DAITSU

Split Type Air Conditioner

ENGINEERING DATA

Models:

HSU-09RA03/R1(B) HSU-07RA03/R1(B)

Contents

1.Description of product model coding and series introduction..... 1
2.Specifications 4
3.Curves of performance 6
4.Description,dimension and function of main components and accessories 8
5.Knock-down drawings 11
6.Brief introduction to electrical contreol functions 20
7.Circuit diagram & wiring diagram.....31
8.Abnormity diagnose 36
9.Trouble shooting 39
10. Refrigerating cycle diagram 41
11.Noise level test chart and air velocity distribution 43
12.Installation and accessory parts 46

No.001054

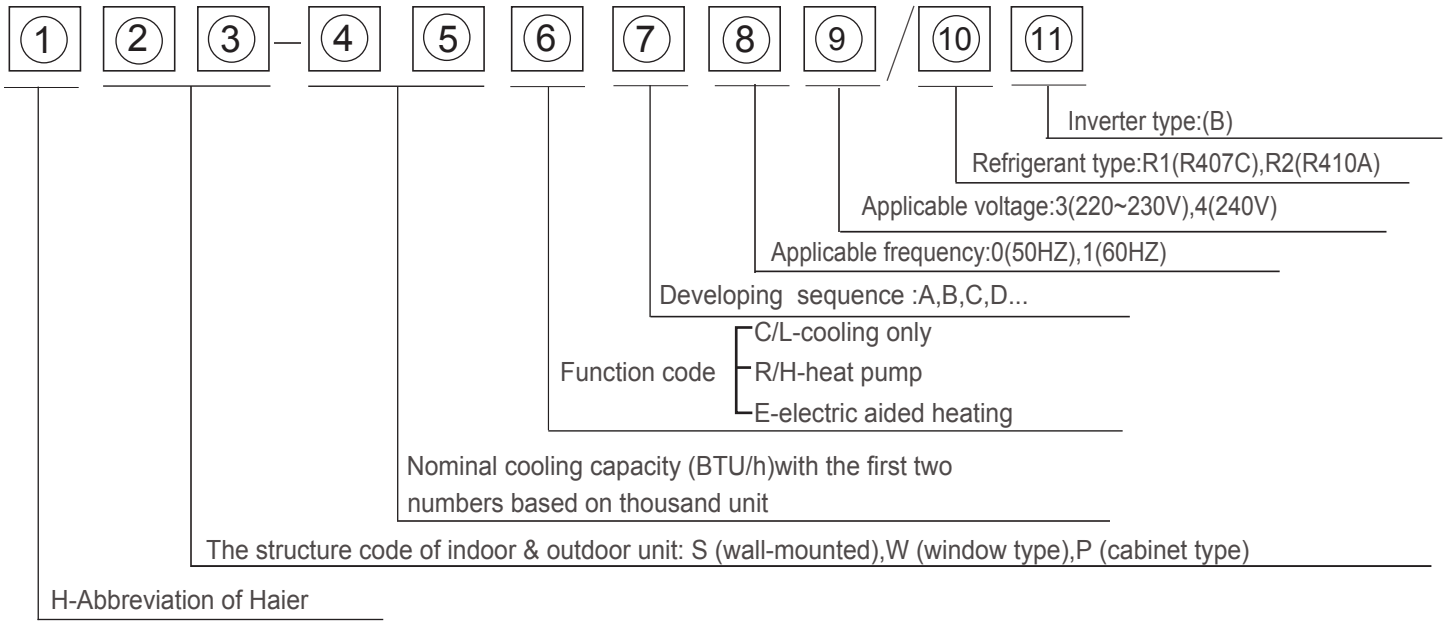
DESCRIPTION OF

PRODUCT MODEL CODING

& SERIES INTRODUCTION

Introductory Remarks

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



Examples:

HSU-09RA03/R1(B),It represents wall-mounted split type heat pump air conditioner.The cooling capacity is 9000BTU/h,and the power supply is 220-230V/50Hz,”R” means the heating pump, ”A” means the developing sequence,"R1" means the refrigerant is R407C,and "(B)" means the inverter type.

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	20°C	no control	7°C	6°C
3	Norminal electrical heating	---	---	---	---

C.Series brief introduction

1.Protecting environment function
The air conditioners use R407C as their refrigerant that can make the value of the ODP and GWP decrease greatly .so the environment can be protected better.

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.

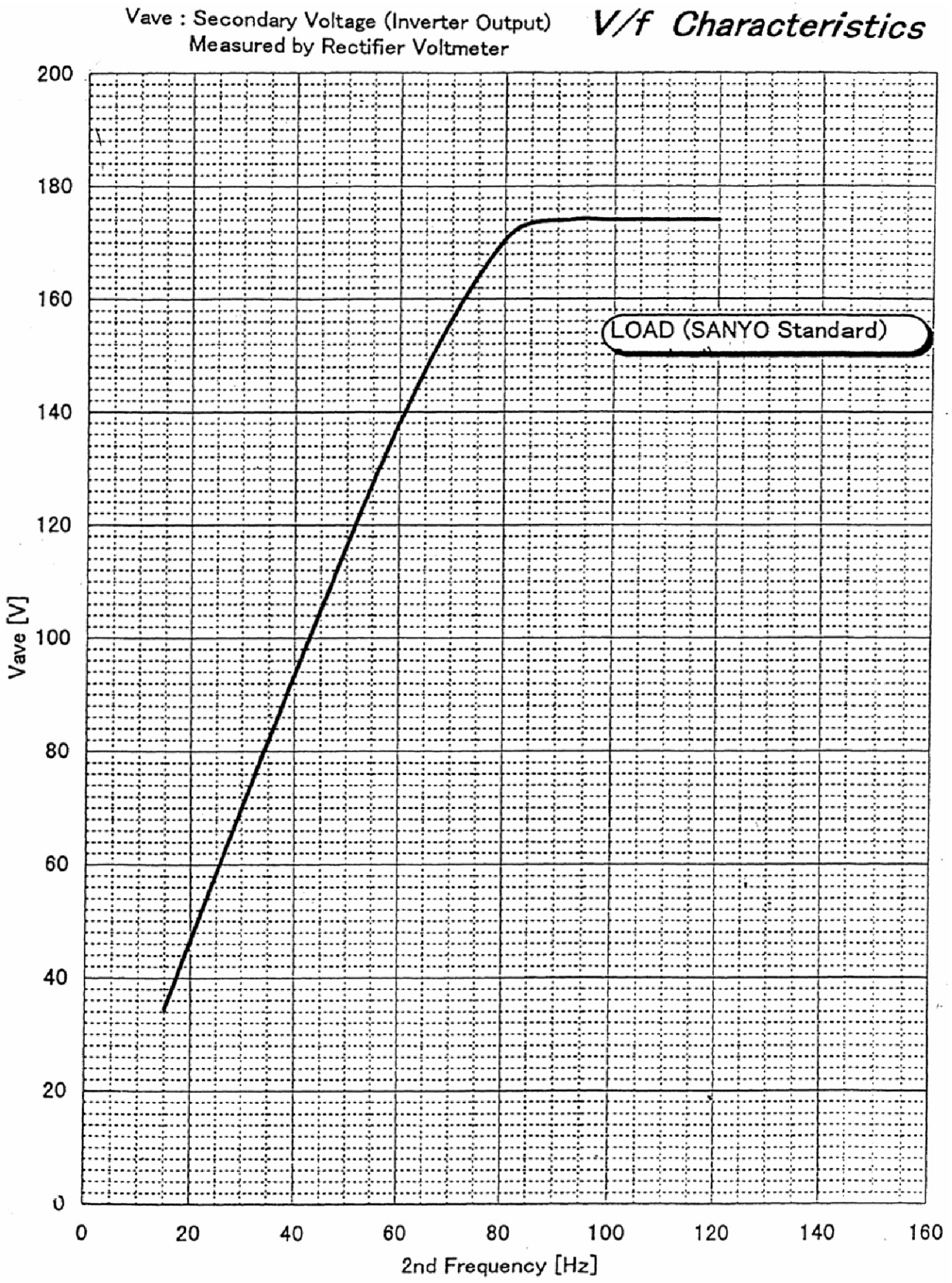
SPECIFICATIONS

Model: HSU-07RA03/R1(B)(AS072AGBHA,AU072ACBIA)
HSU-09RA03/R1(B)(AS092AGBAA,AU092ACBHA)

Cooling capacity(W)		2700(320-3500)	Heating capacity(W)		3200(500-4400)
Cooling coefficient(W/W)		2.41	Heating coefficient(W/W)		2.5
Cooling power input(W)		1120(250-1450)	Heating power input(W)		1280(300-1600)
Moiture removal(m^3/h)		$1.3X10^{-3}$	Frequency range(Hz)		50
Operating voltage range(V)		220-230~	Refrigerant type		R407C
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)		40/36/31	Outdoor unit noise(dB(A)) (cooling)		52
Indoor unit noise(dB(A)) (heating)		40/36/31	Outdoor unit noise(dB(A)) (heating)		52
Net dimensions(mm) (indoor unit)		760x182x285	Net dimensions(mm) (outdoor unit)		710x255X540
Packaging dimensions(mm) (indoor unit)		822x267x297	Packaging dimensions(mm) (outdoor unit)		817X358X620
Net/gross weight (kg) (indoor unit)		8.5/10.6	Net/gross weight (kg) (outdoor unit)		32/36
Max. mounting height difference(m)		5	Piling layers	indoor unit	8
				outdoor unit	4
Refrigerant charge(g) (R407C)		800	Current entering side (indoor/outdoor)		indoor
Frequency of filter cleaning		Once/2 weeks	Max. refrigerant charge (g)		880
Compressor model		C-1RB107H22AB	Compressor manufacturer		SANYO
Compressor oil charge(cc)		270±20(poe)	Compressor protector type		Internal
Max . length of connecting pipe(m)		7	Drain hose	length(mm)	2000
				diametre(mm)	16
Cap. tube type muffle model:		TP_2Y	Type of tube of evaporator and condenser		Internal thread
Fan speed(H/M/L)(r/min) (indoor unit)	cool	1300/1110/920	Size of tube of evaporator and condenser(mm)		ϕ7/ϕ9.52
	heat	1300/1110/920			
Fan speed(r/min) (outdoor unit)		760	Appearance features of indoor unit		plastic
Cut-off vavle(inch)	two-way	1/4	Appearance features of outdoor unit		plastic
	three-way	3/8			
Max. operating pressure at warm side(Mpa)		2.65	Max. operating pressure at cool side(Mpa)		2.65

CURVES OF PERFORMANCE

% **Compressor curves of performance**



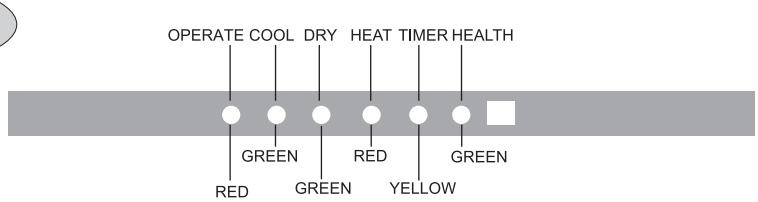
DESCRIPTION,DIMENSION AND FUNCTION OF MAIN COMPONENTS AND ACCESSORIES

8

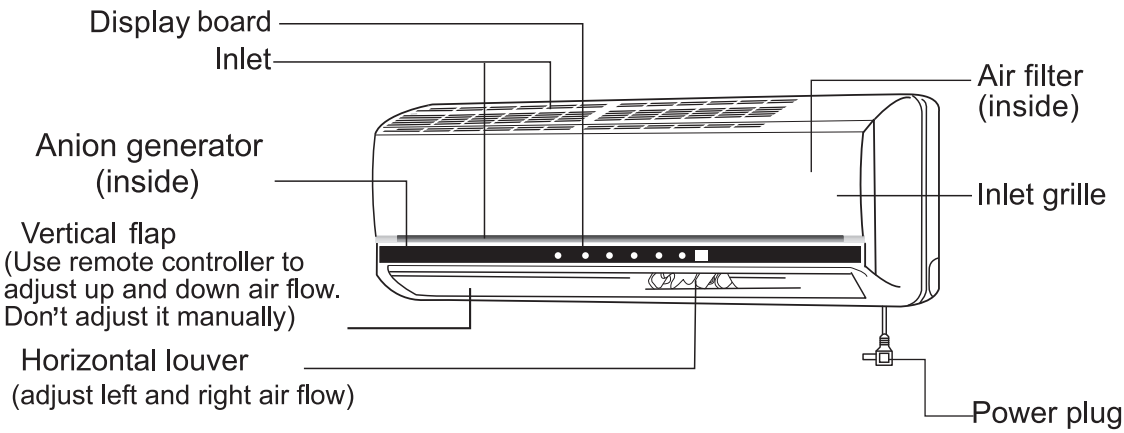
Parts and Functions

Indoor unit

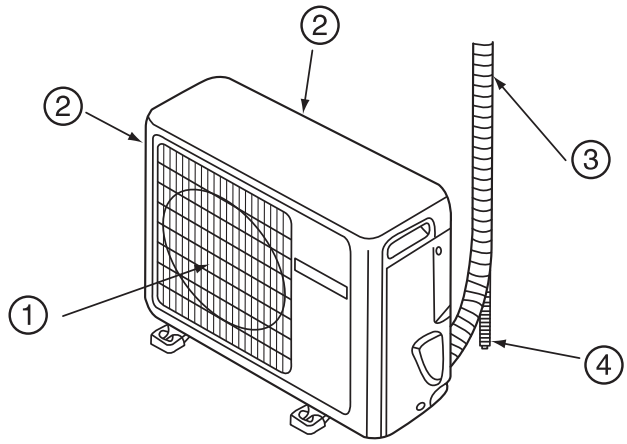
Display board



The conversion of pilot light's colors will be displayed as the figure under different operation models.



