

## Domestic Air Conditioner

# SERVICE MANUAL

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### Models

HSU-09H03/(BP)1

HSU-12H03/(BP)1

### ● Features

- International well-known compressor, economic and convenience
- Arc appearance, beautiful and generous
- Anti-fungus filtration, multi-layer of fresh air.
- CFC free refrigerant for environmental protection.

## Content

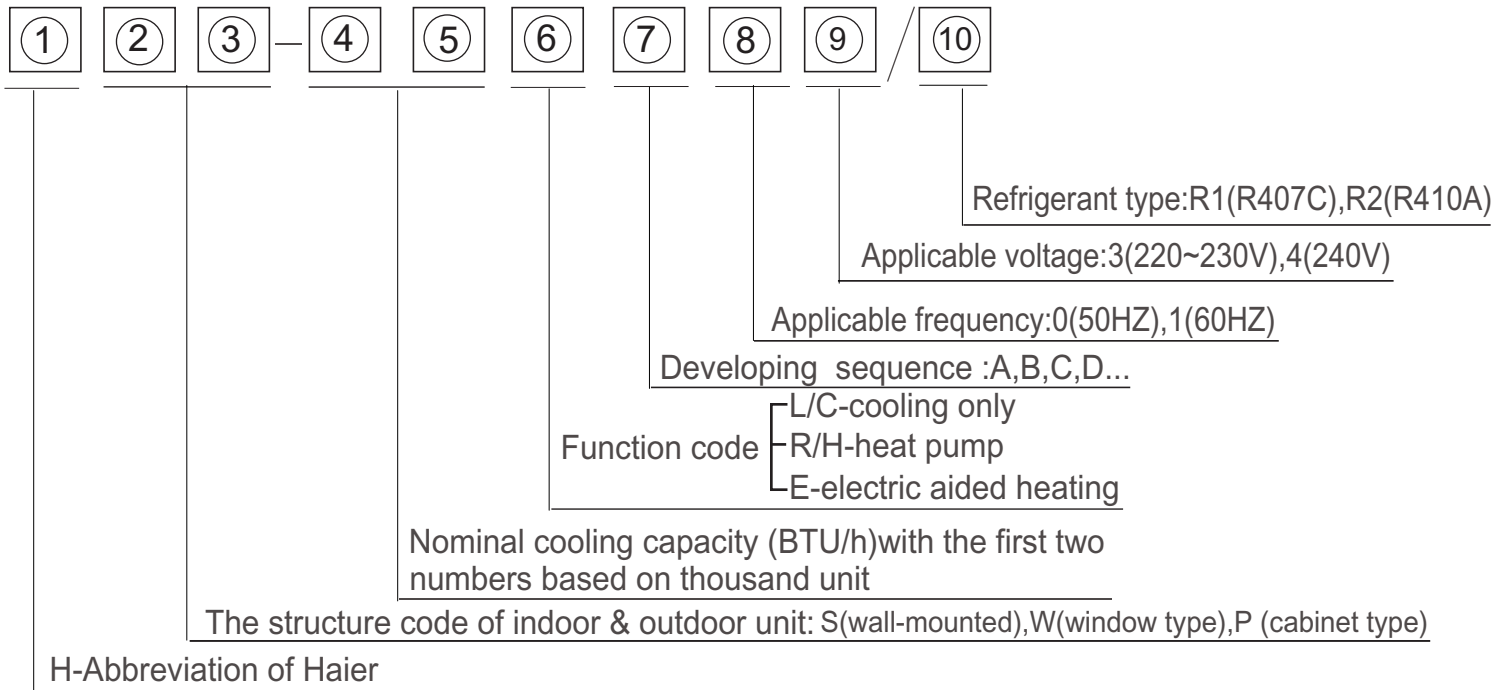
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## **DESCRIPTION OF PRODUCT MODEL CODING & SERIES INTRODUCTION**

## Introductory Remarks

Description of coding rules of unit model

Coding rules and descriptions are as follows:



Examples:

HSU-12H03/(BP)1, It represents wall-mounted split type heat pump air conditioner. The cooling capacity is 12000BTU/h, and the power supply is 220-230V/50Hz.

