indoor temperature is above 72℃ and lasts 2 seconds. Only when 3 minutes pass by after shutdown and the temperature of coil pipe is below 64℃, can the compressor be started, while indoor fan motor is controlled as the temperature sensor is off.

*Protection of expiration of current peak value is available: Current cross detection is available in order to avoid burning out the compressor when the current is too big. The action character as follows:

The compressor can't be detected in 60 seconds after startup. when current is above "CT 1.6 V"and lasts 3 seconds, the system enter protection mode and shut off compressor with outdoor fan motor and indoor fan motor controlled as the temperature sensor is off. After 3 minutes the machine can be started again.

*Protection of frost is available (disable in test run or heating mode): In order to prevent the indoor heat exchanger from freezing (in refrigation or dehumidifying mode), the compressor will be shut off when the temperature of the indoor coil pipe is or below 0℃ and the compressor runs for over 5 minutes. When the temperature of the indoor coil pipe ascends to over 7℃, the compressor is restarted (must meet a 3-minutes delay)

*Timer on, Timer off and sleep control are available.

4. Heating mode: (the return difference of control is ±1℃)

*Heating indicator is on (runing indicator is on For HSU-09RA03)

*Temperature control range : 16℃—30℃

*Temperature control precision: ±1℃

*Control Character:

When Tr ≤ Ts, compressor, four-way valve and outdoor fan motor is on, indoor fan motor runs as in cold blast mode, and 4℃ of compensation is added after compressor is started.

When Tr Ts+4℃, compressor is off, and the indoor fan motor runs as in cold blast mode.

When Tr<Ts+4℃, compressor, four-way valve and outdoor fan motor is on, and the indoor fan motor runs as in the mode of avoiding cold blast.

*Control of indoor fan motor:

Manual operation: The fan speed can be set to high, medium, low or automatic as required.

Automatic operation: When Tr Ts, the fan speed is high;

When Ts+2>=Tr> Ts℃, the fan speed is medium.

When Tr> Ts+2℃, the fan speed is low.

*Control of air door: setting the position of air door as required.

*compressor control：The compressor can't be controlled by temperature sensor in 8 minutes after startup and also can't be started again at least 3 minutes later after shutdown. There are 3-minute protection with power on for the first time (over 3 minutes with power off). The compressor must be started again 3 minutes later after shutdown.

*There is no 8-minutes limit when changing the temperature setting or shutting off the machine through the remote controller, and the machine can be shut down immediately.

*Avoiding electrical shock: outlet air is available 2 seconds later after startup.

*Timer on, Timer off and sleep control are available.

*Control of 4-way valve: When the unit is started for the first time, the 4-way valve starts runnig 10 seconds earlier than compressor does. After compressor stops runnig, the 4-way valve continues running for 2 minutes and then stops. If changing the unit from heating to cooling, the 4-way valve is shut off 2 minutes later and compressor is started 3 minutes later.

*Cold draft prevetion:

(1)Compressor is interrupted during the defrosting operation and continues to run after defrosting is completed. When the indoor exchanging temperature is below 23℃, the indoor fan motor is off. When the indoor exchanging temperature is above 23℃, the indoor fan motor is running at weak speed.

(2)If the temperature of coil pipe can't be above 38℃ 4 minutes later after startup, fan motor is running at the preset wind speed.

(3) If the temperature of coil pipe is above 38℃ 4 minutes later after start up, fan motor is running at the preset fan speed.

(4)If coil pipe descends to the temp. lower than 38℃ from 38℃. fan motor is running at the preset wind speed.

(5)If the temperature sensor is off. Compressor stops runnig. If the temperature of coil pipe is above 23℃, fan motor enter breeze mode; and if the temperature of coil pipe is below 20℃, fan motor stops running.

(6)Shut down the unit and indoor fan motor stops running.

*High temperature protection and high temperature expiration protection:

- High temperature prevention: When the temp. of coil pipe is above 65℃, the outdoor fan motor stops.When the temp descends to 60℃, the outdoor fan motor is restarted and fan speed invertage frequence is more than 45 seconds.
- High temperature expiration prevention: When the temp. of coil pipe is above72℃,compressor and outlet air stop running 2 seconds later, and inlet air runs as the temp. sensor is off. When compressor stands by for 3 minute and the temp. of coil pipe is below 64℃, the unit can be started again.

*Current protection and current expiration protection: (Not detecting within 60 seconds after startup)

- Current protection: If current detected is above (CT0.6V) and lasts 10 senconds continuously, outlet air stops. If current detected is below (CT0.53V) , outlet air is regained and fan speed invertage frequence is more than 45 seconds.
- Current peak expiration protection: If current detected is above (CT1.6V) , 3 seconds later the system enter current cross protection, compressor and outdoor fan motor stop and start again 3 minuts later, and air inlet runs as the temperature sensor is off.

*Overcooling protection:

One and half a minutes later after compressor starts, if the temperature of coil pipe is below -4℃, compressor and air outlet stop, and air inlet runs according to the temp. setting. Compressor can be restarted 3 minutes later.

*Defrosting:

1. Entry conditions of defrosting:

The entry conditions of defrosting is classified into two types: intelligentized defrosting and sensor defrosting. Through selecting and judging, the models without outdoor sensor defrosts according to intelligentized defrosting, and others with ensor defrosts according to sensor defrosting.

intelligentized defrosting:

A. Indoor unit enter overload protection and air outlet stops when air outlet has been restarted and runs over 10 minutes, and compressor runs over 45 minutes in total and over 20 minutes continuously, and the temp. of indoor coil pipe is below 42℃.
B. Compressor runs 20 minutes continuously, and the temp. of indoor coil pipe decreases 1℃ per 6 minutes and this operation repeats 3 times, and the temp. of coil pipe is below 42℃, and 5 minutes later after compressor is restarted.

C. When compressor runs over 3 hours in total and over 20 minutes continuously and after the temp. of indoor coil pipe is below42℃, the system enters defrosting mode.

D. The difference between the temp. of indoor coil pipe and the indoot temp. is below 18℃ and lasts 5 minutes, and

If meeting any one of the conditions above mentioned, the unit enter intelligentized defrosting mode.

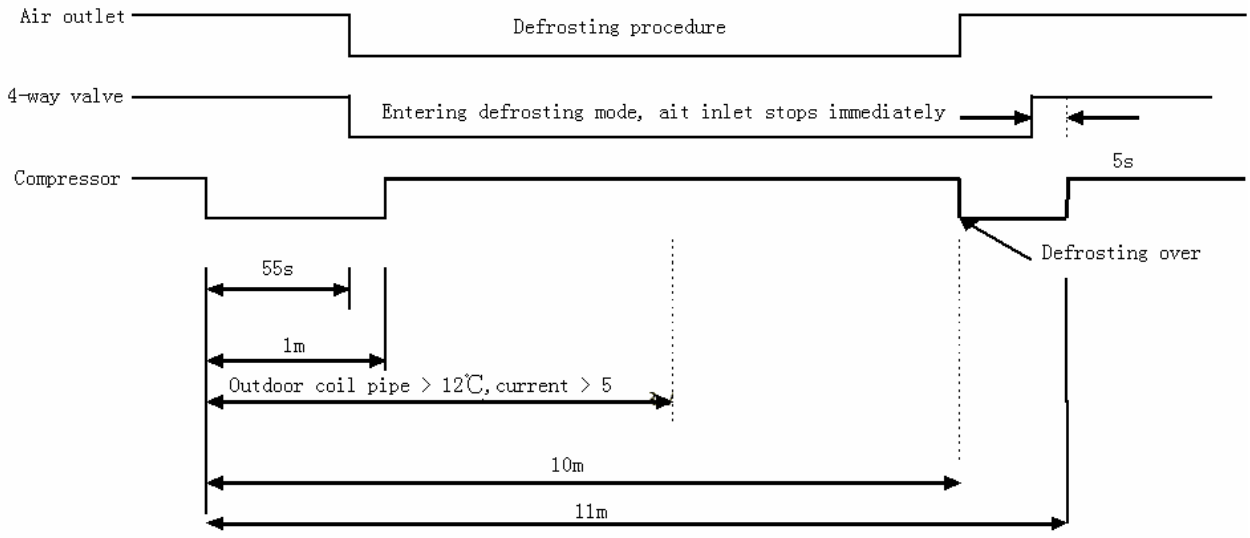
Sensor defrosting: In heating mode, When compressor runs over 45 minutes continuously, and detecting defrosting temp. is below -5℃ and the temp. of coil pipe is lower than 38℃, the unit enters defrosting programe. After entering this mode, if detecting defrosting temp. is above 12℃ or defrosting time is above 9 minutes, then quit defrosting mode.