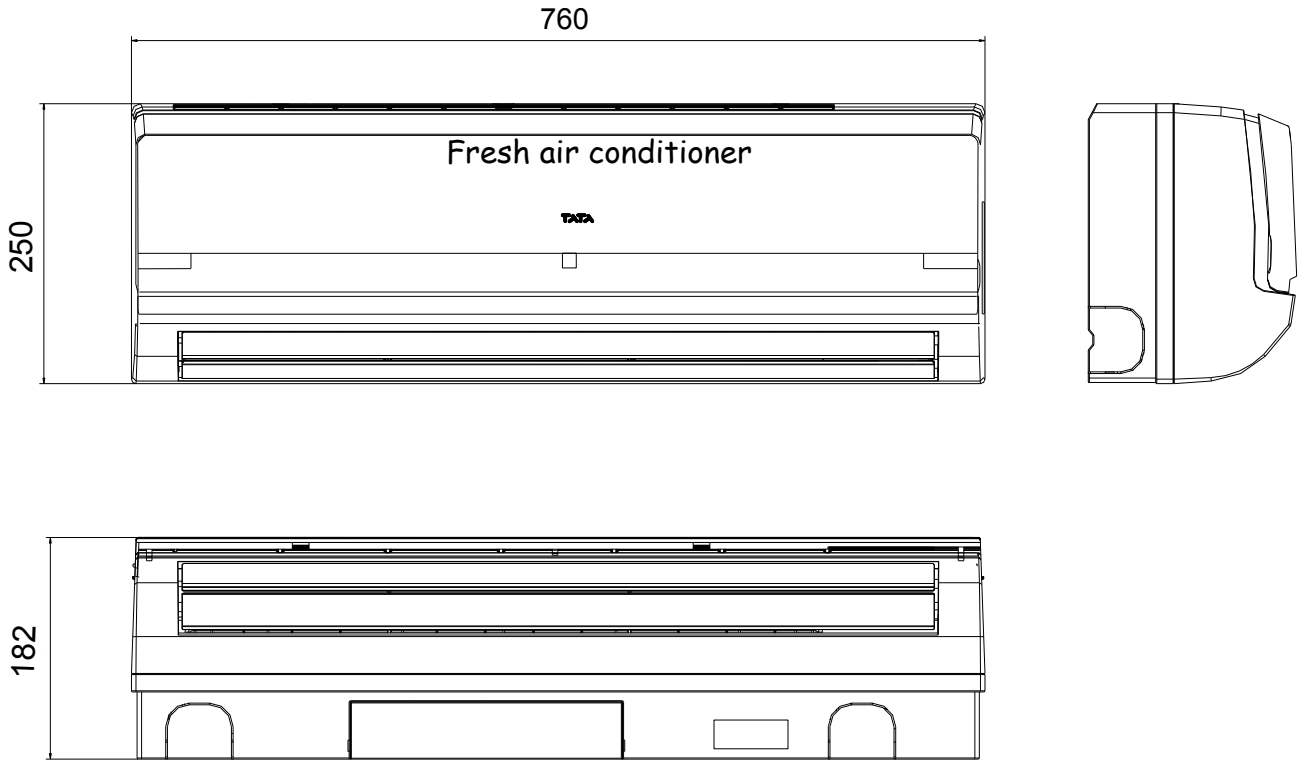
Outdoor unit



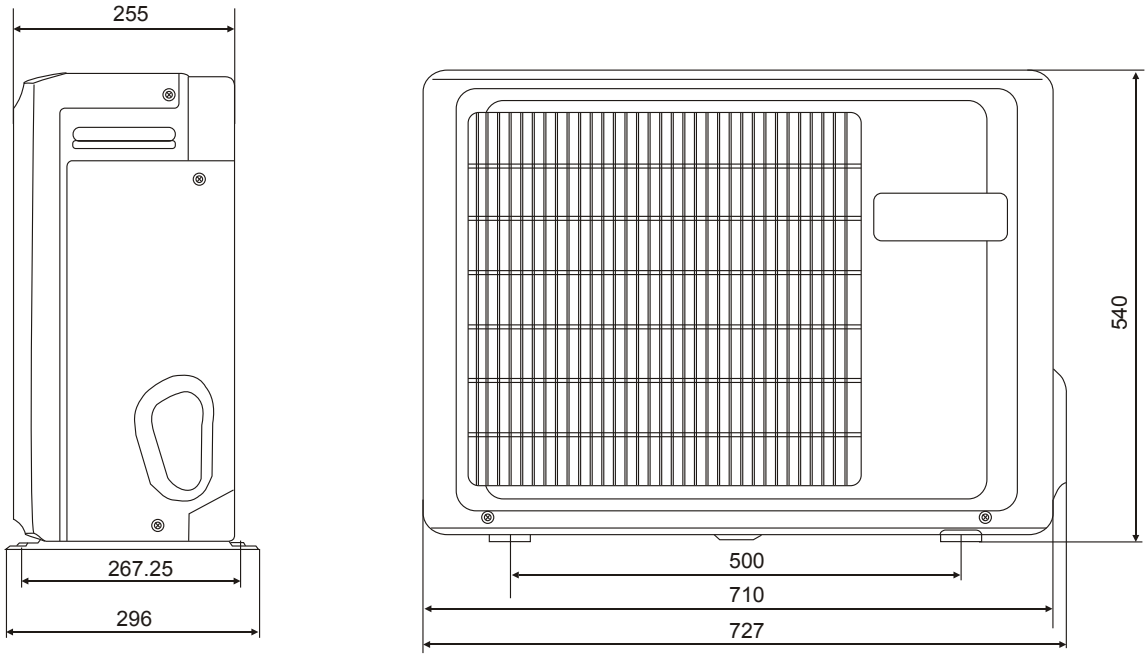
HSU-07RA03/R1(B)
HSU-09RA03/R1(B)

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

Net dimensions for indoor unit HSU-07RA03/R1(B) HSU-09RA03/R1(B)

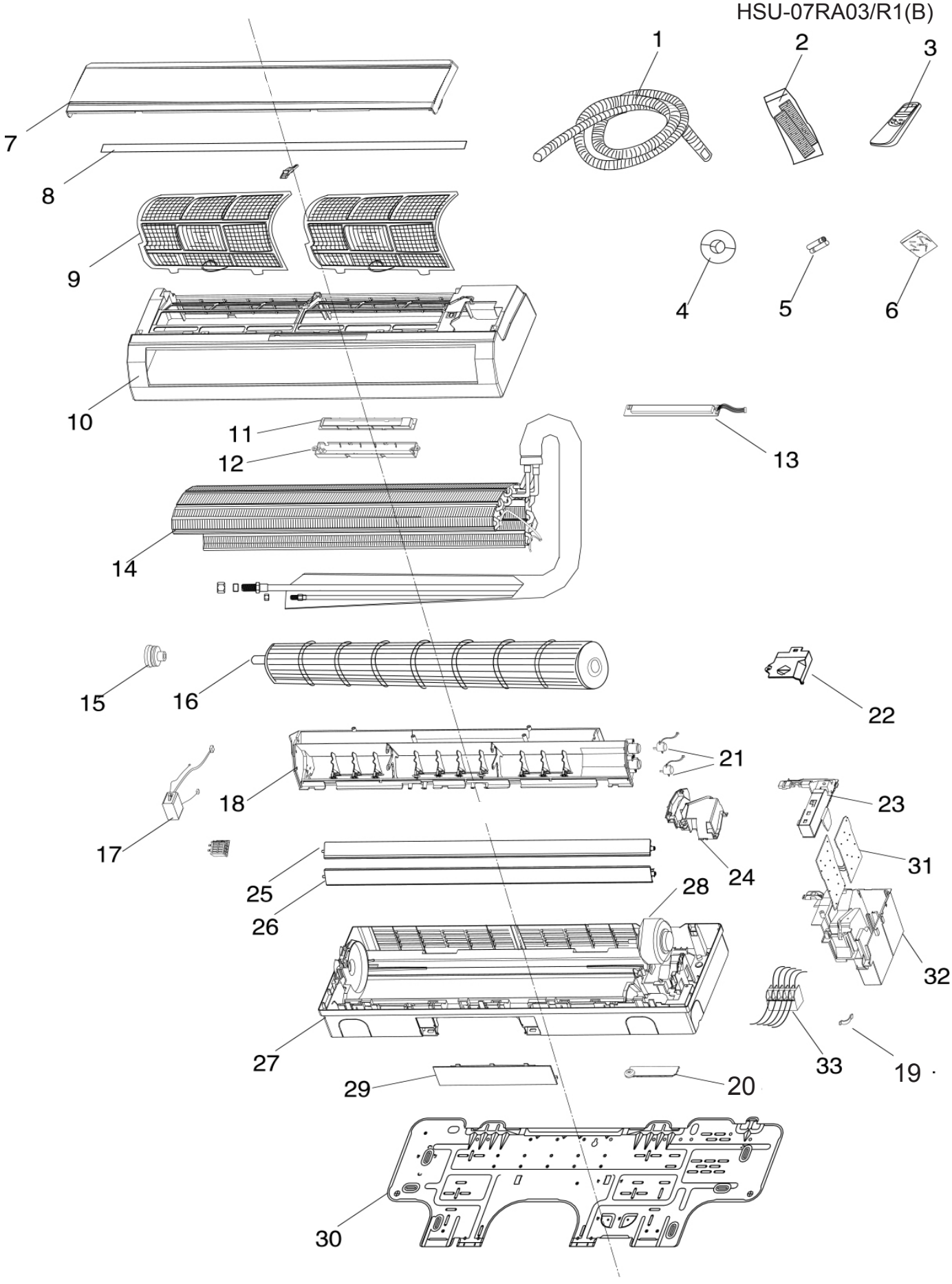


Net dimensions for outdoor unit:



KNOCK-DOWN DRAWINGS

HSU-07RA03/R1(B)



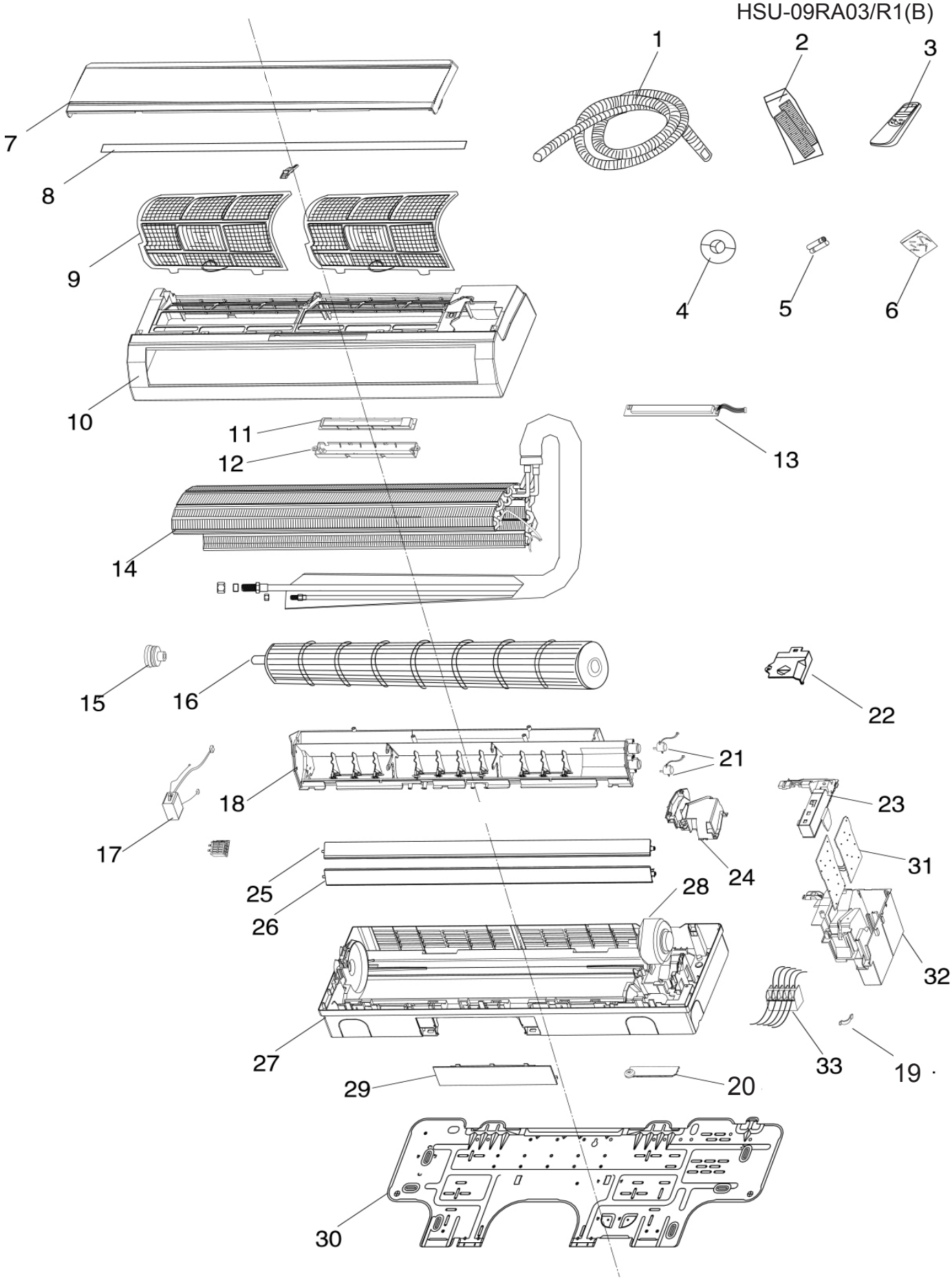
Model: HSU-07RA03/R1(B)

No. in exploded view.	Name of part	Specialized code	QTY.
1	Drain hose	001A1434039	1
2	Air purifying	0010803981	1
3	Remote controller	0010403015	1
4	Guarding ring	001A1433307	1
5	Battery	001A4600001	2
6	Screw assembly	0010600115	1
7	Inlet grille	0010202789D	1
8	Decorate panel	0010203390	1
9	Air filter	0010201841	2
10	Front panel	0010202788	1
11	Display panel fixation 1	0010202643	1
12	Display panel fixation 2	0010201857	1
13	Display panel	0010403014	1
14	Evaporator assy.	0010704261	1
15	Bearing	0010801543	1
16	Cross flow fan	0010202133	1
17	Negative ion generator	0010401985	1
18	Drain pan assy.	0010802911	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	0010202791	1
26	Louver 2	0010202792	1
27	Frame assy.	0010802568	1
28	Fan motor	0010401823	1
29	Fix board	0010202793	1
30	Mounting plate	0010100916	1
31	PCB	0010401059	1
32	Electric box	0010201851	1
33	Terminal block	001A4000161	1