Description of product model coding and series introduction

## 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	Not control	7°C	6°C
3	Norminal electrical heating	---	---	---	---

## C.Series brief introduction

### 1.comfortable:wide-angle airflow

The vertical dual-flap and horizontal wide-angle louvers ensure the cool(warm) air reaches every corner of the room.

### 2.Health air purifying

An air purifying filter with deodorizing and disinfecting functions keeps the air clean and users healthy.

### 3.Quiet operation

Fan With Random-pitched Blades.

Random-pitched blades help reduce operating noise while maintaining a high airflow rate.

### 4.Engergy efficient

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

### 5.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.

### 6.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.

### 7.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 delow.Users can sleep comfortably without sudden change in temperature.

### 8.Program"dry"

This function automatically reduces the level of humidity while maintaining the preset indoor temperature.

## Specifications

Specification:

Model:	HSU-09H03/(BP)1	Appearance color (indoor/outdoor):	White/White
Cooling capacity:	2600W	Heating capacity:	3900W
Cooling coefficient:	2.60	Heating coefficient:	2.89
Cooling power input:	1000W	Heating power input:	1350W
Moisture removal	1.5X10 <sup>-3</sup> m <sup>3</sup> /h	Frequency range	-----
Operating voltage range	1PH, 220-230V~,50Hz	Refrigerant type	R22
Operating temp. range	-7°C-43°C	Air sending angle/distance	60°
Variation of temp. adjust	±1°C	Fan type/quantity	Cross flow fan(indoor unit) Axial fan(outdoor unit)
Climate type:	T1	Class of electric shock protection:	I
Indoor unit noise (cooling)	38/35/30dB(A)	outdoor unit noise (cooling)	48dB(A)
Indoor unit noise (heating)	39/36/31dB(A)	outdoor unit noise (heating)	49dB(A)
net dimensions	795x182x265mm	net dimensions	780 x245x540mm
Packaging dimensions (indoor unit)	865 x272x330 mm	Packaging dimensions (outdoor unit)	920 X 340 X 613 m m
weight(indoor unit )	7.6/10.6(net/gross)kg	Piling layers for indoor/outdoor unit	8/4
Max. mounting height difference:	5m	Outdoor unit net/gross weights:	34/38(net/gross) kg
Refrigerant charge	R22 880g	Current entering side (indoor/outdoor)	indoor
Frequency of filter cleaning	Once/2 weeks	Max. refrigerant charge	-----
Compressor model	KHV104FCKA	Compressor manufacturer	MITSUBISHI
Compressor oil charge	520ml	Compressor protector type	B225-150-141E
Maxi. length of connecting pipe:	15m	model of 4-way valve:	-----
Cap. tube type muffle model:	TP <sub>2</sub> Y copper tube	Length/diameter of drain hose	2000mm/Ø16mm
Fan speed: (r/min)	1150/1010/870 (indoor) 730 (outdoor)	Type/size of evaporator and condenser	Internal treaded pipe Ø7/Ø9.52mm
Max. operating pressure at warm side:	2.65MPa	Max. operating pressure at cool side:	2.65MPa
cut-off valve:	1/4",3/8"	Appearance features	Indoor unit:Plastic Outdoor unit: Metal

Specification:

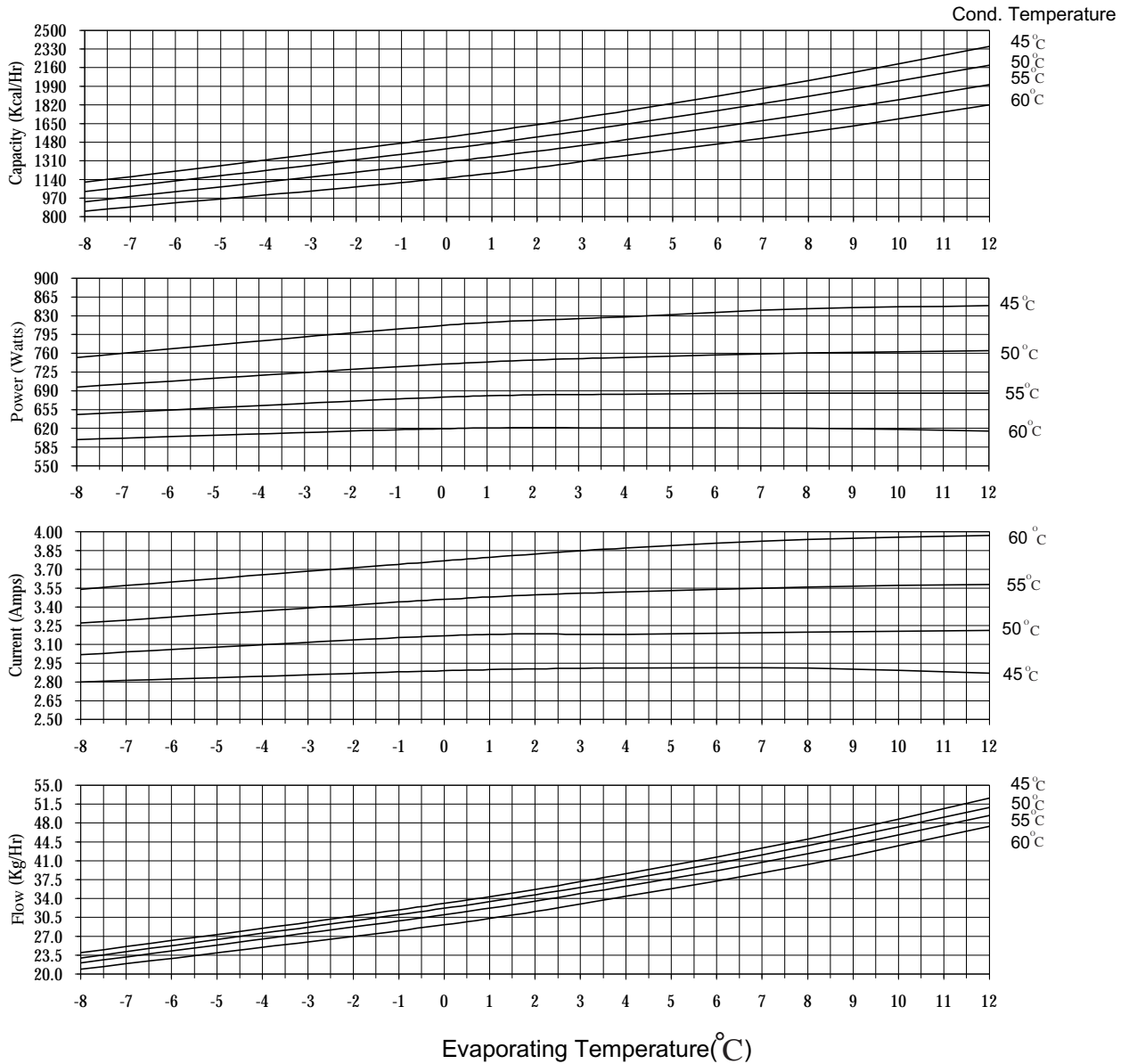
Model:	HSU-12H03/(BP)1	Appearance color (indoor/outdoor):	White/White
Cooling capacity:	3500W	Heating capacity:	4800W
Cooling coefficient:	2.59	Heating coefficient:	2.74
Cooling power input:	1350W	Heating power input:	1750W
Moisture removal	1.8X10 <sup>-3</sup> m <sup>3</sup> /h	Frequency range	50Hz
Operating voltage range	1PH, 220-230V~,50Hz	Refrigerant type	R22
Operating temp. range	-7°C-43°C	Air sending angle/distance	60°
Variation of temp. adjust	±1°C	Fan type/quantity	Cross flow fan(indoor unit) Axial fan(outdoor unit)
Climate type:	T1	Class of electric shock protection:	I
Indoor unit noise (cooling)	39/36/31dB(A)	outdoor unit noise (cooling)	50dB(A)
Indoor unit noise (heating)	40/37/32dB(A)	outdoor unit noise (heating)	51dB(A)
net dimensions	795x265x182mm	net dimensions	780 x245x540mm
Packaging dimensions (indoor unit)	865 x272x330 mm	Packaging dimensions (outdoor unit)	920X340X613 mm
weight(indoor unit )	7.6/10.6(net/gross)kg	Piling layers for indoor/outdoor unit	8/4
Max. mounting height difference:	10m	Outdoor unit net/gross weights:	38/42(net/gross) kg
Refrigerant charge	R22 1030g	Current entering side (indoor/outdoor)	indoor
Frequency of filter cleaning	Once/2 weeks	Max. refrigerant charge	-----
Compressor model	SHV130FFDC	Compressor manufacturer	mitsubishi
Compressor oil charge	750ml	Compressor protector type	INTERNAL
Maxi. length of connecting pipe:	20m	model of 4-way valve:	-----
Cap. tube type muffle model:	TP <sub>2</sub> Y copper tube	Length/diameter of drain hose	2000mm/Ø16mm
Fan speed: (r/min)	1250/1060/920 (indoor) 800/-----/600 (outdoor)	Type/size of evaporator and condenser	Internal treaded pipe Ø7/Ø9.52mm
Max. operating pressure at warm side:	2.65MPa	Max. operating pressure at cool side:	2.65MPa
cut-off valve:	1/4",1/2"	Appearance features	Indoor unit:Plastic Outdoor unit: Metal