2. Exit conditions of defrosting:

Defrosting time is higher than 12 minutes (compressor is on), or CT current is above (CT0.6V).

- During the defrosting, if current peak value is cut off, the unit quit the defrosting mode. But the protection of expiration of current peak value is unavailable with 60 senconds after compressor is started.
- During the defrosting, abnormality of temp. sensor isn't detected.
- After quiting the defrosting mode, the fan motor enter cooling prevention mode.

3.Defrosting oscillogram:



*Automatic temperature compensation of heating:

1. Conditions: Halt time of compressor is below 5 minutes.
2. Operation rules: 1) Ts=Tr + 5℃ + (Tr – Td (temperature detected)[the moment of startup])\

2)Tr – Td[the moment of startup] ≤ 2℃

Note: the two items above is disable when starting for the first time.

3)Press "-" button in the remote controller, and then restore Ts =

Tr + 5℃. Press “+” button in the remote controller, and then operate according to automatic compensation setting

4)If Tr – Td [before compressor starts] ≤0℃, and then operate according to Ts = Tr + 5℃.

3. If air door blow up, which is healthy, the temp. setting of heating is added by 2℃ in the base of beginnig.

5.Control function:

5.**1Timer function:** You can set 24-hour timer on or timer off as required, and the minum time unit is 1 minute. After setting, the indicator of indoor unit is on , and it is off when timer setting is completed. There are several timer mode as follows.

- Timer on: The LED of “timer” lights up, and unit behaves with halt status. Timer on is completed, and then unit starts running with the LED of “timer” off. The unit starts with the the last setting receiving timer signals, and sleep setting is not allowed.
- Timer off: Unit starts, timer indicator lights up; When reaching time setting, the indicator goes out, unit enters shutdown mode, and sleep function can be set. If timer off and sleep are set synchronously, the one which time is short run first. Executing shutdown instruction clear timer and sleep function.
- Timer on and timer off can be set synchronously. when they are completed, the indicator goes out.

5.2 Sleep function (saving function at night): the timer indicator lights up.

- In cooling/defrosting mode, the temp. setting increases 1℃ one hour later after startup. After another hour the temp. setting increase by more 1℃ and then run continuously for another 6 hours and then close.
- In heating mode, the temp. setting decrease 2℃ one hour after startup. After another hour the temp. setting decrease by more 2℃. After 3 hours the temp. setting rise by 1℃and then run continuously for another 3 hours and then close.

5.3 Protection of malfunction of temperature sensitive resistance.

- The temperature sensitive resistor is short out or turn out, the machine doesn’t work.
- During defrosting, don’t detect if the temperature sensor short out or turn out.
- Detect the temperature of coil pipe is below -40℃, then think the temperation circuit of coil pipe is cut off.
- Detect the temperature of coil pipe is above 95℃, then think the temperation circuit of coil pipe is short .
- Detect the temperature of inlet air is below -20℃, then think the temperation circuit of coil pipe is cut off.
- Detect the temperature of inlet air is below -40℃, then think the temperation circuit of coil pipe is cut off.

5.4 Emergency switch input:

- Press the switch of emergency operation, then buzzer rings once and unit

enters the automatic operation mode. (emergency operation)

- If the switch is kept pressed for 5 seconds, buzzer ring two times and unit enter enter test run mode.
- Press the switch again, and then closes.
- The unit can receive remote control.
- Enter emergency operation from timer mode, then timer is cancelled.
- Test run:
  1) The temperature sensor of inlet air doesn't work, and compressor starts (but subject to the limit of -minute delay excluding the first time), and high wind, cooling, and air door is open.The indoor fan motor runs, running indicator lights up, compressor relay and the one of outdoor fan motor is closed
  2) During test run:
     - The prevention of freezing of evaporator doesn't work.
     - Current cross control doesn't work.
     - The control of current cross peak expiration doesn't work.
     - Temperature control doesn't work.
     - Temperature expiration control doesn't work.

5.5 Executive function after 2 seconds by remoter control:

After receiving remote control signal, the mainboard doesn't enter the corresponding instruction task until 2 seconds elapse.

5.6 Increasing oxygen function:

There is increasing oxygen setting and gate switch is closed, the unit must run under conditions as follows. Or increasing oxygen function close.

(1) Shutdown status: Increasing oxygen, outdoor fan motor, indoor fan motor is started; Indoor fan motor breezes, air door may swings or stops, and other peripharal equipments is closed.

(2) Startup status: During defrosting function,cooling function and fan only function the increasing oxygen working. Outdoor fan working, if the compressor is off ,the outdoor fan still working with the increasing oxygen device.

In heating function:

When defrosting,the increasing oxygen device will not work.

When indoor fan is working the oxygen device will working

4.10 E2PROM contents as follows:

- ♉The memory function of power down is available, and the auto recovery function of power on is optional. (In auto, heating, cooling, or dry status, press the "sleeping" button 10 times within 5 seconds, and the auto recovery function of power on can be set on/off. If the buzzer rings 4 times, the the auto recovery function of power on is available; If the buzzer rings 2 times, the the auto recovery function of power on is unavailable.)
- ♉If there is no EEPROM, the unit is taken off the 'off' function of the memory function of power down. But the memory function of power down can also be set

on/off, and the data is the default value of chip.

4.7 Alarm from indoor fan motor:

10 seconds later after the indoor fan motor is charged, and the impulse from fan motor is not detected, then stop outputting voltage to indoor fan motor, stand by for 30 seconds, then charge the fan motor again and there is still no impulse from fan motor, then send alarm signals.

4.8 Manual defrosting:

when the wire controller is on, choose high wind, 30℃, and press the sleeping button for 6 times within 5 seconds, and after the buzzer rings 3 times, the air conditioner enter manual defrosting mode, which is the same as heating defrosting.

ABNORMALITY DIAGNOSING

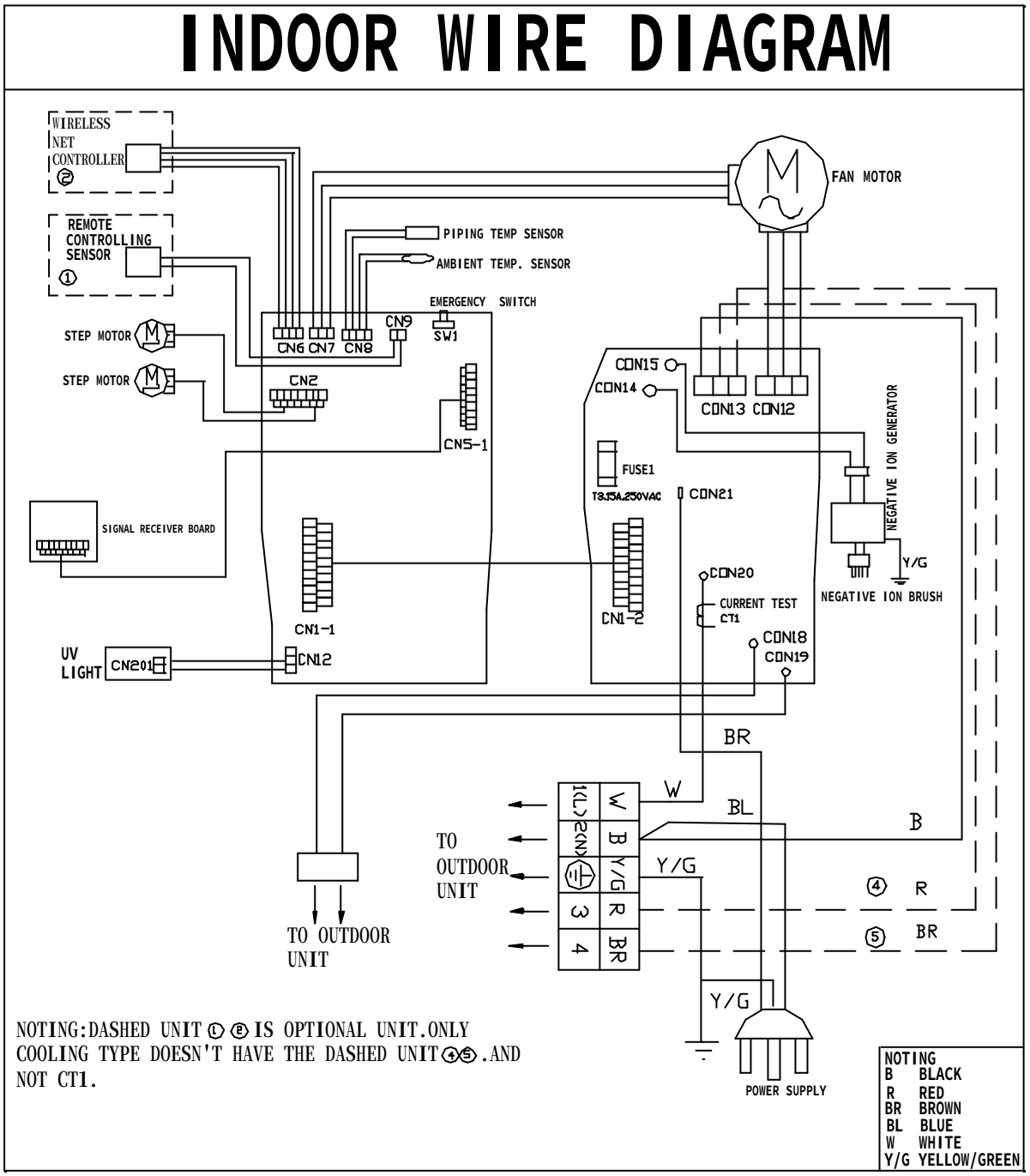
express mode of malfunction:

HSU-09，12RG03

Abnormal mode	Wrong express Run heating cooling	indoor	outdoor	Auto recovery	Cause of malfunction
Indoor temp.sensitive resistance abnormal	★ ■ ■	*		*	Sensor is shorted out or opened circuit
Temp. sensor resistance of heat exchanging abnormal	★ □ □	*		*	Sensor is shorted out or opened circuit
Indoor fan motor abnormal	■ □ ★	*			Indoor fan motor don't feed back
EEPROM abnormal	★ □ ★	*			Data error or no EEPROM
explaination	□on★flash■off	* reprents having this function			

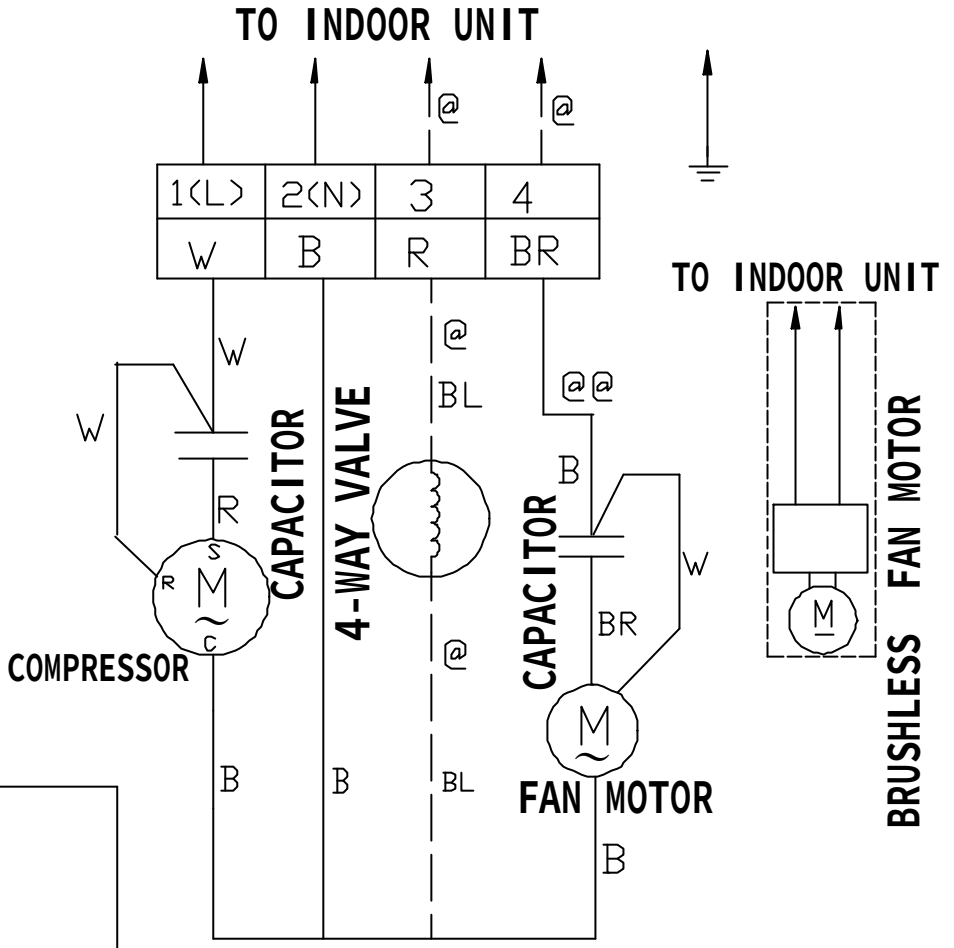
WIRING DIAGRAM

MODEL: HSU-09RG03 HSU-12RG03



MODEL: HSU-09RG03 HSU-12RG03

OUTDOOR WIRE DIAGRAM

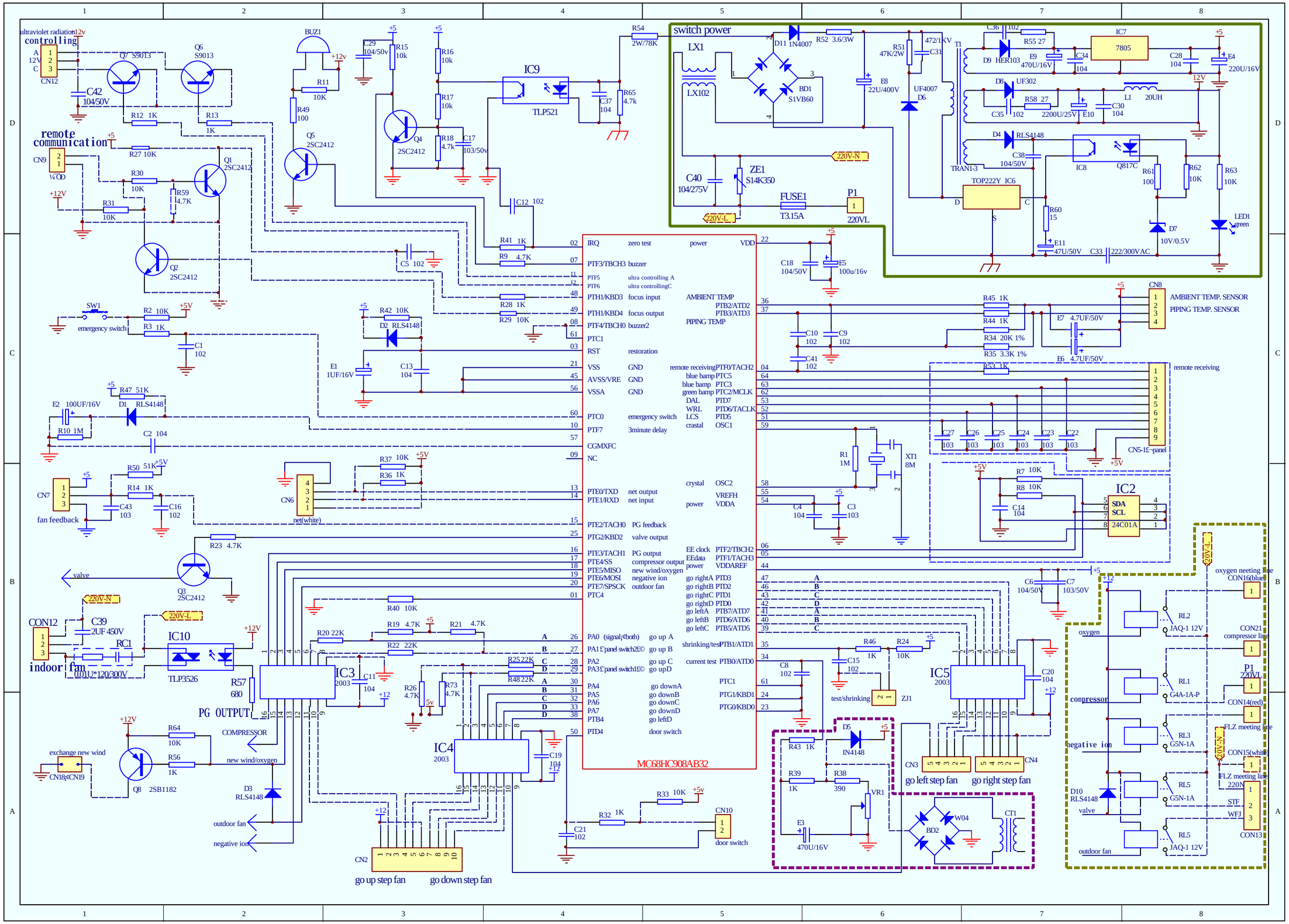


B:	BLACK
R:	RED
BR:	BROWN
BL:	BLUE
W:	WHITE
Y/G:	YELLOW/GREEN

NOTING:

1. COOLING-WARMING TYPE'WIRE IS AS ABOVE(INCLUDING THE DASHED UNIT).
2. ONLY COOLING TYPE DOESN'T HAVE THE DASHED UNTI(WHICH WITH@). TERMINAL4(WHICH WITH@@) WING TO 1(L).
3. NO FRESH WIND FUNCTION' TYPE DOESN'T HAVE THE BRUSHLESS MOTOR.

CIRCUIT DIAGRAM


switch power
LX1
LX102
D11 1N4007
BD1 S1VB60
R52 3.6/3W
R51 47K/2W
C31 472/1KV
E8 22U/400V
UF4007 D6
T1
C36 102
R55 27
D9 HER103
E9 470U/16V
C34 104
IC7 7805
C28 104
E4 220U/16V
D8 UF302
C35 102
R58 27
2200U/25V
E10
C30 104
L1 20UH
D4 RLS4148
C38 104/50V
TRAN1-3
IC8
Q817C
R61 100
R62 10K
R63 10K
TOP222Y IC6
R60 15
E11 47U/50V
C33 222/300VAC
D7 10V/0.5V
LED1 green
220V-N
220V-L
C40 104/275V
ZE1 S14K350
FUSE1 T3.15A
P1 220VL
R54 2W/78K
IC9 TLP521
C37 104
R65 4.7k
BUZ1
R11 10K
R49 100
Q5 2SC2412
C29 104/50v
R15 10k
R16 10k
R17 10k
Q4 2SC2412
R18 4.7k
C17 103/50v
C12 102
ultraviolet radiation controlling
CN12
Q7 S9013
Q6 S9013
C42 104/50V
R12 1K
R13 1K
remote communication
CN9
¼ OD
R27 10K
Q1 2SC2412
R30 10K
R59 4.7K
R31 10K
Q2 2SC2412
SW1
emergency switch
R2 10K
R3 1K
C1 102
R42 10K
D2 RLS4148
E1 1UF/16V
C13 104
R47 51K
E2 100UF/16V
D1 RLS4148
R10 1M
C2 104
CN7
fan feedback
R50 51K
R14 1K
C43 103
C16 102
CN6
net(white)
R37 10K
R36 1K
R23 4.7K
Q3 2SC2412
valve
CON12
C39 2UF 450V
RC1 0.01U*120/300V
indoor fan
IC10 TLP3526
R57 680
PG OUTPUT
R40 10K
R20 22K
R19 4.7K
R21 4.7K
R22 22K
R25 22K