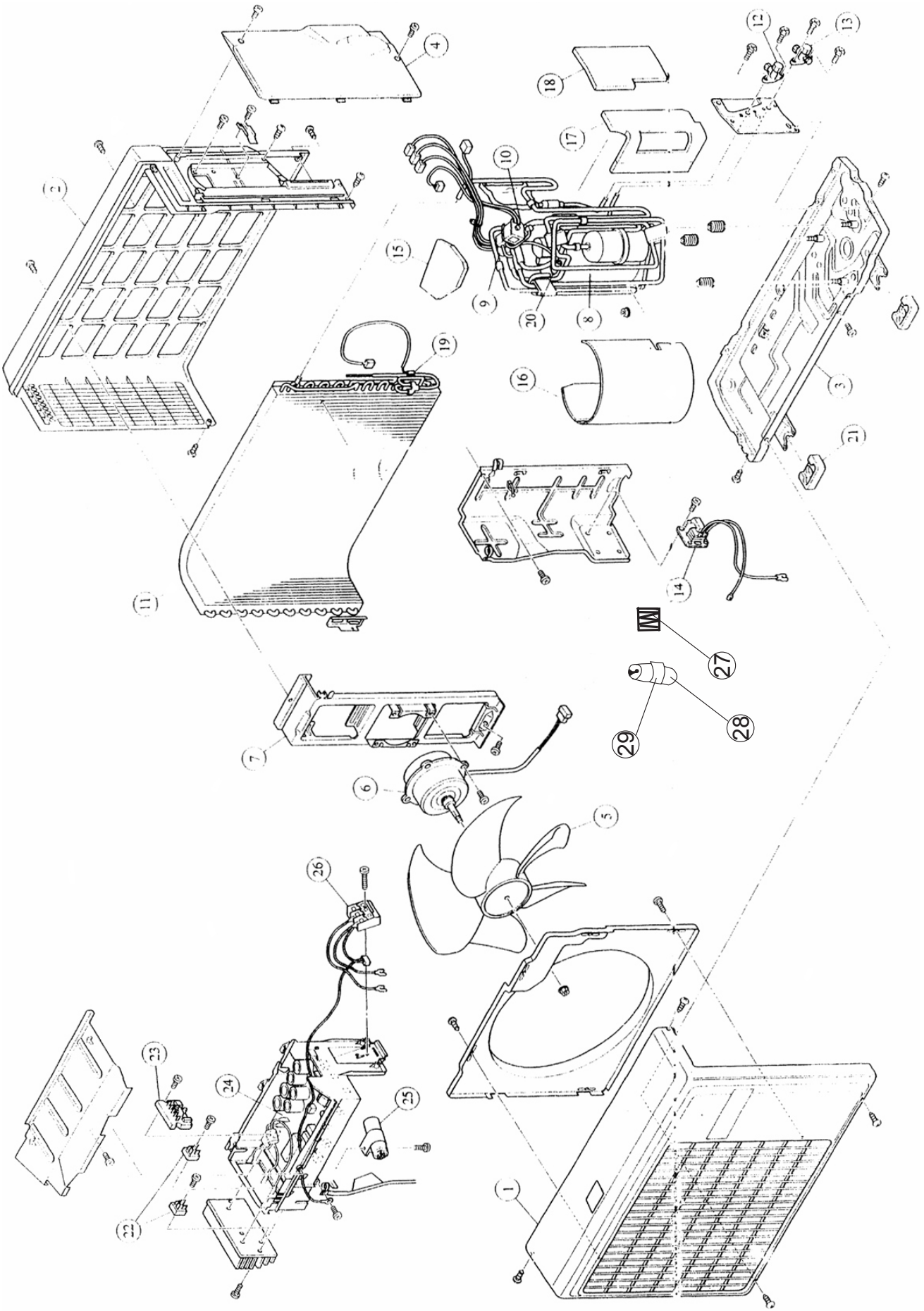
Model: HSU-07RA03/R1 （B）

NO. In exploded view	Name of part	Part specialized code	QTY.	remark
1	Front panel assy.	001A0100934	1	OUTDOOR UNIT
2	Rear case assy.	001A0100209	1	OUTDOOR UNIT
3	Bottom panel	0010801350	1	OUTDOOR UNIT
4	Right Side panel	001A1436314	1	OUTDOOR UNIT
5	Axial fan	001A2336029	1	OUTDOOR UNIT
6	Motor	0010402354	1	OUTDOOR UNIT
7	Motor support	001A1301227	1	OUTDOOR UNIT
8	Compressor	0010702239	1	OUTDOOR UNIT
9	4-way valve	0010700029	1	OUTDOOR UNIT
10	4-way valve winding	001A3800044	1	OUTDOOR UNIT
11	Heat exchanger	0010702810	1	OUTDOOR UNIT
12	Stop valve	0010701917	1	OUTDOOR UNIT
13	Stop valve	0010701918	1	OUTDOOR UNIT
14	Reactor	0010403156	1	OUTDOOR UNIT
15	Rubber mat	1762574A	1	OUTDOOR UNIT
16	Rubber mat	1762575A	1	OUTDOOR UNIT
17	Rubber mat	1762577A	1	OUTDOOR UNIT
18	Rubber mat	1762576A	1	OUTDOOR UNIT
19	thermistor	001A3900055	1	OUTDOOR UNIT
20	thermistor	001A3900056	1	OUTDOOR UNIT
21	Rubber mat	001A1752769	4	OUTDOOR UNIT
22	BRIDGE DIODE	001A3700010	1	OUTDOOR UNIT
23	Power module	0010401768	1	OUTDOOR UNIT
24	PCB(main controller)	0010401060	1	OUTDOOR UNIT
25	----------	----------	-------	----------
26	Terminal block	001A4000096	1	OUTDOOR UNIT
27	Rejector	0010403157	1	OUTDOOR UNIT
28	Rejector Capacitor	0010402549	1	OUTDOOR UNIT
29	Capacitor clip	001A5701051	1	OUTDOOR UNIT

HSU-09RA03/R1(B)



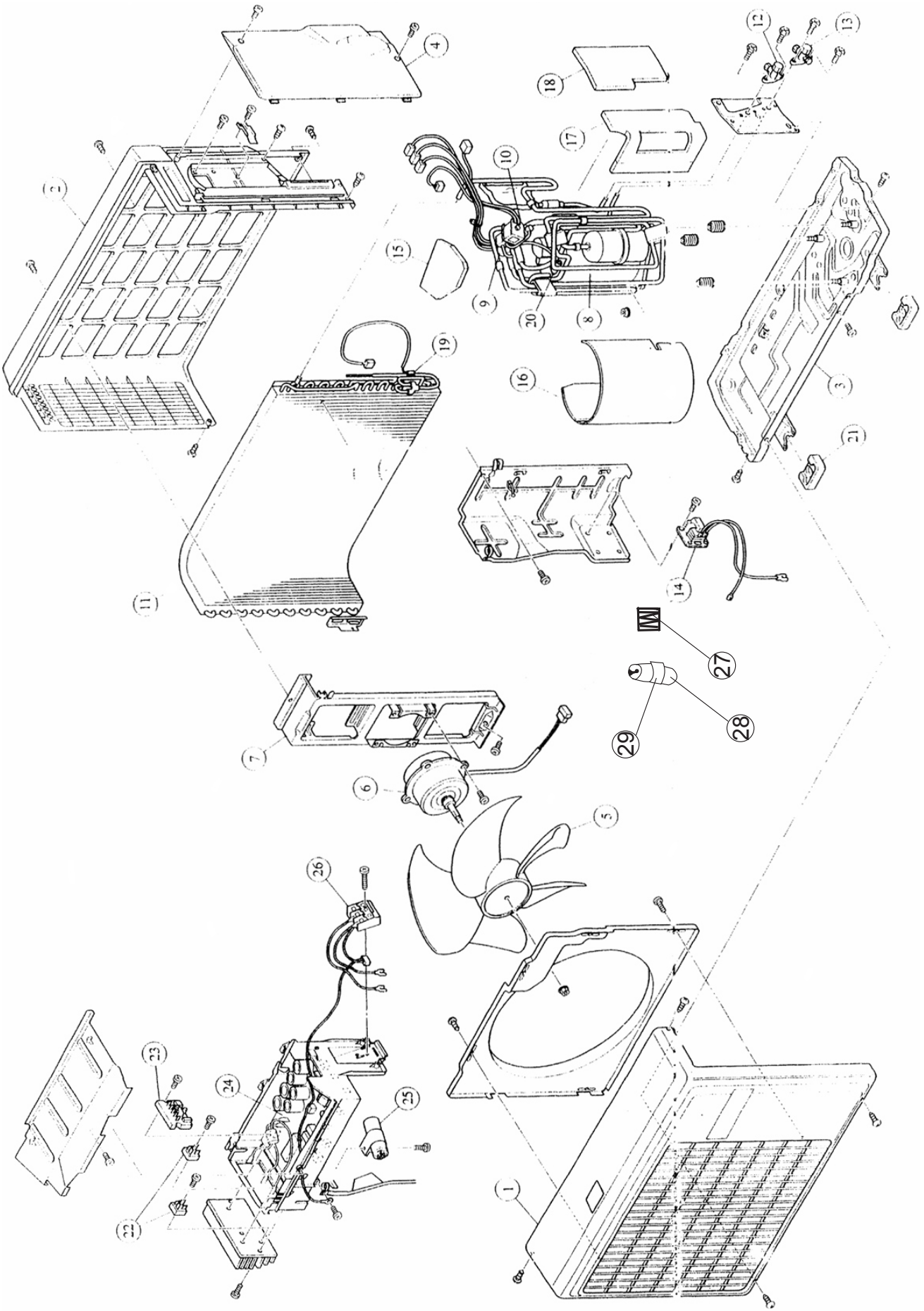
Knock-down drawings for outdoor unit:
MODELS: HSU-07RA03/R1(B)



Model: HSU-09RA03/R1(B)

No. in exploded view.	Name of part	Specialized code	QTY.
1	Drain hose	001A1434039	1
2	Air purifying	0010803981	1
3	Remote controller	0010403015	1
4	Guarding ring	001A1433307	1
5	Battery	001A4600001	2
6	Screw assembly	0010600115	1
7	Inlet grille	0010202789D	1
8	Decorate panel	0010203390	1
9	Air filter	0010201841	2
10	Front panel	0010202788	1
11	Display panel fixation 1	0010202643	1
12	Display panel fixation 2	0010201857	1
13	Display panel	0010403014	1
14	Evaporator assy.	0010704261	1
15	Bearing	0010801543	1
16	Cross flow fan	0010202133	1
17	Negative ion generator	0010401985	1
18	Drain pan assy.	0010802911	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	0010202791	1
26	Louver 2	0010202792	1
27	Frame assy.	0010802568	1
28	Fan motor	0010401823	1
29	Fix board	0010202793	1
30	Mounting plate	0010100916	1
31	PCB	0010401059	1
32	Electric box	0010201851	1
33	Terminal block	001A4000161	1

Knock-down drawings for outdoor unit:
MODELS: HSU-09RA03/R1(B)



Model: HSU-09RA03/R1 （B）

NO. In exploded view	Name of part	Part specialized code	QTY.	remark
1	Front panel assy.	001A0100934	1	OUTDOOR UNIT
2	Rear case assy.	001A0100209	1	OUTDOOR UNIT
3	Bottom panel	0010801350	1	OUTDOOR UNIT
4	Right Side panel	001A1436314	1	OUTDOOR UNIT
5	Axial fan	001A2336029	1	OUTDOOR UNIT
6	Motor	0010402354	1	OUTDOOR UNIT
7	Motor support	001A1301227	1	OUTDOOR UNIT
8	Compressor	0010702239	1	OUTDOOR UNIT
9	4-way valve	0010700029	1	OUTDOOR UNIT
10	4-way valve winding	001A3800044	1	OUTDOOR UNIT
11	Heat exchanger	0010702810	1	OUTDOOR UNIT
12	Stop valve	0010701917	1	OUTDOOR UNIT
13	Stop valve	0010701918	1	OUTDOOR UNIT
14	Reactor	0010403156	1	OUTDOOR UNIT
15	Rubber mat	1762574A	1	OUTDOOR UNIT
16	Rubber mat	1762575A	1	OUTDOOR UNIT
17	Rubber mat	1762577A	1	OUTDOOR UNIT
18	Rubber mat	1762576A	1	OUTDOOR UNIT
19	thermistor	001A3900055	1	OUTDOOR UNIT
20	thermistor	001A3900056	1	OUTDOOR UNIT
21	Rubber mat	001A1752769	4	OUTDOOR UNIT
22	BRIDGE DIODE	001A3700010	1	OUTDOOR UNIT
23	Power module	0010401768	1	OUTDOOR UNIT
24	PCB(main controller)	0010401060	1	OUTDOOR UNIT
25	----------	----------	-------	----------
26	Terminal block	001A4000096	1	OUTDOOR UNIT
27	Rejector	0010403157	1	OUTDOOR UNIT
28	Rejector Capacitor	0010402549	1	OUTDOOR UNIT
29	Capacitor clip	001A5701051	1	OUTDOOR UNIT

Brief introduction to electrical control functions

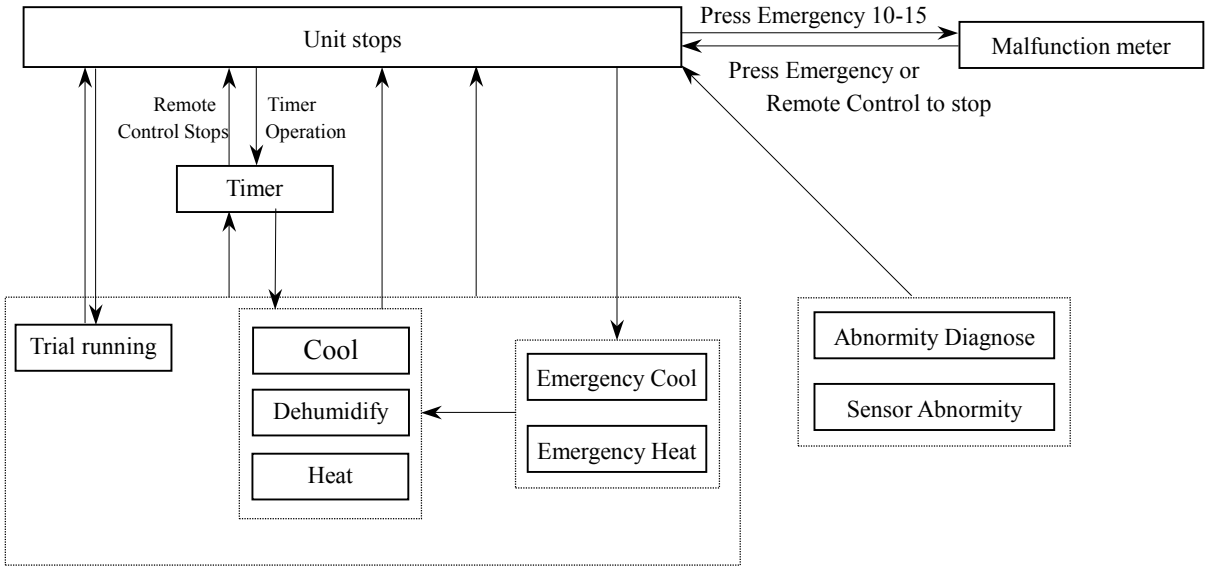
1. Introduction to electrical control function

Including brief introduction to air conditioners of series models and electrical control function as well as the technical information.