## Curves of performance of compressor

Curves of performance of compressor

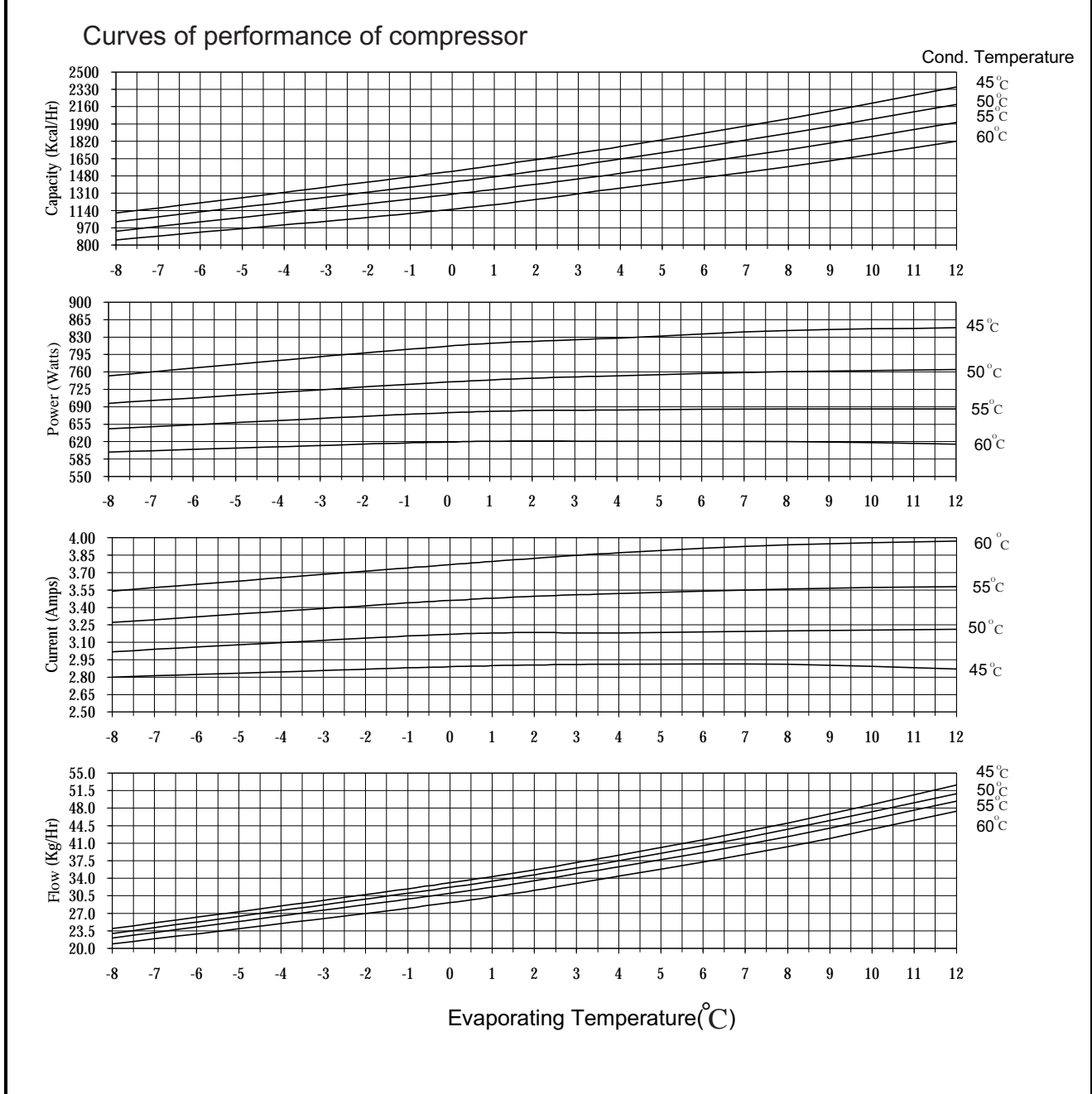
<b>Performance Curve</b>		Return Gas Temperature	35 °C
Model	SHV130FFDC	Subcooling	8.3 °C
Power Supply	220-230V / 50Hz / 1PH	Ambient Temperature	35 °C
Run Capacitor	20 μF / 450 VAC		