R48 22K
IC3 2003
C11 104
R26 4.7K
R73 4.7K
5v
IC4 2003
C19 104
R64 10K
R56 1K
Q8 2SB1182
exchange new wind
CN18 CN19
COMPRESSOR
new wind/oxygen
D3 RLS4148
outdoor fan
negative ion
CN2
go up step fan
go down step fan
R33 10K
R32 1K
C21 102
CN10
door switch
IRQ zero test
PTF3/TBCH3 buzzer
PTF5 ultra controlling A
PTF6 ultra controllingC
PTH1/KBD3 focus input
PTH1/KBD4 focus output
PTF4/TBCH0 buzzer2
PTC1
RST restoration
VSS GND
AVSS/VRE GND
VSSA GND
PTC0 emergency switch
PTF7 3minute delay
CGMXFC
NC
PTE0/TXD net output
PTE1/RXD net input
PTE2/TACH0 PG feedback
PTG2/KBD2 valve output
PTE3/TACH1 PG output
PTE4/SS compressor output
PTE5/MISO new wind/oxygen
PTE6/MOSI negative ion
PTE7/SPSCK outdoor fan
PTC4
PA0 (signal¡¢both) go up A
PA1£¨panel switch2£© go up B
PA2 go up C
PA3£¨panel switch1£© go upD
PA4 go downA
PA5 go downB
PA6 go downC
PA7 go downD
PTB4 go leftD
PTD4 door switch
power VDD
AMBIENT TEMP PTB2/ATD2
PTB3/ATD3
PIPING TEMP
remote receiving PTF0/TACH2
blue bamp PTC5
blue bamp PTC3
green bamp PTC2/MCLK
DAL PTD7
WRL PTD6/TACLK
LCS PTD5
crastal OSC1
crystal OSC2
VREFH
power VDDA
EE clock PTF2/TBCH2
EEdata PTF1/TACH3
power VDDAREF
go rightA PTD3
go rightB PTD2
go rightC PTD1
go rightD PTD0
go leftA PTB7/ATD7
go leftB PTD6/ATD6
go leftC PTB5/ATD5
shrinking/test PTB1/ATD1
current test PTB0/ATD0
PTC1
PTG1/KBD1
PTG0/KBD0
MC68HC908AB32
C18 104/50V
E5 100u/16v
C10 102
C9 102
C41 102
R45 1K
R44 1K
R34 20K 1%
R35 3.3K 1%
E7 4.7UF/50V
E6 4.7UF/50V
CN8
AMBIENT TEMP. SENSOR
PIPING TEMP. SENSOR
R53 1K
remote receiving
CN5-1
panel
C27 103
C26 103
C25 103
C24 103
C23 103
C22 103
R1 1M
XT1 8M
C4 104
C3 103
R7 10K
R8 10K
C14 104
IC2
SDA
SCL
24C01A
C6 104/50V
C7 103/50V
R46 1K
R24 10K
C15 102
test/shrinking
ZJ1
C8 102
IC5 2003
C20 104
D5 IN4148
R43 1K
R39 1K
R38 390
VR1
E3 470U/16V
CN3
CN4
go left step fan
go right step fan
BD2
W04
CT1
oxygen neeting line
CON16(blue)
RL2 JAQ-1 12V
CON21
compressor line
RL1 G4A-1A-P
CON14(red)
FLZ meeting line
RL3 G5N-1A
CON15(white)
FLZ meeting line
220N
RL5 G5N-1A
STF
WFJ
CON13
RL5 JAQ-1 12V
D10 RLS4148
valve
outdoor fan
oxygen
compressor
negative ion