1.1 Brief introduction to electrical function

1.1.1 Status conversion

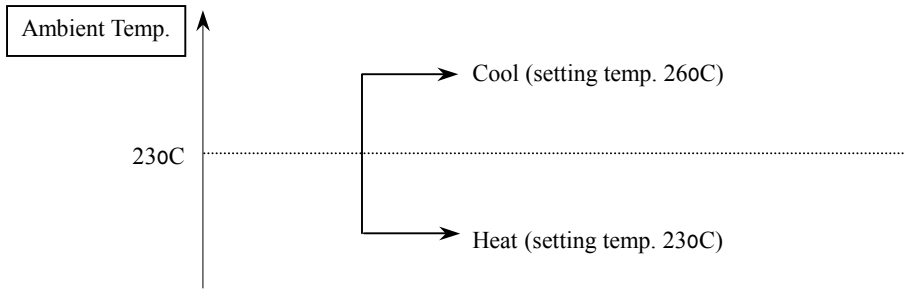
As the following figure:



1.1.2 Automatic function (automatic running function is selected after pressing emergency button 0-5s)

1.1.2.1 Status conversion under automatic running

As the following figure:



When running in the automatic emergency status, indoor unit can receive the remote controller's signal to convert status.

1.1.2.2 Air volume control under automatic running

Wind speed of indoor fan is automatically adjusted when automatic running, refer to air volume control under cool/heating running for details.

1.1.2.3 Frequency control for compressor under automatic running

It is the same as the frequency control for compressor under cool/heating running.

1.1.2 Cooling running

1.1.2.1 Air volume control under cooling running (Cool compensation temp. –0.33oC)

When setting manual control, wind speed will run accord to the setting value during compressor running, and run in the speed of setting value minus 60rpm during compressor stopping.

When setting automatic wind speed, its velocity is related to temperature difference ΔT (| ambient temp.－compensation temp.－setting temp.|). See the following table for details:

Temperature difference (oC)	ΔT> 4.3	4.3 ≥ΔT≥0.3	ΔT < 0.3
Wind speed	High	Middle	Low

1.1.2.2 Compressor control under cooling running

1.1.2.2.1 when running in normal status, control of compressor frequency:

Temperature difference (oC)	ΔT> 4.3	4.3 ≥ΔT≥1.3	1.3 ≥ΔT≥-1	ΔT < -1
Maximum frequency (Hz)	High frequency	Mid. frequency	Low frequency	Compressor stop

1.1.2.2.2 when running in cool mode, the setting air volume restricts frequency as follows:

Setting air volume	Maximum frequency (Hz)
Middle	90 Hz
Low	52 Hz

1.1.2.2.3 when running in cool mode, the outdoor ambient temperature restricts frequency as follows: (only applying to the machine models with outdoor ambient temperature sensor).

Outdoor ambient temp. (oC)	Maximum frequency (Hz)
ΔT≥26	No limitation
ΔT < 26	60 Hz

1.1.3 Dehumidification running

1.1.3.1 Air volume control under dehumidification running (Cool compensation temperature –0.33oC)

Except for the first running that fan runs in low speed during compressor stopping, fan stops during compressor OFF.

When setting manual control, wind speed runs according to the following table during compressor running:

Temperature difference (oC)	ΔT ≥ 0.3	ΔT < 0.3
Wind speed	Setting	Low

When setting automatic wind speed, its velocity is related to temperature difference (ambient temp.－setting temp.). See the following table for details:

Temperature difference (oC)	ΔT> 4.3	4.3 ≥ΔT≥0.3	ΔT < 0.3
Wind speed	High	Middle	Low

1.1.3.2 Compressor control under dehumidification running

1.1.3.2.1 When running in normal status, control of compressor frequency:

Temperature difference (oC)	ΔT> 4.3	4.3 ≥ΔT≥1.3	1.3 ≥ΔT≥-1	ΔT < -1
Maximum frequency (Hz)	High frequency	Mid. frequency	Low frequency	Compressor stop

1.1.3.2.2 When running in dehumidify mode, the setting air volume restricts frequency as follows:

Setting airflow	Maximum frequency (Hz)
Middle	90 Hz
Low	52 Hz

1.1.3.2.3 When running in dehumidify mode, the outdoor ambient temperature restricts frequency as follows: (only applying to the machine models with outdoor ambient temperature sensor).

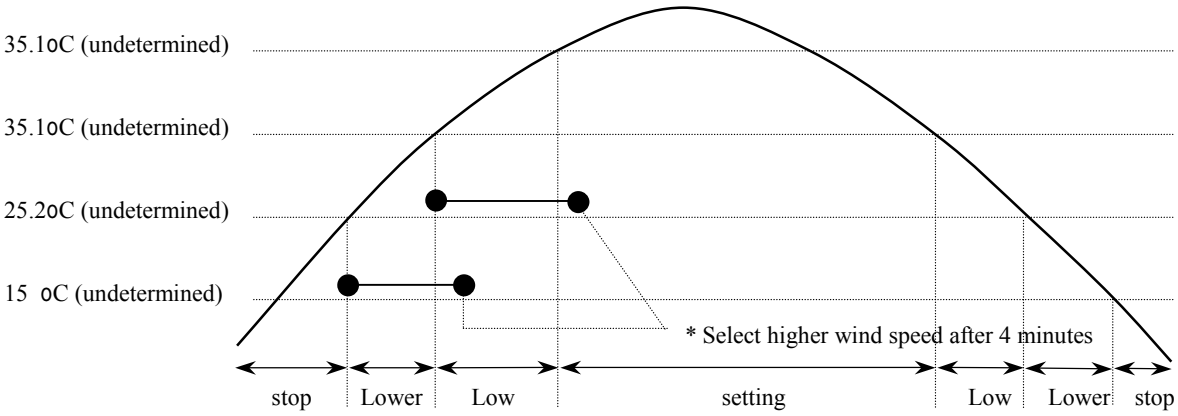
Outdoor ambient temp. (oC)	Maximum frequency (Hz)
ΔT≥26	No limitation
ΔT < 26	60 Hz

1.1.4 Heating running (heat compensation temp. 4.67oC)

1.1.4.1 Air volume control under heating running

When heating running starts, defrosting stops. When compressor restarts, it shall be warm start to prevent cold wind.

Thermal conversion temperature:



Note:

For different machine type, the "undetermined" parameters is also different, here only take this example for illustration.

" * " Indicating that if unit maintains in this wind speed for more than 4 minutes, it then select higher speed.

When setting automatic wind speed, its velocity is related to the temperature difference (including compensation temperature), see the following table for details:

Temperature difference (oC)	ΔT> 4.3	4.3 ≥ΔT≥0.3	ΔT < 0.3
Wind speed	High	Middle	Low

1.1.4.2 Compressor control under heating running

1.1.4.2.1 When running in normal status, control of compressor frequency:

Temperature difference (oC)	ΔT> 4.3	4.3 ≥ΔT≥1.3	1.3 ≥ΔT≥-1	ΔT < -1
Maximum frequency (Hz)	High frequency	Mid. frequency	Low frequency	Compressor stops

1.1.4.1.2 When running in dehumidify mode, the outdoor ambient temperature restricts frequency as follows: (only applying to the machine models with outdoor ambient temperature sensor).

Outdoor ambient temp. (oC)	Maximum frequency (Hz)
ΔT≥15	60 Hz
ΔT < 15	No limitation

1.1.5 Defrosting running

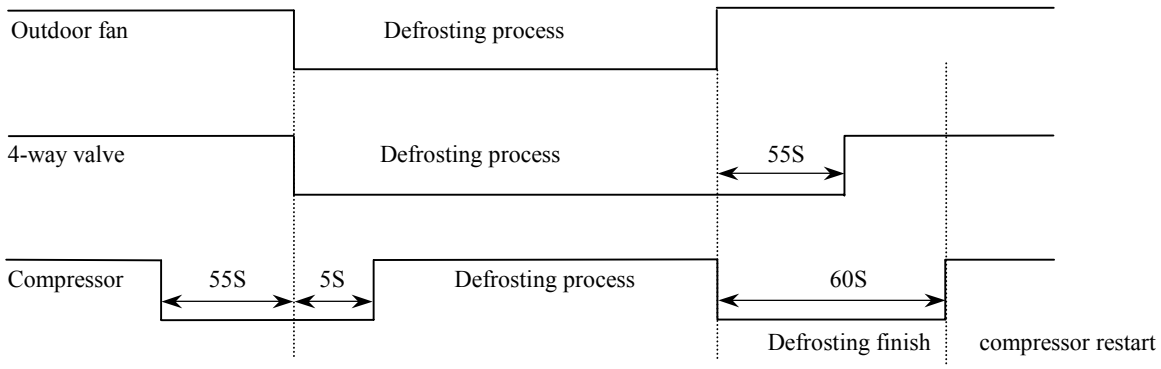
1.1.5.1 Defrosting process

When defrosting during heating operation, frequency is not controlled according to the temperature difference, and the maximum heating frequency is displayed.

Compressor does not stop in the process of defrosting.

Defrosting beginning conditions: Heat mode, the first power on operation or the lasting time to the previous defrosting finishing is more than 47 minutes, and the outdoor ambient temperature is continuously found to be less than -4oC (model: 26, 28) or -5oC (model: 32, 36, 40) during compressor running, and then defrosting starts.

Defrosting process as following illustration:



1.1.5.2 Air volume control during defrosting

20 seconds Low wind is firstly selected during defrosting, then indoor fan stops running.

1.1.6 Special function

1.1.6.1 Trial running

1.1.6.1.1 Beginning conditions

Pressing emergency button 5-10 seconds and buzzer sounding twice, then starts.

1.1.6.1.2 Running status

When in trial running, the display frequency of compressor is 58Hz, running mode is cool, compressor keeps on

running for 30 minutes and will not be restricted by low-load protection (refer to protection function).

1.1.6.1.3 Finishing conditions

Trial running will stop when remote control or emergency signal is received. After 30 minutes trial running, emergency running (automatic running) starts.

1.1.6.2 Abnormity diagnose

When displaying abnormity, using indicator to express the previous error.

When having no error code record, show nothing.

The abnormity indicating mode will automatically disappeared 30 seconds later.

The remote controller only receives stopping signal and abnormity record indicating mode will finish according to the stopping signal of the switch or the remote controller.

1.1.6.2.1 Beginning conditions

Pressing emergency switch 10-15 seconds, the buzzer sounds three times, and then start.

1.1.6.2.2 Running status

The indicator displays the previous error code (see the error code list).

1.1.6.2.3 Finishing condition

Finishing when remote control or emergency signal is received.

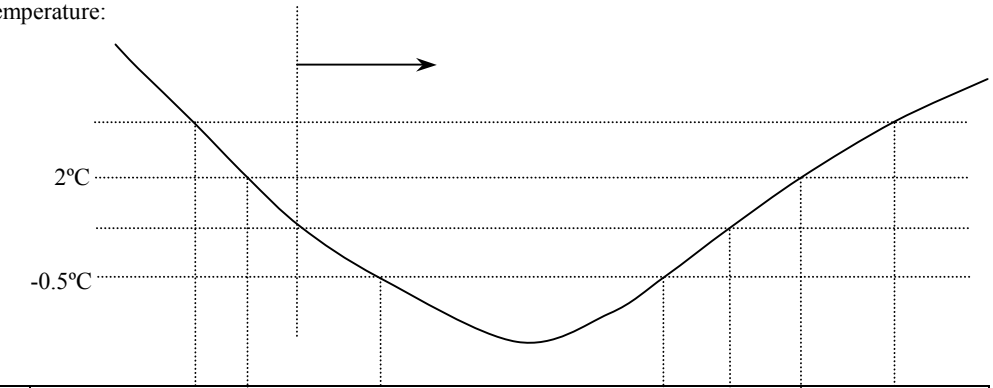
1.1.7 Protection function

1.1.7.1 Low-load protection

During cooling running, if the indoor coil-pipe does not evaporate thoroughly and the temperature is too low, the compressor must be stopped for protection to prevent it from damaging due to the system “liquid hitting”. See the following figure for action details:

Low-load protection control:

Thermal conversion temperature:



Display	A	Normal	Limit	Min. frequency	Stop	Min.	Limit	Normal	
frequency	B	Normal		Min. frequency	Stop	Min	Limit		Normal

A: HSU-12RA03/R1（B） B: HSU-09/07RA03/R1（B）

Indoor coil pipe temperature sensor type: R (25ºC)=10KΩ

During cooling-dehumidification running, low-load protection is carried out according to indoor coil-pipe

temperature; whereas, the displayed frequency is “58Hz”.

The minimum frequency is displayed when indoor coil- pipe temperature is lower than 2ºC and coil-pipe temperature is above -0.5ºC.

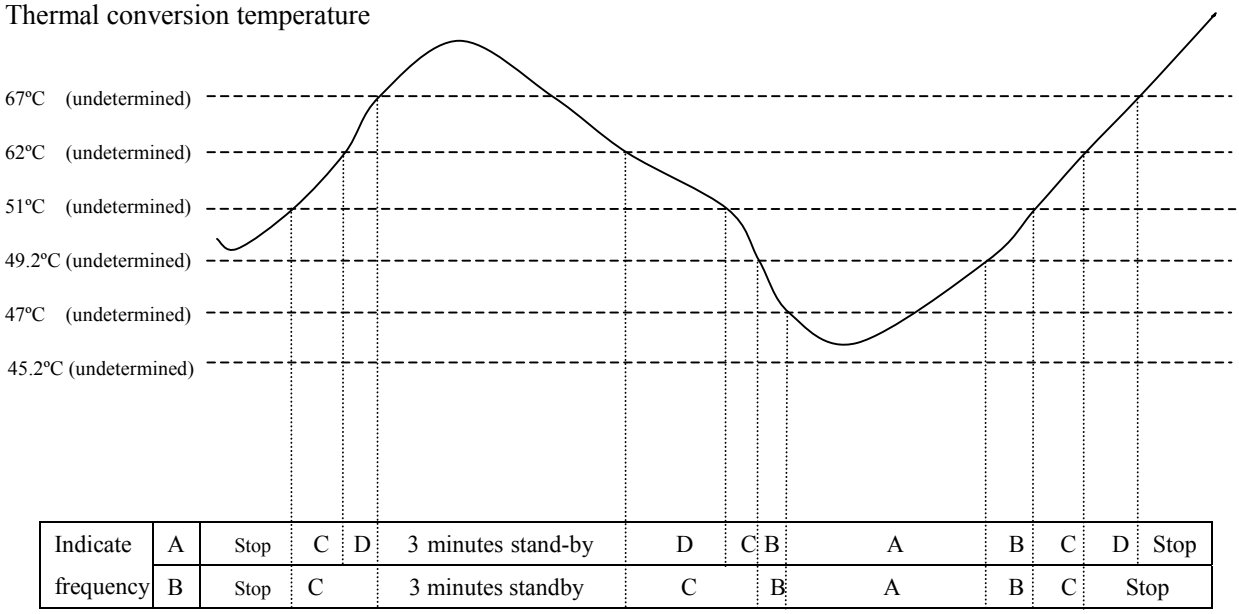
When thermal conversion temperature is lower than 0.5ºC, selecting 3 minutes stand-by status.