			<b>MITSUBISHICO., LTD</b>	
			Dwg. Name	Dwg. No.
			<b>Curves OF Compressor</b>	<b>SHV130FFDC</b>

Description of product model coding and series introduction

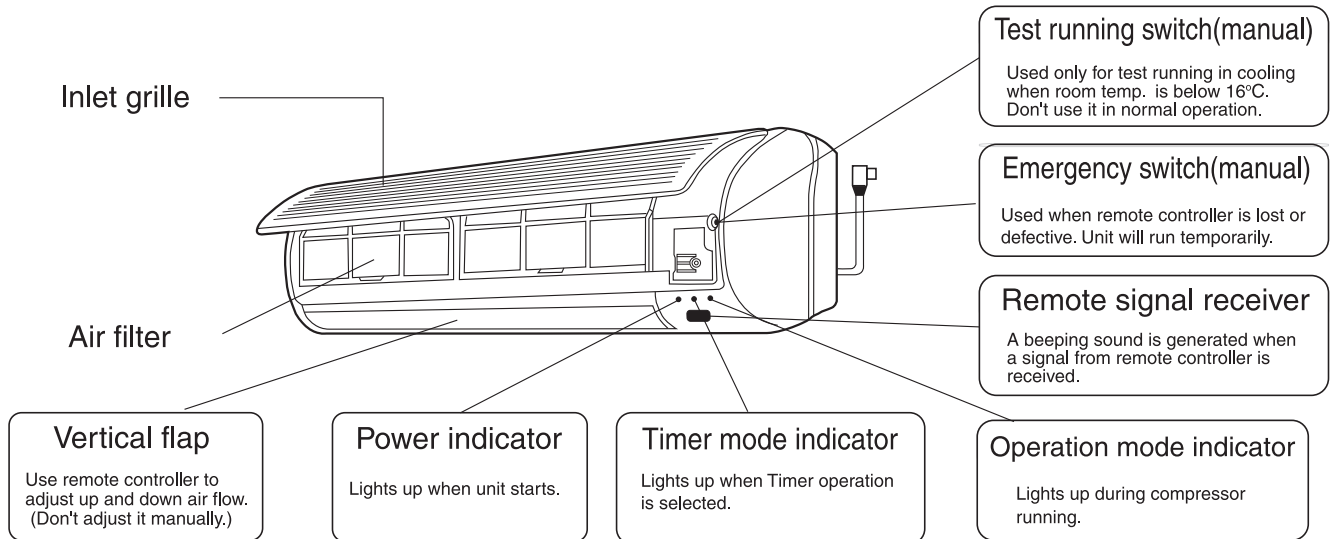
<b>Performance Curve</b>		Return Gas Temperature	35 °C
Model	KHV104FCKA	Subcooling	8.3 °C
Power Supply	220-230V / 50Hz / 1PH	Ambient Temperature	35 °C
Run Capacitor	20 μF / 450 VAC		



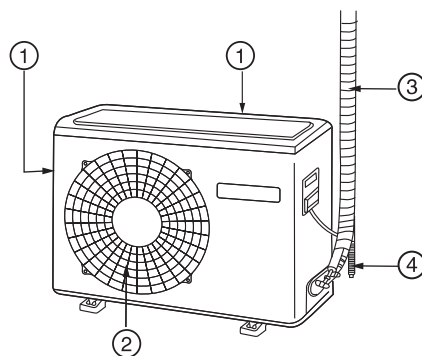
			<b>MITSUBISHICO., LTD</b>	
			Dwg. Name	Dwg. No.
			<b>Curves OF Compressor</b>	<b>KHV104FCKA</b>