TROUBLE SHOOTING

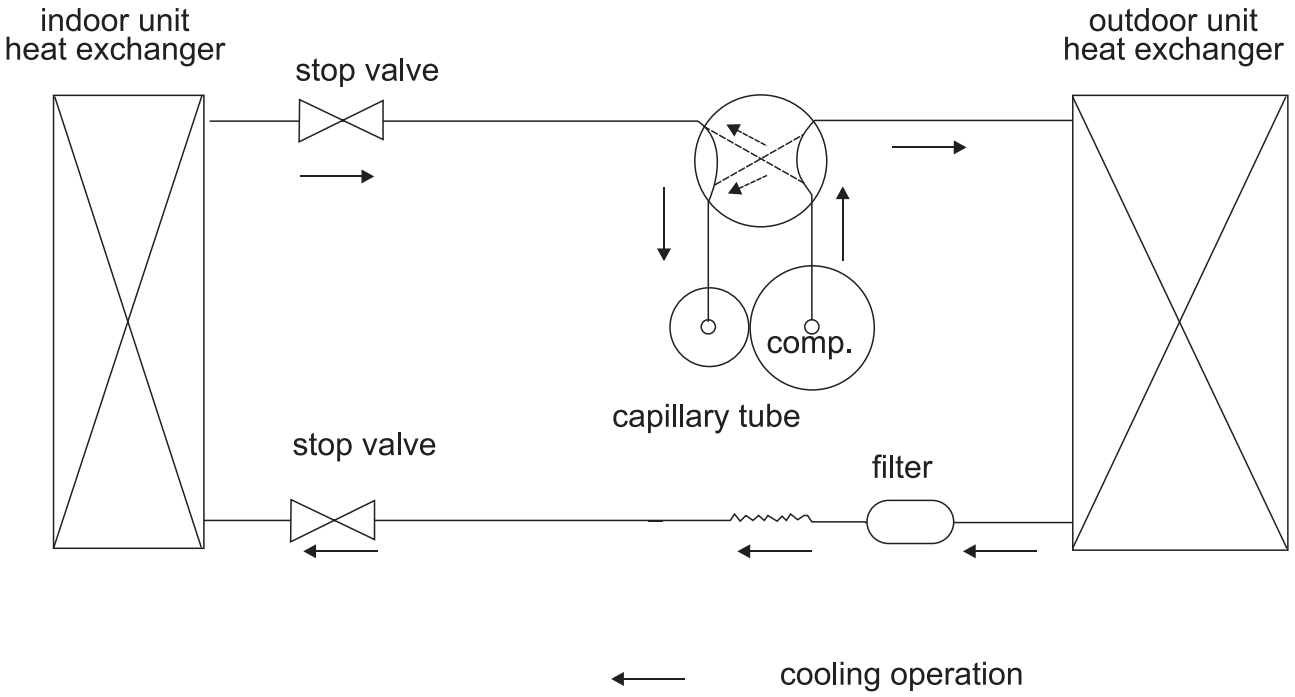
Trouble Shooting

Before asking for service, check the following first.

	Phenomenon	Cause or check points
Normal Performance inspection	The system does not restart immediately. 	• When unit is stopped, it won't restart immediately until 3 minutes have elasped 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. 	• 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.	• This is because the system circulates smells from the interior air such as the smell of furniture, cigarettes.
	Mist or steam are blown out. 	• During COOL or DRY operation, indoor unit may blow out mist. This is due to the sudden cooling of indoor air.
Multiple check	Does not work at all. 	• Is power plug inserted? • Is there a power failure? • Is fuse blown out?
	Poor cooling 	• Is the air filter dirty? Normally it should be cleaned every 15 days. • Are there any obstacles before intel 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?

Application temp. range of air conditioner -7℃~43℃.

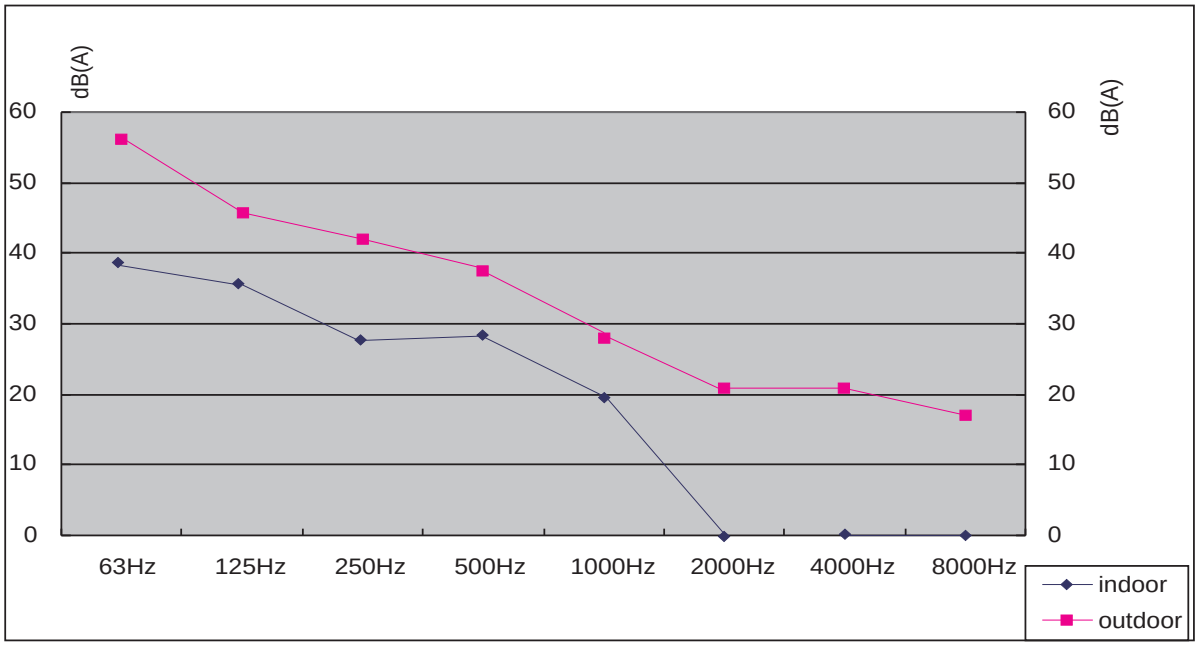
REFRIGERATING CYCLE DIAGRAM


indoor unit
heat exchanger
stop valve
outdoor unit
heat exchanger
comp.
capillary tube
stop valve
filter
cooling operation