When indoor coil-pipe temperature is 2.1ºC, the compressor restarts.

During trial running, the low-load protection control can be overlooked.

1.1.7.2 High-load protection

During heating running, if the indoor coil-pipe temperature is too high, the compressor must be stopped for protection to prevent it from damaging due to the system overheating. See the following figure for details:



Indicate	A	Stop	C	D	3 minutes stand-by	D	C	B	A	B	C	D	Stop	
frequency	B	Stop	C		3 minutes standby	C		B	A	B	C	Stop		

A: KFR-36G/B (BPF) B:KFR-28G/BPA, 26BPF

	Parameters
Frequency A	80Hz
Frequency B	72Hz
Frequency C	50Hz
Frequency D	30Hz

When high-load protection is limited to act twice within 30 minutes, it is high-load protection alarm.

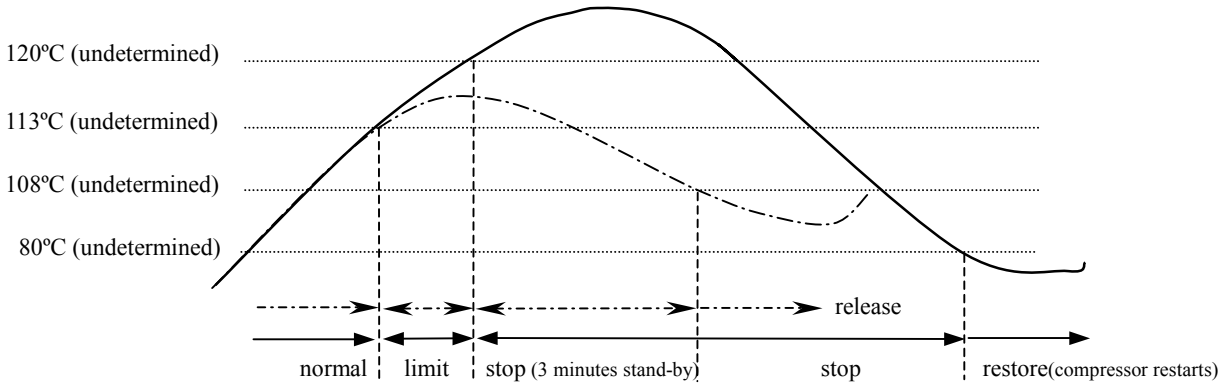
When indoor coil pipe temperature is lower than 45ºC, it comes back to normal control.

The frequency of high load protection is priority.

1.1.7.3 Compressor discharge temperature protection

When air conditioner is running, the discharge temperature need not to be detected within the first 10 minutes and starts to detect after 10 minutes. If the detected temperature is found too high, the compressor shall be protected from

damaging by decreasing frequency or stopping, see the following figure for details:



If the compressor continuously stops twice within 30 minutes, the compressor discharge temperature protection alarms.

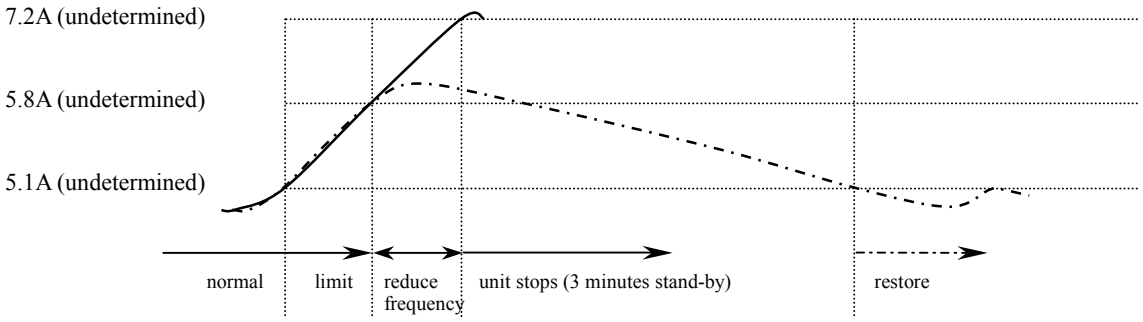
Note:

The undetermined data are for the example machine type, not for all types.

The dotted line indicates the descending curve of the discharge temperature after frequency is limited, and the real line indicates the continuous ascending curve of the discharge temperature after frequency is limited.

1.1.7.4 AC over-current protection

When compressor is running, overhigh current will appear if the system load is heavy. In order to reduce the current and protect the compressor, the frequency must be reduced or the compressor must be stopped, see the following for details:



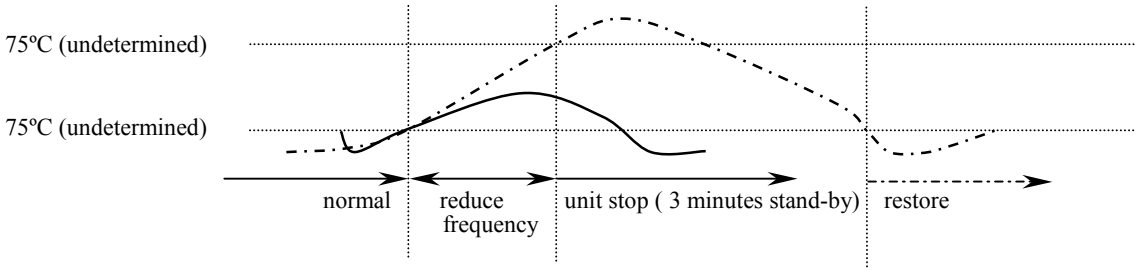
If continuously appears twice within 30 minutes, AC over-current protection alarms.

1.1.7.5 Over-current protection of the power module

When compressor is running, if “rotation obstacle” appears or the system pressure is too high, the power module will send “over-current signal of power module” to outdoor computer board to protect it from damaging and the unit stops and alarms.

1.1.7.6 Overhigh temperature protection of the outdoor computer board

If the temperature of the outdoor computer board is too high, the system will reduce the frequency or stop the compressor to protect other components on the computer board from damaging, see the following figure for details:



1.1.8 Abnormity confirmation alarm

1.1.8.1 Indoor ambient temperature sensor abnormal

When in running, temperature above 126ºC or below -31ºC is abnormal.
When leaving the above ranges, operation resets automatically.

1.1.8.2 Indoor coil pipe temperature sensor abnormal

When in running, temperature above 196ºC or below -53ºC is abnormal.
When leaving the above ranges, operation resets automatically.
If abnormity appears, the low-load protection shall be released.

1.1.8.3 High-load protection

Within 30 minutes after upper limit of high-load acting, the high-load protection will alarm if the upper limit of high-load acts once more.

1.1.8.4 Outdoor ambient temperature sensor abnormal

Displayed as thermistor abnormity mode respectively after outdoor unit received the abnormal error code signals of defrosting, discharge temperature, control board and outdoor thermistor.
Resetting operation automatically after outdoor unit received the signal of temperature sensor abnormity released.
If abnormity appears, the low-load protection shall be released.

1.1.8.5 Control action of outdoor unit protection

Displaying abnormity confirmation mode since outdoor unit received the following error code:
Overhigh temperature protection of air discharge pipe, DC peak current, CT wiring disconnected, AC over-current, overhigh temperature protection of control board, low-voltage protection and compressor abnormal rotation.

1.1.8.6 Transmission abnormity

According to the communication between indoor unit and outdoor unit, it is considered abnormal if outdoor unit cannot receive signals within 20 seconds after indoor unit's sending. (Except for the first 2 minutes after power on).
It is regarded as transmission abnormity after outdoor unit receives the signal of transmission abnormity.
Transmission abnormity is released by running stopping.

EEPROM

When power on, EEPROM is abnormal if the control parameters and the checking total amount are not identical.

EEPROM is considered abnormal since the outdoor received the abnormal signal of EEPROM.

At the same time, remote control and emergency running are not accepted.

It is only can be released by power blackout.

List of error code:

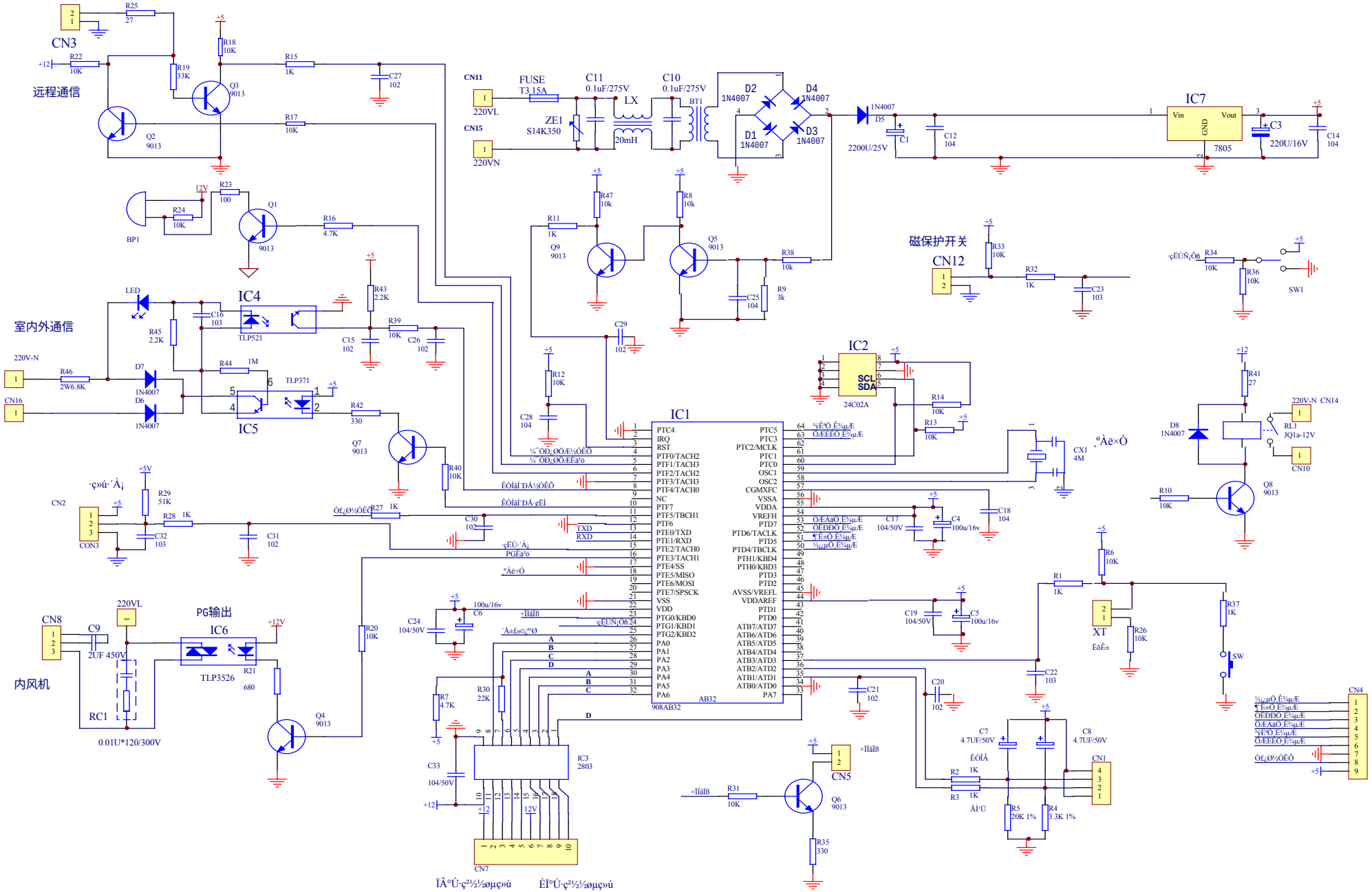
Abnormity mode	Error display			Indoor	Outdoor	Automatic restore	Possible reason
	Running	Heating	Cooling				
Abnormity of indoor thermistor	★	■	■	*		*	1. Inserter does not contact well or control board is not good.
Abnormity of thermal conversion thermistor	★	□	□	*		*	1. Inserter does not contact well or control board is not good.
Abnormity of defrosting thermistor	□	□	★		*	*	1. Inserter does not contact well or control board is not good.
Abnormity of discharging thermistor	★	□	■		*	*	1. Inserter does not contact well or control board is not good.
Abnormity of control board thermistor	□	■	★		*	*	1. Inserter does not contact well or control board is not good.
Abnormity of module thermistor	□	★	□		*	*	1. Inserter does not contact well or control board is not good.
Abnormity of outdoor thermistor	□	★	■		*	*	1. Inserter does not contact well or control board is not good.
Transmission abnormity	■	■	★	*			1. There is great interference source around
					*		2. Incorrect wire connection or control board is not good.
Compressor running abnormity	★	■	□		*		1. Check if compressor shaft is seized. 2. Whether power module is damaged
Overhigh discharging temperature protection	■	★	■		*		1. Whether system gas is insufficient or charged gas is too much. 2. Whether system voltage is too high (above242V) or too low (below 187V) 3. Whether capillary tube is blocked. 4. Whether sensors or control board components are abnormal. 5. Whether the indoor/outdoor ambient temperature is too high.
AC current protection	★	★	■		*		1. Whether system is charged too many gases. 2. Whether voltage is too low (below 187V). 3. Whether CT or control board component is abnormal.

Continued:

DC current protection	★	★	□		*		1. Whether compressor shaft is seized. 2. Whether power module is damaged. 3. Whether system voltage is too high (above242V) or too low (below 187V)
Insufficient current protection	■	★	□		*		1. Whether voltage is too low. 2. Whether control board is damaged.
Outdoor control board temperature protection	■	★	★		*		1. Whether control board is abnormal. 2. Whether outdoor ambient temperature is too high.
Module temperature rising protection	□	★	★		*		1. Whether compressor shaft is seized. 2. Whether power module is damaged. 3. Whether heat emission glue is evenly distributed. 4. Whether system voltage is too high (above242V) or too low (below 187V)
High-load protection	★	★	★	*			1. Whether filter is blocked. 2. Whether the indoor/outdoor ambient temperature is too high 3. Whether system is charged too much gases. 4. Whether control board component is damaged. 5. Whether voltage is too high or too low.
CT wiring disconnected protection	★	■	★		*		1. Whether control board is damaged. 2. Whether 4-way valve is converted. 3. Whether charged gas is normal
EEPROM abnormity	★	□	★	*			1.Whether control board is damaged.
					*		2.Whether control board is damaged.
Note:	□: Lightening ★: Flashing ■: Blackout			* Indicating that this function is provided.			

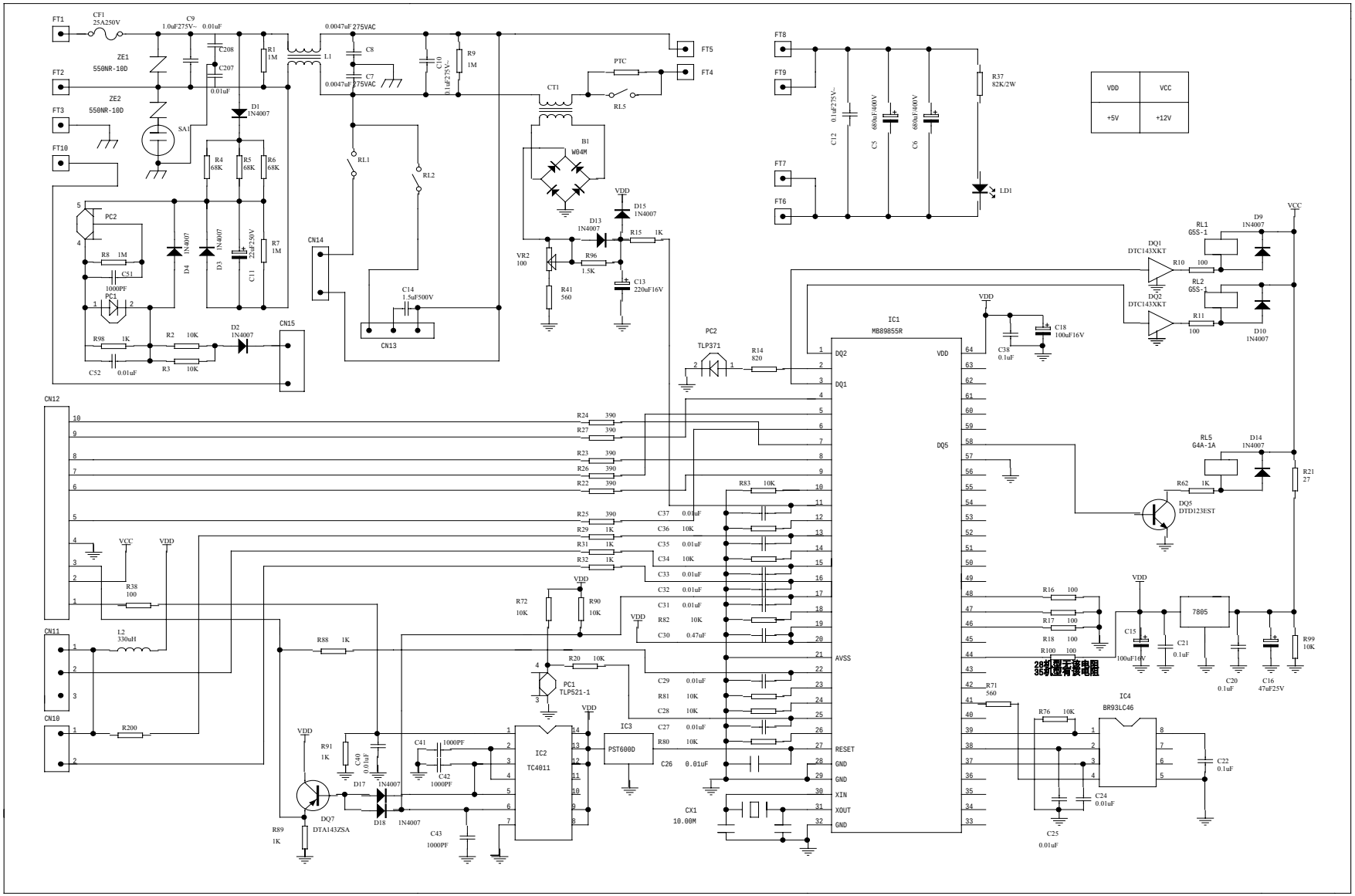
Circuit diagram & wiring diagram

indoor unit

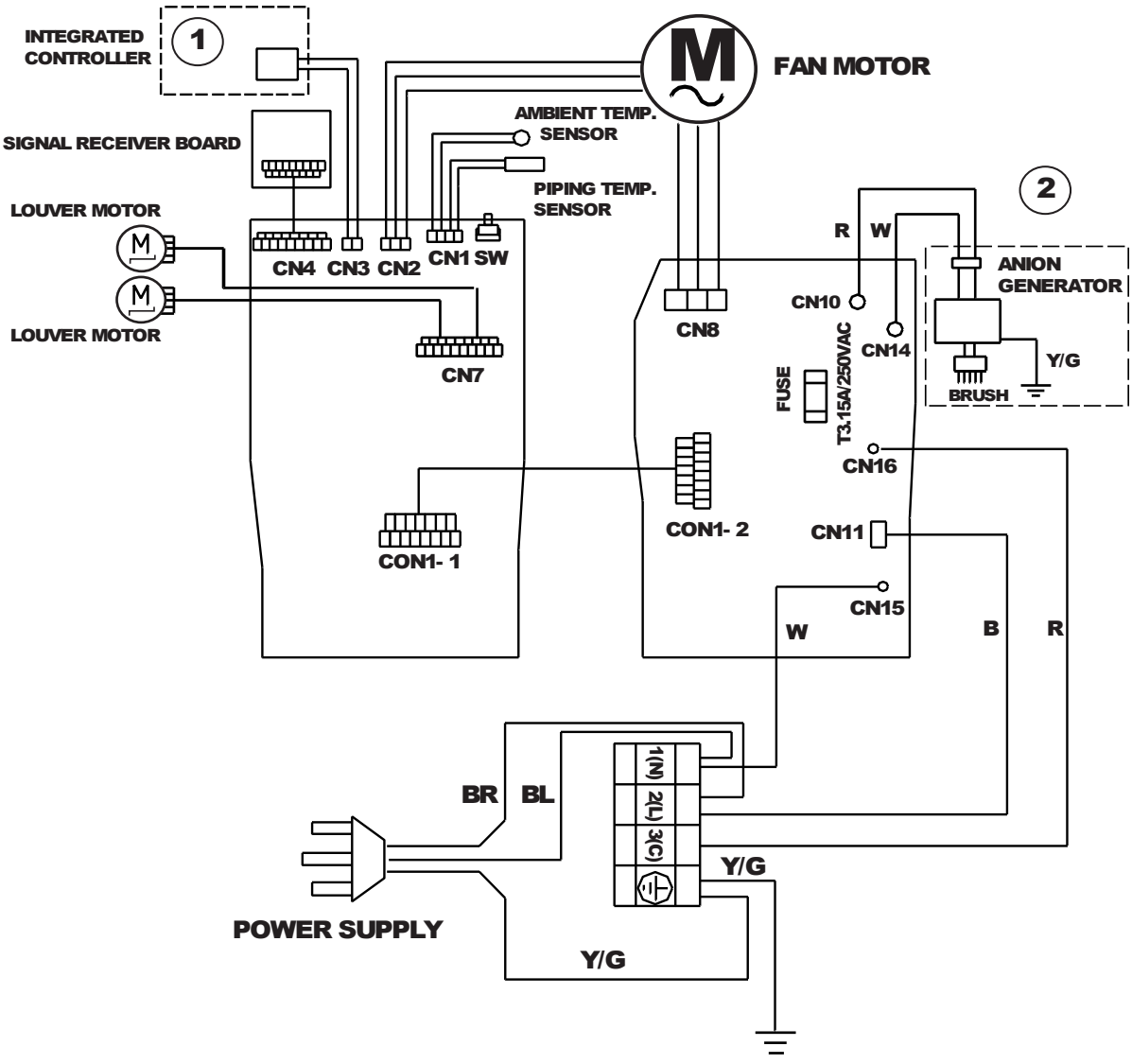


42

outdoor unit

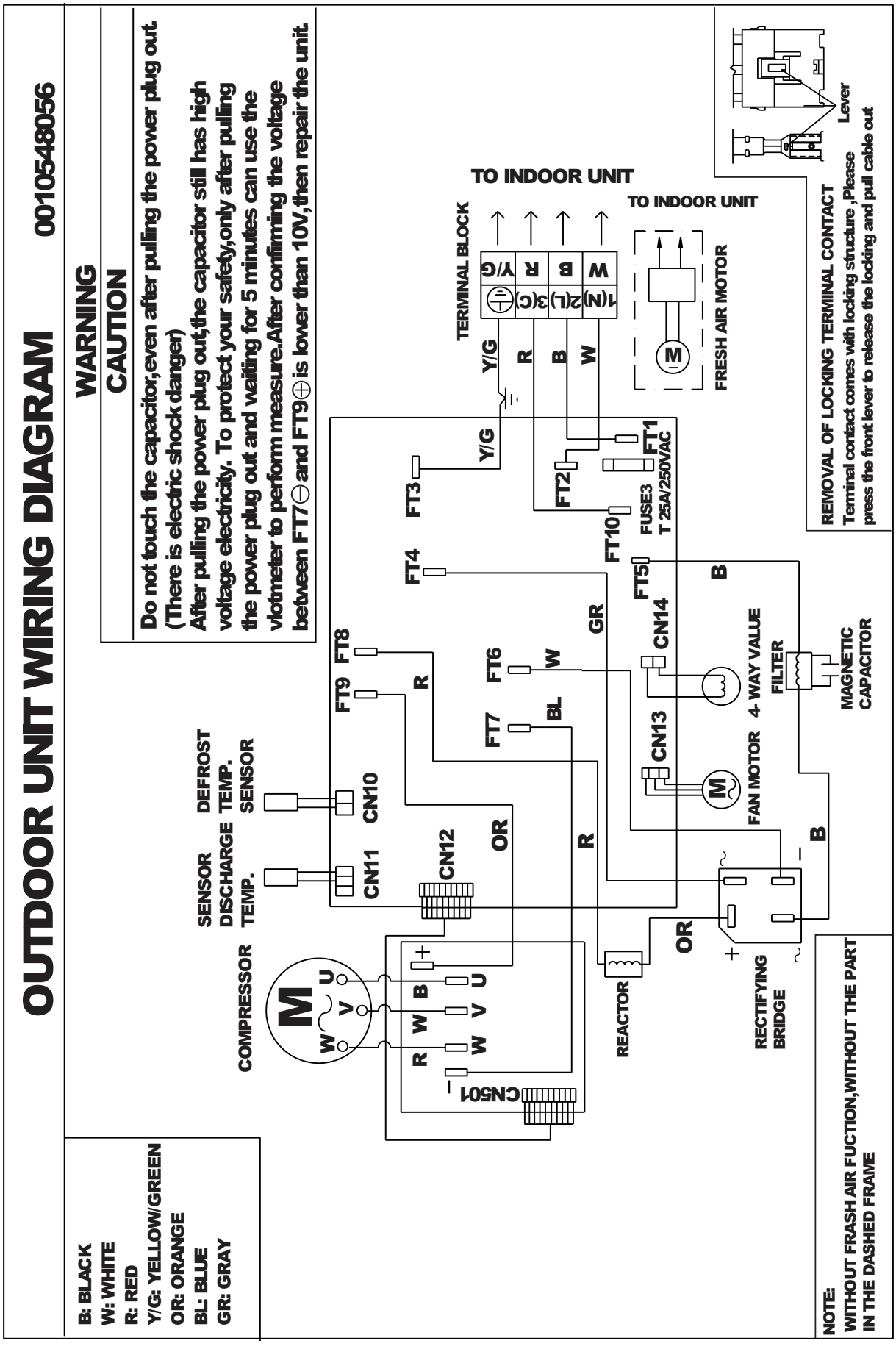


INDOOR WIRING DIAGRAM



NOTE :THE PARTS OF DOTTED (1) AND (2) ARE OPTIONAL ,AND THE UNIT WITHOUT THE HEALTH FUNCTION HAS NOT (2)

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


OUTDOOR UNIT WIRING DIAGRAM
0010548056
WARNING
CAUTION
Do not touch the capacitor,even after pulling the power plug out.
(There is electric shock danger)
After pulling the power plug out,the capacitor still has high voltage electricity. To protect your safety,only after pulling the power plug out and waiting for 5 minutes can use the vlotmeter to perform measure.After confirming the voltage between FT7⊖ and FT9⊕ is lower than 10V,then repair the unit.
B: BLACK
W: WHITE
R: RED
Y/G: YELLOW/GREEN
OR: ORANGE
BL: BLUE
GR: GRAY
NOTE:
WITHOUT FRASH AIR FUCTION,WITHOUT THE PART IN THE DASHED FRAME
TO INDOOR UNIT
TO INDOOR UNIT
TERMINAL BLOCK
1(N) 2(L) 3(C) R Y/G
W B R Y/G
FRESH AIR MOTOR
REMOVAL OF LOCKING TERMINAL CONTACT
Terminal contact comes with locking structure ,Please press the front lever to release the locking and pull cable out
Lever
FT1
FUSE3 T 25A/250VAC
FT2
FT3
FT4
FT5
FT10
CN14
CN13
FT6
FT7
FT8
FT9
CN10
CN11
CN12
CN501
SENSOR DEFROST TEMP. SENSOR
SENSOR DISCHARGE TEMP.
COMPRESSOR
M
U V W
R W B W V U
4- WAY VALUE
FILTER
FAN MOTOR
MAGNETIC CAPACITOR
REACTOR
RECTIFYING BRIDGE
OR
R
BL
GR
B
W

Abnormity diagnose

EEPROM

When power on, EEPROM is abnormal if the control parameters and the checking total amount are not identical.
EEPROM is considered abnormal since the outdoor received the abnormal signal of EEPROM.
At the same time, remote control and emergency running are not accepted.
It is only can be released by power blackout.
List of error code:

Abnormity mode	Error display			Indoor	Outdoor	Automatic restore	Possible reason
	Running	Heating	Cooling				
Abnormity of indoor thermistor	★	■	■	*		*	1. Inserter does not contact well or control board is not good.
Abnormity of thermal conversion thermistor	★	□	□	*		*	1. Inserter does not contact well or control board is not good.
Abnormity of defrosting thermistor	□	□	★		*	*	1. Inserter does not contact well or control board is not good.
Abnormity of discharging thermistor	★	□	■		*	*	1. Inserter does not contact well or control board is not good.
Abnormity of control board thermistor	□	■	★		*	*	1. Inserter does not contact well or control board is not good.
Abnormity of module thermistor	□	★	□		*	*	1. Inserter does not contact well or control board is not good.
Abnormity of outdoor thermistor	□	★	■		*	*	1. Inserter does not contact well or control board is not good.
Transmission abnormity	■	■	★	*			1. There is great interference source around
					*		2. Incorrect wire connection or control board is not good.
Compressor running abnormity	★	■	□		*		1. Check if compressor shaft is seized. 2. Whether power module is damaged
Overhigh discharging temperature protection	■	★	■		*		1. Whether system gas is insufficient or charged gas is too much. 2. Whether system voltage is too high (above242V) or too low (below 187V) 3. Whether capillary tube is blocked. 4. Whether sensors or control board components are abnormal. 5. Whether the indoor/outdoor ambient temperature is too high.
AC current protection	★	★	■		*		1. Whether system is charged too many gases. 2. Whether voltage is too low (below 187V). 3. Whether CT or control board component is abnormal.