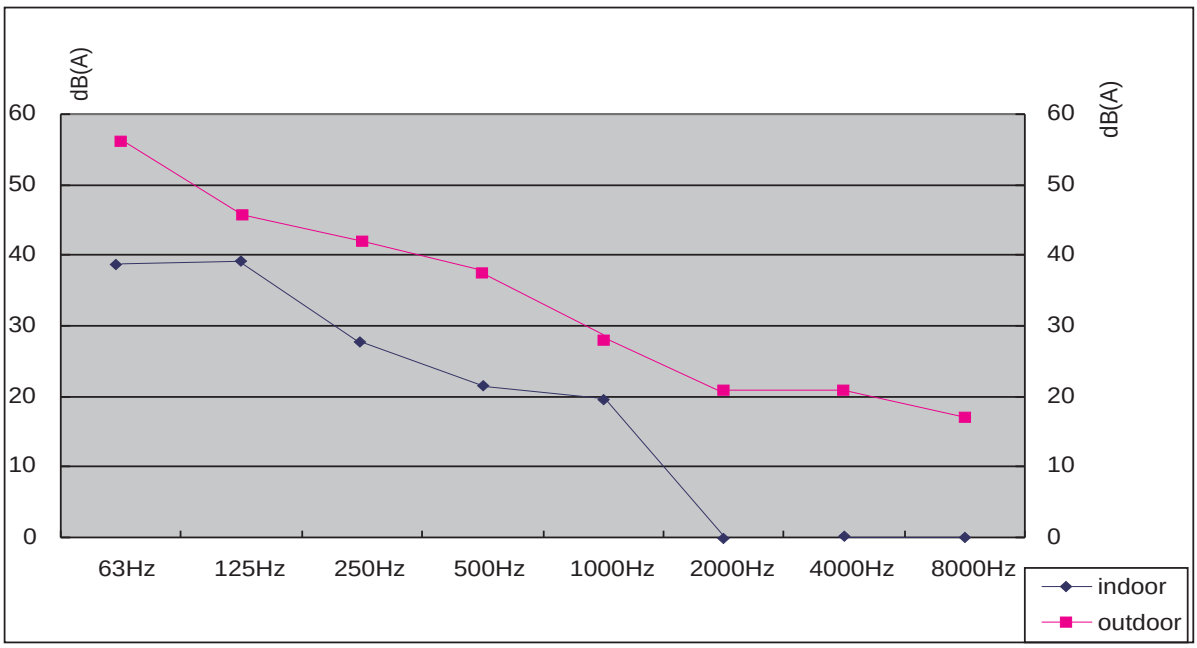
NOISE LEVEL TEST CHART AND AIR VELOCITY DISTRIBUTION

Noise level test chart

MODEL: HSU-09RG03



MODEL: HSU-12RG03



Air velocity distribution for indoor unit

MODEL: HSU-09RG03 HSU-12RG03

Fig 1
top view
flow control panel horizal
lourer:center

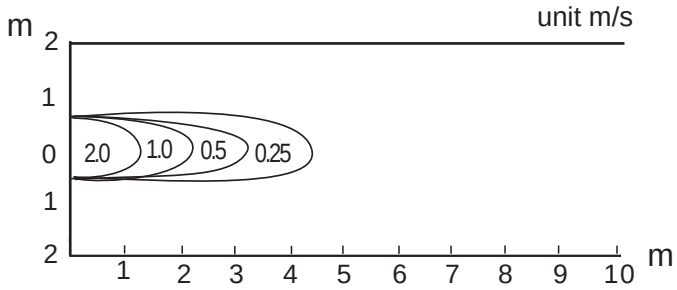


Fig 2
top view
flow control panel horizal
lourer:right and left

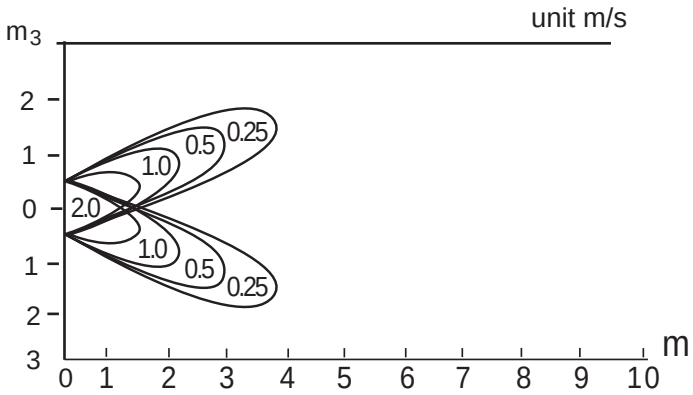


Fig 3
top view
flow control panel horizal
lourer:center

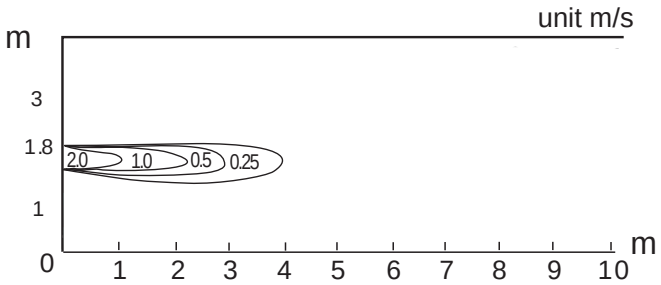
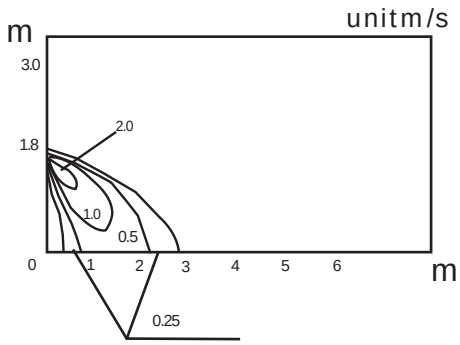


Fig 4
top view
flow control panel vertical
lourer:center



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

INSTALLATION MANUAL

Installation Manual of Room Air Conditioner

- Read this manual before installation.
- Explain sufficiently the operating means to the user according to this manual.

Necessary Tools for Installation

1. Driver
2. Hacksaw
3. Hole core drill
4. Hexagon wrench (5mm)
5. Spanner (14,17,19 and 24mm)
6. Torque wrench (17mm,22mm,24mm)
7. Pipe cutter
8. Flaring tool
9. Knife
10. Nipper
11. Gas leakage detector or soap-and-water solution
12. Measuring tape
13. Reamer
14. Refrigerant oil

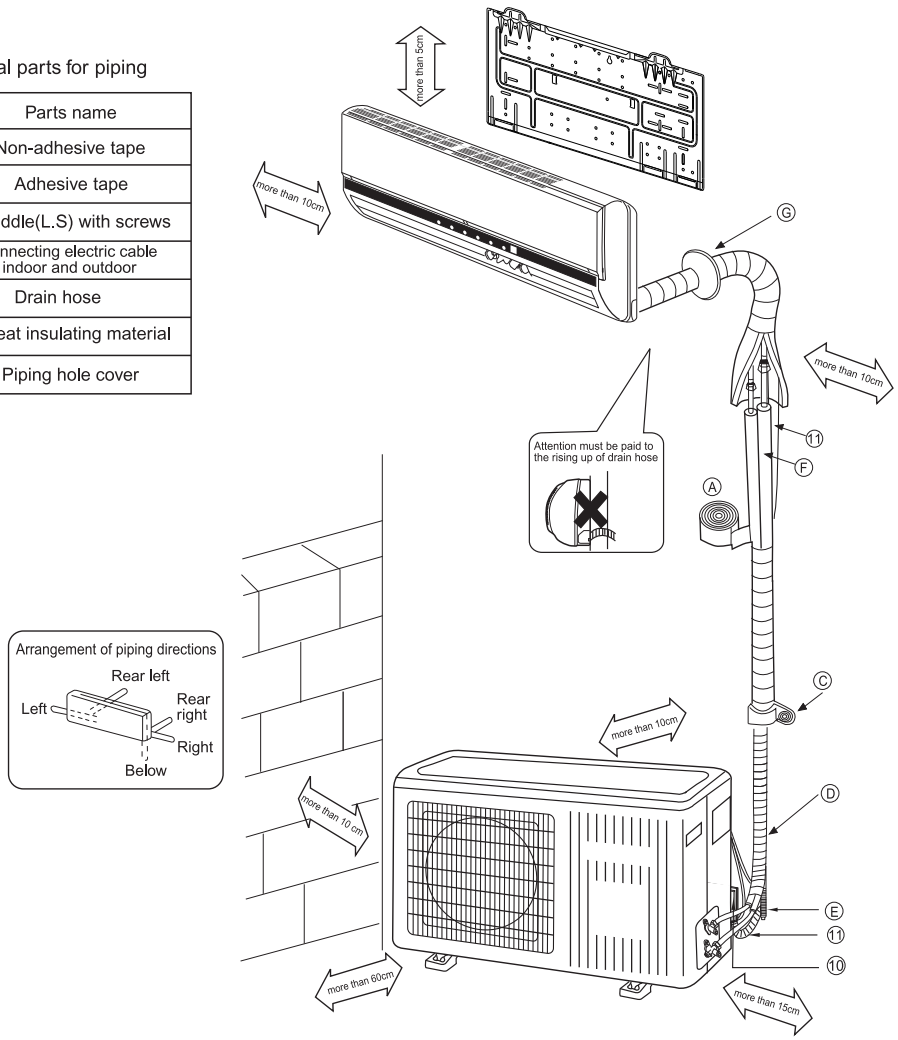
Accessory parts

No.	Accessory parts	Number of articles
①	Remote controller	1
②	R-03 dry battery	2
③	Mounting plate	1
④	Drain hose	1
⑤	ϕ4X50 Steel nail,cement	6
⑥	ϕ 4X25 Screw / Plastic cap	4
⑦	Screw	6
⑧	Cover	1
⑨	Cushion	4
⑩	Change for fresh air box	1
⑪	Change for fresh air tube(suit)	1
⑫	Outlet pipe web	1
⑬	Outlet joint	1
⑭	Connecting cable (suit)	1

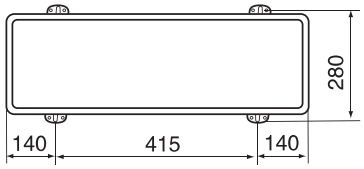
Drawing for the installation of indoor and outdoor units

Optional parts for piping

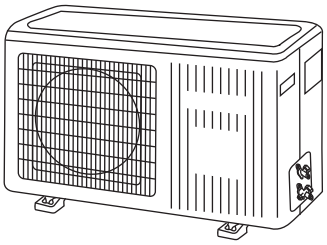
Mark	Parts name
Ⓐ	Non-adhesive tape
Ⓑ	Adhesive tape
Ⓒ	Saddle(L.S) with screws
Ⓓ	Connecting electric cable for indoor and outdoor
Ⓔ	Drain hose
Ⓕ	Heat insulating material
Ⓖ	Piping hole cover



※ The distance between the indoor unit and the floor should be more than 2m.