Continued:

DC current protection	★	★	□		*		1. Whether compressor shaft is seized. 2. Whether power module is damaged. 3. Whether system voltage is too high (above242V) or too low (below 187V)
Insufficient current protection	■	★	□		*		1. Whether voltage is too low. 2. Whether control board is damaged.
Outdoor control board temperature protection	■	★	★		*		1. Whether control board is abnormal. 2. Whether outdoor ambient temperature is too high.
Module temperature rising protection	□	★	★		*		1. Whether compressor shaft is seized. 2. Whether power module is damaged. 3. Whether heat emission glue is evenly distributed. 4. Whether system voltage is too high (above242V) or too low (below 187V)
High-load protection	★	★	★	*			1. Whether filter is blocked. 2. Whether the indoor/outdoor ambient temperature is too high 3. Whether system is charged too much gases. 4. Whether control board component is damaged. 5. Whether voltage is too high or too low.
CT wiring disconnected protection	★	■	★		*		1. Whether control board is damaged. 2. Whether 4-way valve is converted. 3. Whether charged gas is normal
EEPROM abnormity	★	□	★	*			1.Whether control board is damaged.
					*		2.Whether control board is damaged.
Note:	□: Lightening ★: Flashing ■: Blackout			* Indicating that this function is provided.			

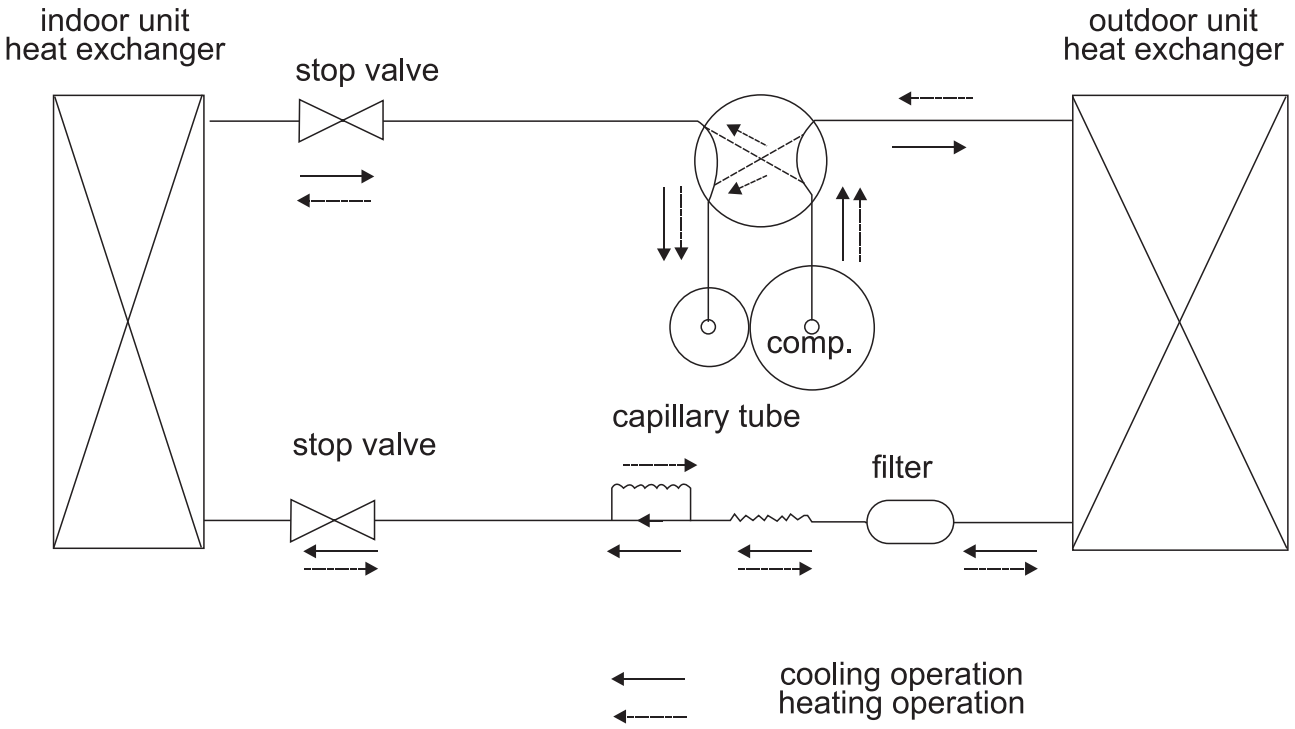
Trouble shooting

Trouble shooting

Before asking for service, check the following first.

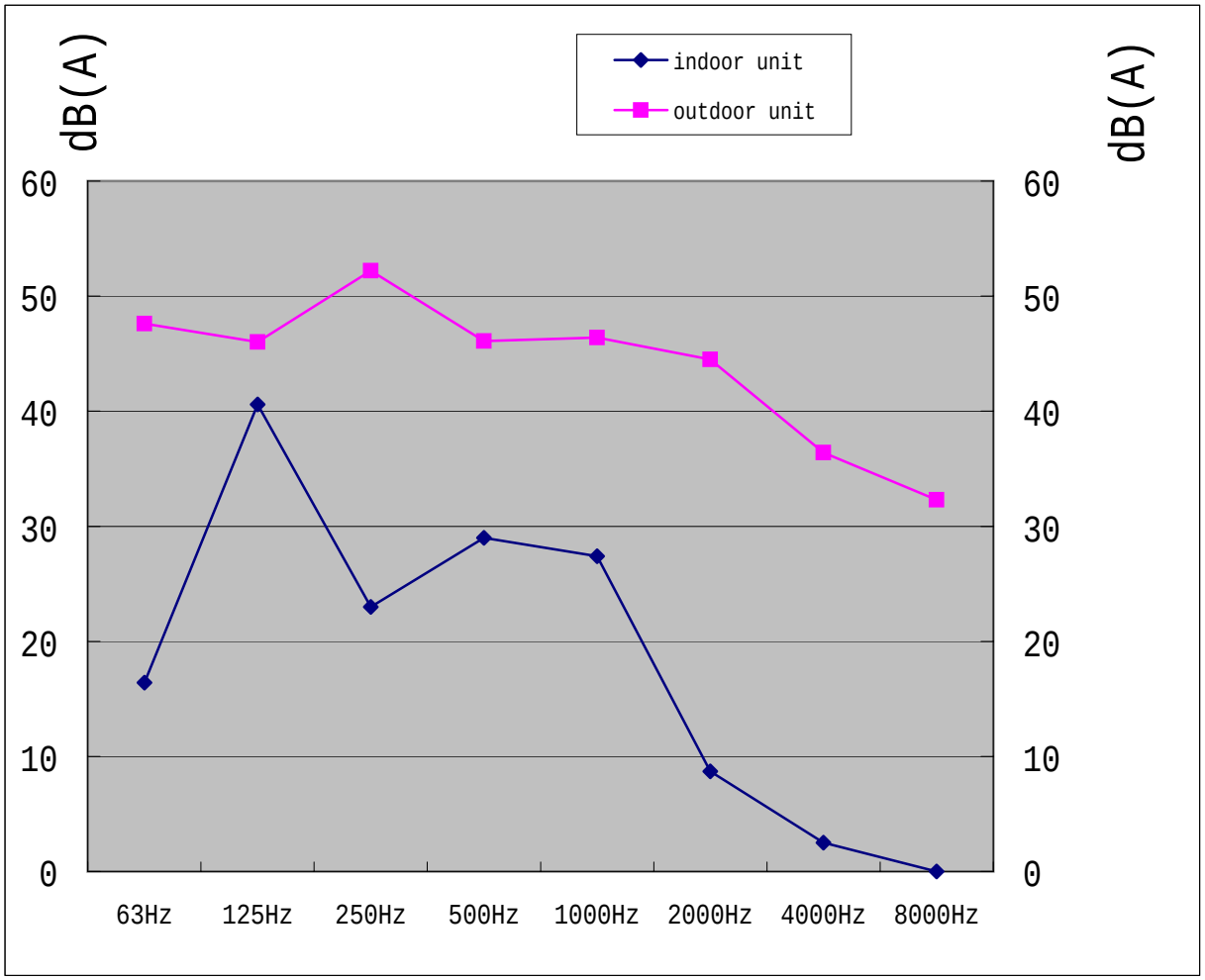
	Phenomenon	Cause or check points
Normal Performance inspection	The system does not restart immediately. 	• When unit is stopped, it won't restart immediately until 3 minutes have elapsed to protect the system. • When the electric plug is pulled out and reinserted, the protection circuit will work for 3 minutes to protect the air conditioner.
	Noise is heard: 	• 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 inlet and outlet? • Is temperature set correctly? • Are there some doors or windows left open? • Is there any direct sunlight through the window during the cooling operation?(Use curtain) • Are there too much heat sources or too many people in the room during cooling operation?

Refrigerating cycle diagram


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

Noise level test chart and air velocity distribution

A、Noise level test chart



Air velocity distribution

Fig 1
top view
flow control panel horiz
lourer :center

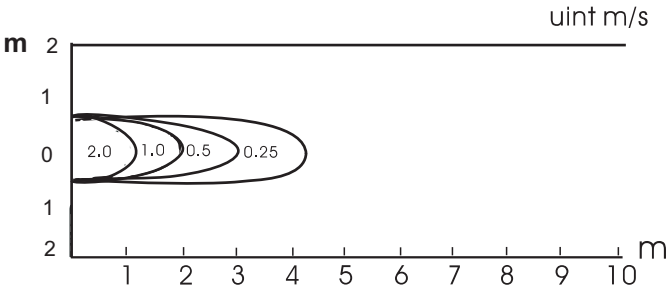


Fig 2
top view
flow control panel horiz
lourer :right & left

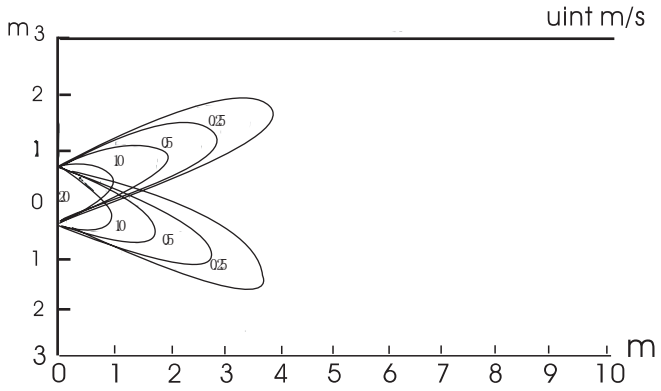


Fig 3
top view
flow control panel horiz
lourer :center

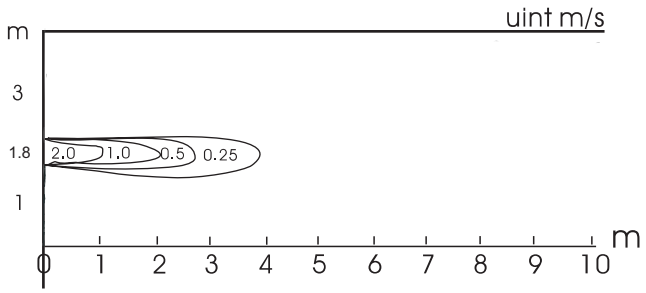
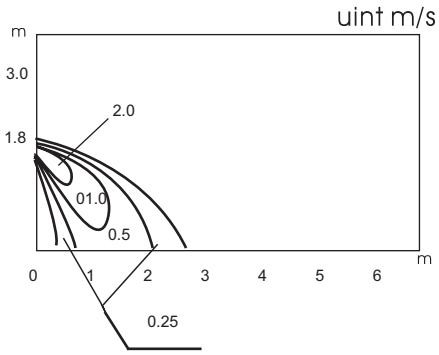


Fig 4
top view
flow control panel vert
lourer :center



Condition
Fan speed : high
Operation mode:fan
Voltage: 230v
50hz

Installation And Accessory Parts

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. Spanner (17,19 and 26mm)
5. Torque wrench (17mm,22mm,26mm)
6. Pipe cutter
7. Flaring tool
8. Knife
9. Nipper
10. Gas leakage detector or soap-and-water solution
11. Measuring tape
12. Reamer

Drawing for the installation of indoor and outdoor units

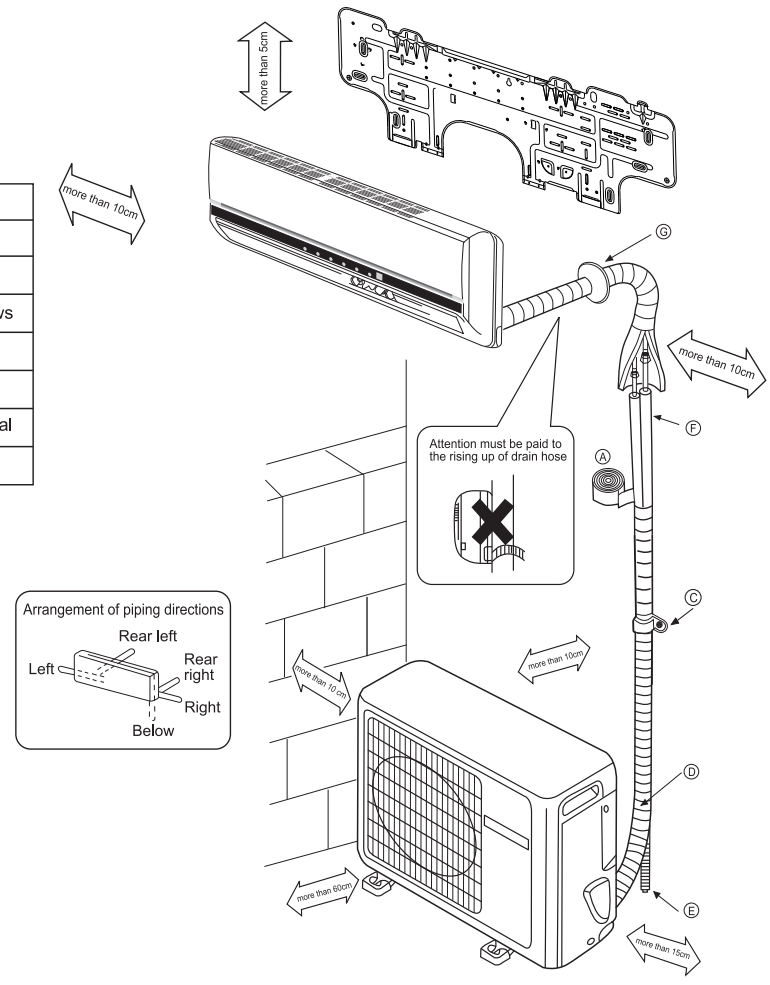
※ The models adopt HFC free refrigerant R407C

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	Main pipes	1
⑦	ϕ 4X25 Screw, Plastic cap	4
⑧	Drain-elbow	1
⑨	Cover	1
⑩	Cushion	4
⑪	Connecting cable	1
⑫	Pipe supporting plate	1

Optional parts for piping

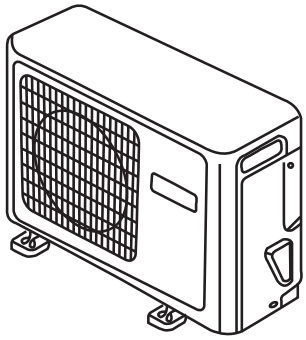
Mark	Parts name
Ⓐ	Non-adhesive tape
Ⓑ	Adhesive tape
Ⓒ	Saddle(L.S) with screws
Ⓓ	Connecting electric cable for indoor and outdoor
Ⓔ	Drain hose
Ⓕ	Heat insulating material
Ⓖ	Piping hole cover

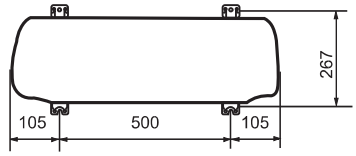


※ The marks from Ⓐ to Ⓖ in the figure are the parts' numbers

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

No.0010547700





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

HSU-07RA03/R1(B)
HSU-09RA03/R1(B)

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.