Floor fixing dimensions
of the outdoor unit
(Unit: mm)



Fixing of outdoor unit

- Fix the unit to concrete or block with bolts (ϕ10mm) and nuts firmly and horizontally.
- When fitting the unit to wall surface, roof or rooftop, fix a supporter surely with nails or wires in consideration of earthquake and strong wind.
- If vibration may affect the house, fix the unit by attaching a vibration-proof mat.

Selection of Installation Place

Indoor Unit

- 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. (Refer to drawings).
- 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.

Outdoor Unit

- Place, which is less affected by rain or direct sunlight and is sufficiently ventilated.
- Place, possible to bear the unit, where vibration and noise are not increased.
- Place, where discharged wind and noise do not cause a nuisance to the neighbors.
- Place, where a distance marked ⇔ is available as illustrated in the above figure.

Power Source

- Before inserting power plug into receptacle, check the voltage without fail. The power source is the same as the corresponded name plate.
- 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.

Selection of Pipe

	07,09	12
Liquid pipe (ϕ)	6.35mm(1/4")x0.8mm	6.35mm(1/4")x0.8mm
Gas pipe (ϕ)	9.52mm(3/8")x0.8mm	12.7mm(1/2")x0.8mm

Indoor Unit

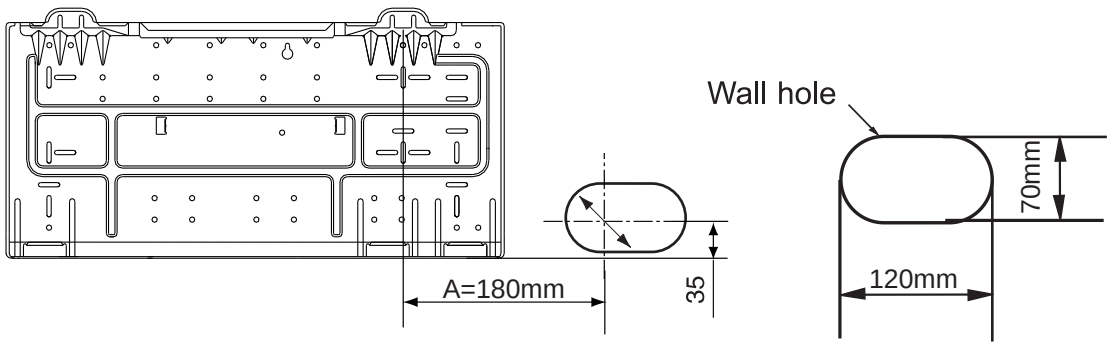
1 Fitting of the Mounting Plate and Positioning of the Wall Hole

When the mounting plate is first fixed

1 Carry out, based on the neighboring pillars or lintels, a proper leveling for the plate to be fixed against the wall, then temporarily fasten the plate with one steel nail.

2 Make sure once more the proper level of the plate, by hanging a thread with a weight from the central top of the plate, then fasten securely the plate with the attachment steel nail.

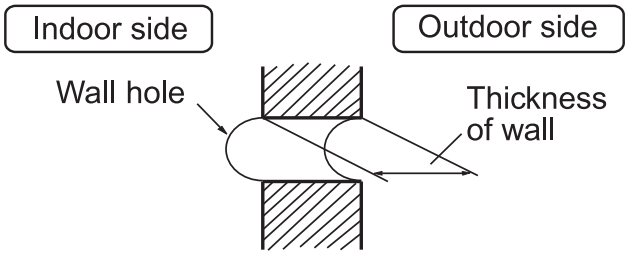
3 Find the wall hole location A using a measuring tape.



Find the level position

2 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.



(Section of wall hole) Ⓖ Piping hole pipe

Indoor Unit

3 Installation of the Indoor Unit

Drawing of pipe

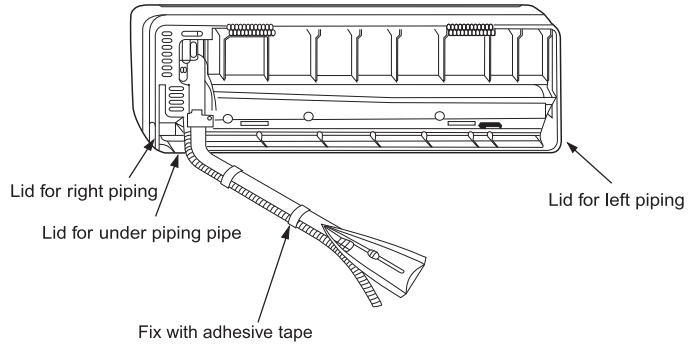
[Rear piping]

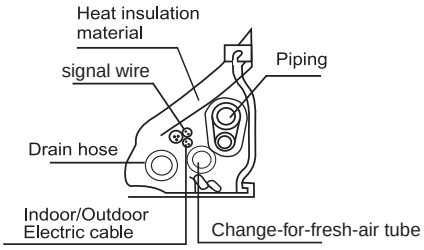
- Draw pipes and the drain hose, then fasten them with the adhesive tape.

[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.





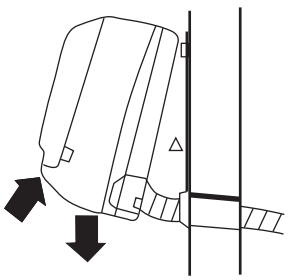
- Indoor/outdoor electric cable and drain hose must be bound with refrigerant piping by protecting tape.

[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

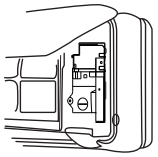
- Hang surely the unit body onto the upper notches of the mounting plate. Move the body from side to side toverify its secure fixing.
- In order to fix the body onto the mounting plate,hold up the body aslant from the underside and then put it down perpendicularly.



4 Connecting the indoor/outdoor Electric Cable

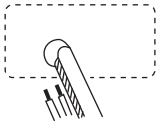
Removing the wiring cover

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



Indoor Unit

When connecting the cable after installing the indoor unit



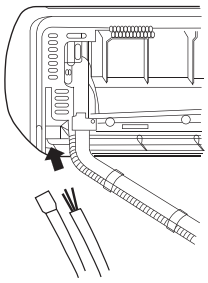
1. Insert from outside the room cable into left side of the wall hole, in which the pipe has already existed.
2. Pull out the cable on the front side, and connect the cable making a loop.

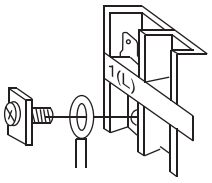
When connecting the cable before installing the indoor unit

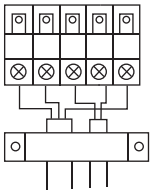
- Insert the cable from the back side of the unit, then pull it out on the front side.
- Loosen the screws and insert the cable ends fully into terminal block, then tighten the screws.
- Pull the cable slightly to make sure the cables have been properly inserted and tightened.
- After the cable connection,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

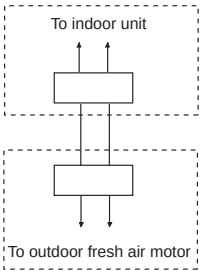
Note: When connecting the cable, confirm the terminal number of indoor and outdoor units carefully. If wiring is not correct, proper operation can not be carried out and will cause defect.

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/250V.
3. The wiring method should be in line with the local wiring standard.
4. After installation, the power plug should be easily reached.

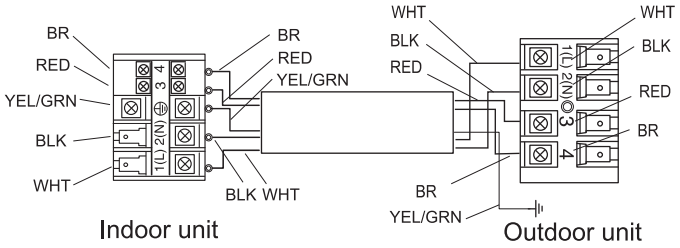




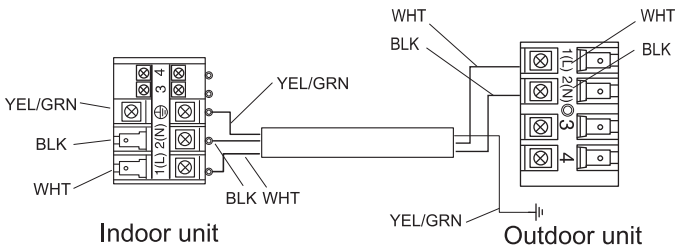




The connecting method of fresh air box signal wire



HEATING UINT



COOLING ONLY UINT

5 Installation instruction on the indoor part of the change -for -fresh -air device

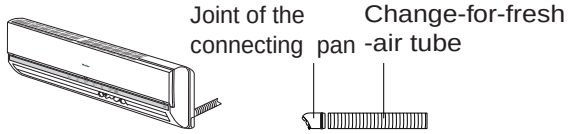
Two ways for the installation of indoor part, as illustrated:

Way One:

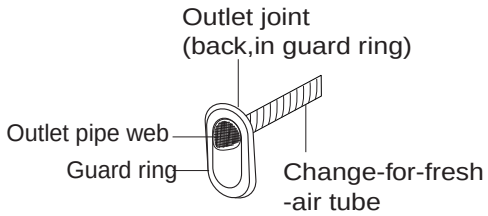
Insert the joint of water collecting pan into the change-for-fresh-air tube, then connect the other end of joint with mesh enclosure of water collecting pan.

Way Two:

In the guard ring, connect the change-for-fresh-air tube an outlet pipe web through outlet joint.



Installation way One



Installation way Two

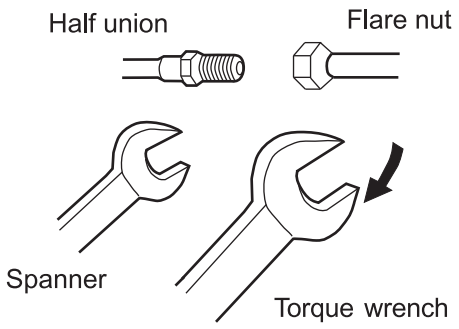
Outdoor Unit

1 Installation of Outdoor Unit

Install according to **Drawing for the installation of indoor and outdoor units**

2 Connection of Pipes

- Apply refrigerant oil on half union and flare nut.
- To bend a pipe, give the roundness as large as possible not to crush the pipe.
- Connecting the pipe of gas side first makes working easier.



Forced fastening without careful centering may damage the threads and cause a leakage of gas.

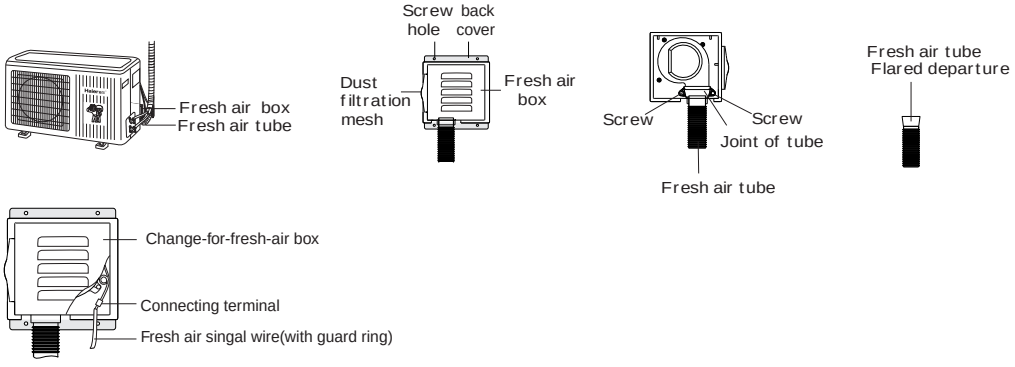
Pipe Diameter (ϕ)	Fastening Torque
Liquid Side 6.35mm(1/4")	18N·m
Gas Side 9.52mm(3/8")	42N.m
Gas Side 12.7mm(1/ 2")	50N·m

3 Connection

- Use the same method on indoor unit. Loosen the screws on terminal block and insert the plugs fully into terminal block, then tighten the screws.
- Insert the cable according to terminal number in the same manner as the indoor unit.
- If wiring is not correct, proper operation can not be carried out and controller may be damaged.
- Fix the cable with a clamp.

4 Installation instruction on the outdoor part of the change -for- fresh- air device

1 Remove the four screws of change-for-fresh-air box from the back cover
2 Use six screws to fix the change new wind box onto the designated position on the outdoor unit
3 Remove two screws of the pipe junction of the change new wind box, then insert the flared departure of the change for fresh air tube into the pipe junction and then fix with the screws.
4 Use four screws to fix the change-for-fresh-air box onto the back cover, as illustrated:



Note:After wiring, the connecting terminals of outdoor unit and change-fresh-air as well as the wiring sheath should be placed in the change-for-fresh-air box against the rain.

5 Purging Method:

Push the air out of the indoor unit and piping as followes:

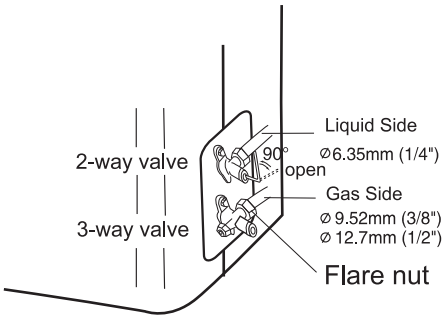
(1) Remove the valve cap on 2-way valve in outdooor unit.

(2) Loosen by 1/2 turn the flare nut of gas pipe, which is connected to 3-way valve.

(3) Loosen 2-way valve by 90° using hexagon wrench, and after approx. 6 sec tighten it up. Gas comes out through flare nut on wide pipe. If no gas is discharged, tighten flare nut with specified torque.

(4) Open 2-way and 3-way valves using specified torque.

(5) Tighten the caps on the valves with specified torque.



	Tighten torque N.m
Valve rod	7-9
Valve cap	20-25

- When connecting pipe exceeds 5 meters, 16g refrigerant shall be added per exceeding meter. Charge according to the following list.

Piping length	5m	7m	10m
Additional amount	No need	32g	80g

- Note: When extending pipng, air inside piping shall be removed by using external refrigerant gas, then discharge excess refrigerant by air purging.

  Brand new outdoor unit is charged 50g more refrigerant than regulated weight. Only for first installation, this extra 50g can be used to purge air in the pipes.

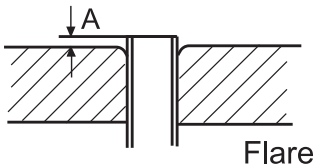
★ 1 During this procedure, 50g refrigerant will be discharged in piping. (This must be strictly controlled within 90° and 6 sec.)

1 Power Source Installation

- The power source must be exclusively used for air conditioner. (Over 10A)
- 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.

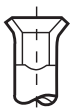
2 Cutting and Flaring Work of Piping

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



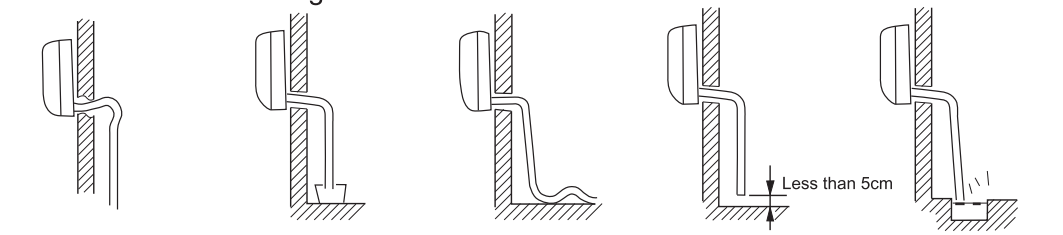
Flare tooling die

	Pipe diameter ϕ	Size A (mm)
Liquid side	6.35mm(1/4")	0.8 ~1.5
Gas side	9.52mm(3/8")	1.0~1.8
Gas side	12.7mm(1/2")	1.2 ~2.0

Correct	Incorrect				
					
	Lean	Damage of flare	Crack	Partial	Too outside

3 On Drainage

- Please install the drain hose so as to be downward slope without fail.
- Please don´t do the drainage as shown below.



It becomes high midway. | The end is immersed in water. | It waves. | The gap with the ground is too small. | There is the bad smell from a ditch.

- 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.

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?