Indoor Unit Selection of Installation Place Outdoor 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.
- 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 $\Leftrightarrow$ 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 corresponding 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

- To this unit, both liquid and gas pipes shall be insulated as they become low temperature in operation.
- Use optional parts for piping set or pipes covered with equivalent insulation material.
- the thickness of the pipe must be 0.8mm at least.

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

Indoor Unit

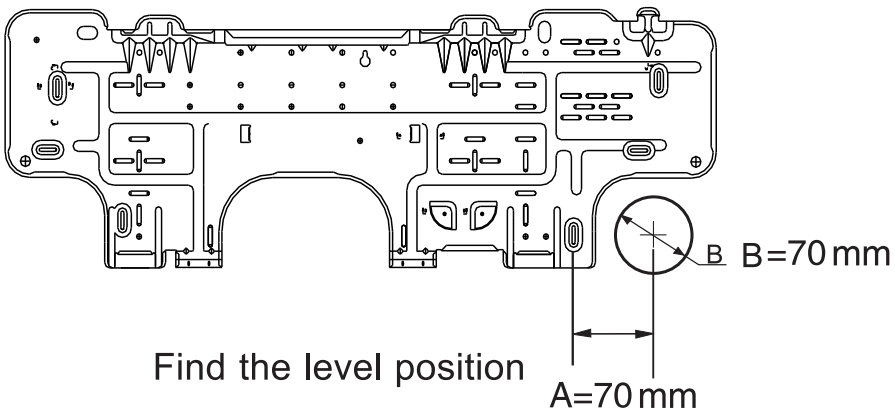
1 Fitting of the Mounting Plate and Positioning of the Wall Hole

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.

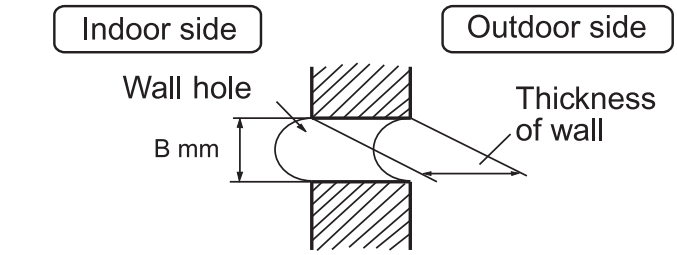


When the mounting plate is fixed to side bar and lintel

- Fix to side bar and lintel a mounting bar, Which is separately sold, and then fasten the plate to the fixed mounting bar.
- Refer to the previous article, "When the mounting plate is first fixed", for the position of wall hole.

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

- Make a hole of Bmm 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

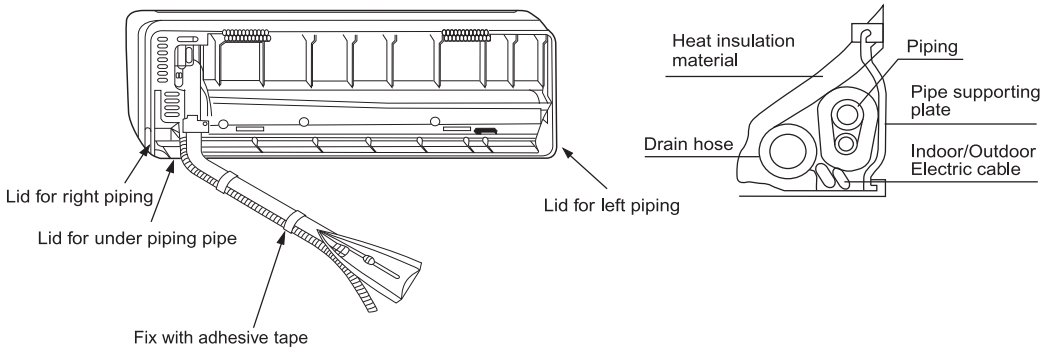
[Rear piping]

- 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.



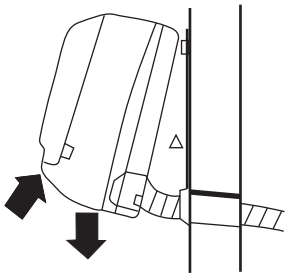
- Indoor/outdoor electric cable and drain hose must be bound with refrigerant piping by protecting tape.

[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

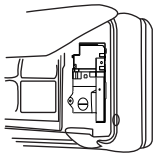
- Hang surely the unit body onto the upper notches of the mounting plate. Move the body from side to side toverify its secure fixing.
- In order to fix the body onto the mounting plate,hold up the body aslant from the underside and then put it down perpendicularly.



4 Connecting the indoor/outdoor Electric Cable

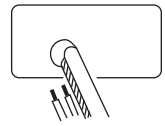
Removing the wiring cover

- 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



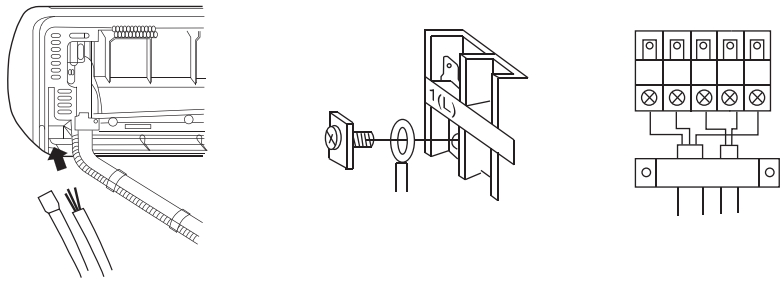
1. Insert from outside the room cable into left side of the wall hole, in which the pipe has already existed.
2. Pull out the cable on the front side, and connect the cable making a loop.

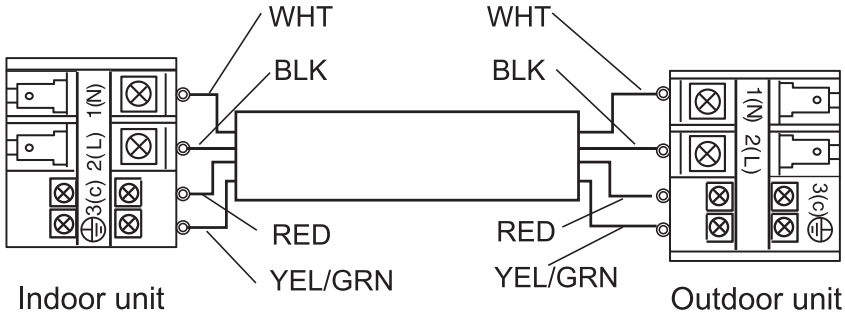
When connecting the cable before installing the indoor unit

- 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.





HSU-07RA03/R1(B)
HSU-09RA03/R1(B)
HSU-12RA03/R1(B)

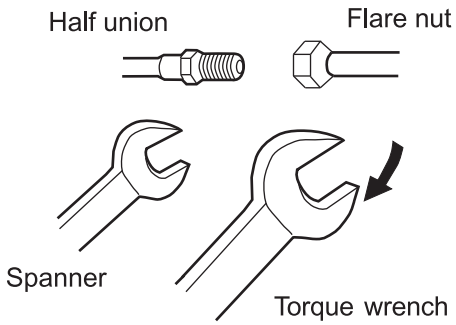
Outdoor Unit

1 Installation of Outdoor Unit

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

2 Connection of Pipes

- To bend a pipe, give the roundness as large as possible not to crush the pipe ,and the bending radius should be 30 to 40 mm or longer.
- Connecting the pipe of gas side first makes working easier.
- The connection pipe is specialized for R410A
- The max length of connection pipe of 12 series is 15m and the max length of 07,09 series is 7m.
- The max vertical distance between the indoor uint and the outdoor unit is 5 m



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")	55N m

Be careful that matters, such as wastes of sands, etc. shall not enter the pipe.
The standard pipe length is 5m. If it is over 5m, the function of the unit will be affected. If the pipe has to be lengthened, the refrigerant should be charged, according to 16 g/m. But the charge of refrigerant must be conducted by professional air conditioner engineer. Before adding additional refrigerant, perform air purging from the refrigerant pipes and indoor unit using a vacuum pump,then charge additional refrigerant.

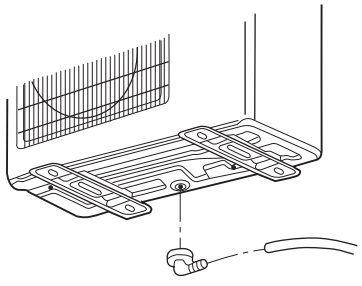
3 Connection

- 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 Attaching Drain-Elbow

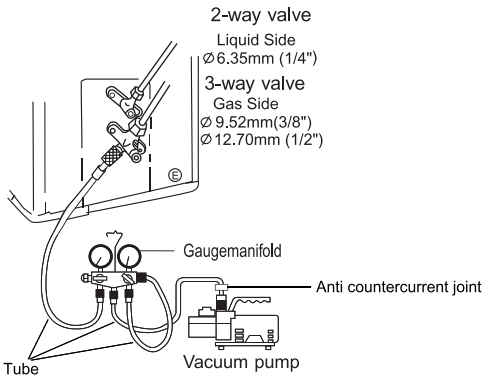
- If the drain-elbow is used, please attach it as figure.

Note: Only for heat pump unit.



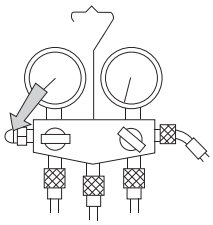
5 Purging Method: To use vacuum pump

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



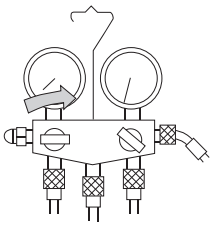
② Open the handle at low in gaugemanifold, operate vacuum pump. If the scale-moves of gause (low) reach vacuum condition in a moment, check ① again.

② Open

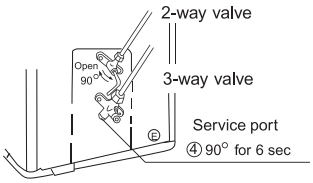


③ Vacuumize for over 15min. And check the level gauge which should read -0.1 MPa (-76 cm Hg) at low pressure side. After the completion of vacuumizing, close the handle 'Lo' in gaugemanifold and stop the operation of the vacuum pump.
Check the condition of the scale and hold it for 1-2min. If the scale-moves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

③ Close



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

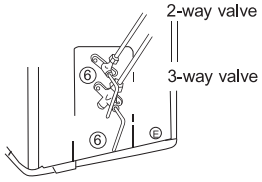


⑤ No gas leakage?

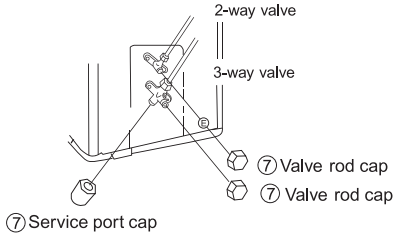
In case of gas leakage, tighten parts of pipe connection. If leakage stops, then proceed ⑥ steps.

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

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



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



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

CAUTION:

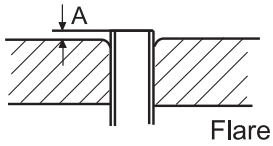
1. If the refrigerant of the air conditioner leaks, it is necessary to discharge all the refrigerant . Vacuumize first, then charge the liquid refrigerant into air conditioner according to the amount marked on the name plate.
2. Please do not let other cooling medium, except specified one, or air enter into the cooling circulation system. Otherwise, there will be abnormal high pressure in the system to make it crack and lead to personal injuries.

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

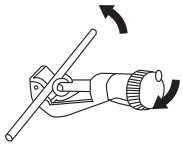
- Pipe cutting is carried out with a pipe cutter and burs must be removed.
- After inserting the flare nut, flaring work is carried out.



Flare tooling die

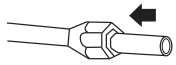
	Flare tool for R410A	Conventional flare tool	
	Clutch-type	clutch-type(Rigid-type)	Wing-nut type (Imperial-type)
A	0~0.5mm	1.0~1.5mm	1.5~2.0mm

1.Cut pipe

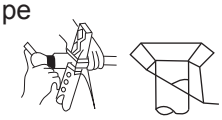


2.Remove burs

3.Insert the flare nut



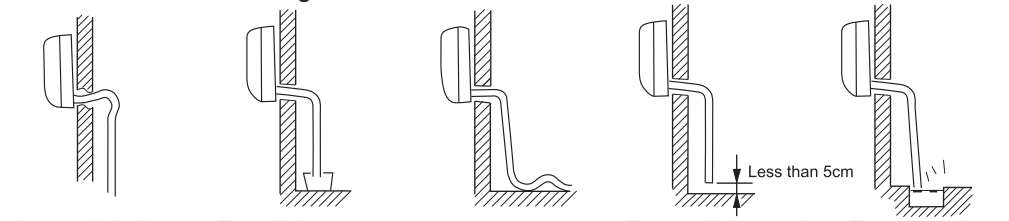
4.Flare pipe



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?

- Paper Pattern for Indoor Unit Installation
  Please use this sheet to site the unit

Leave at Least 50mm between the top of the unit and the ceiling