## Description, dimension and function of main components and accessories

## Indoor Unit

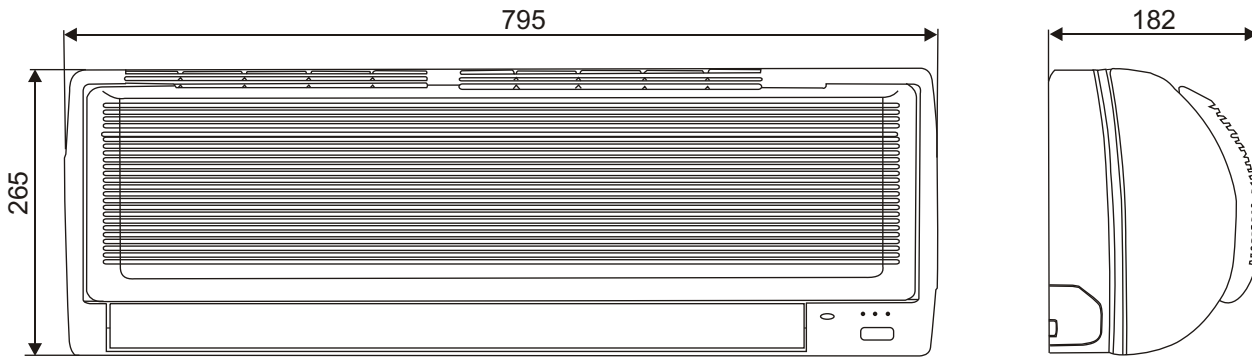


## Outdoor Unit

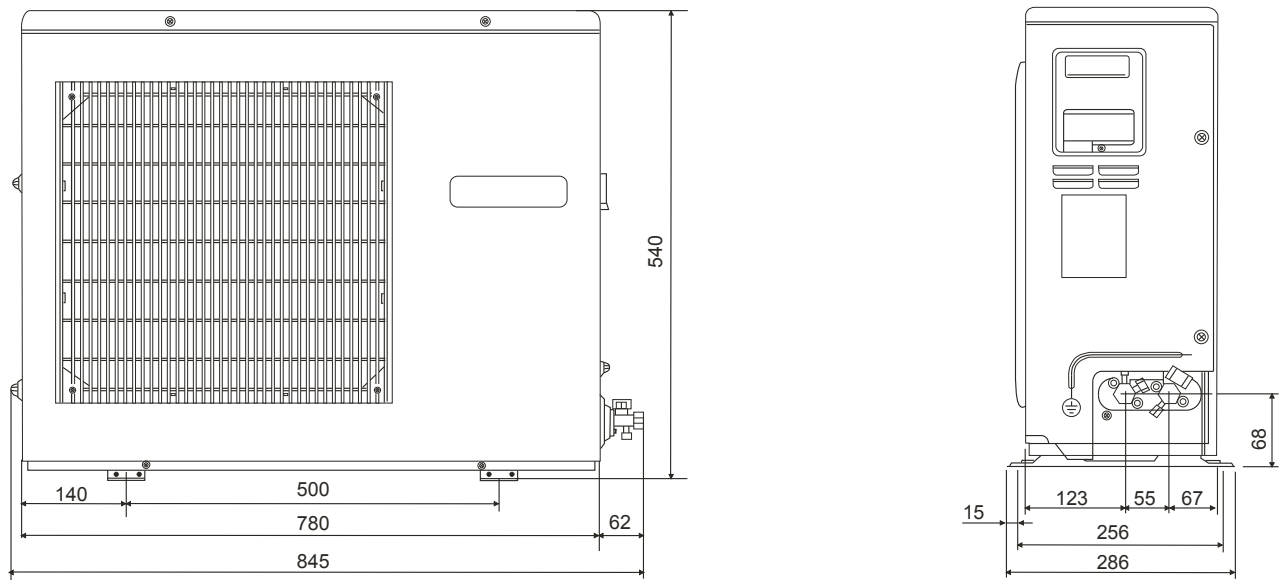


- ① INLET
- ② OUTLET
- ③ CONNECTING PIPING AND ELECTRICAL WIRING
- ④ DRAIN HOSE

NET DIMENSIONS: Indoor unit for HSU-09H03/(BP)1 HSU-12H03/(BP)1

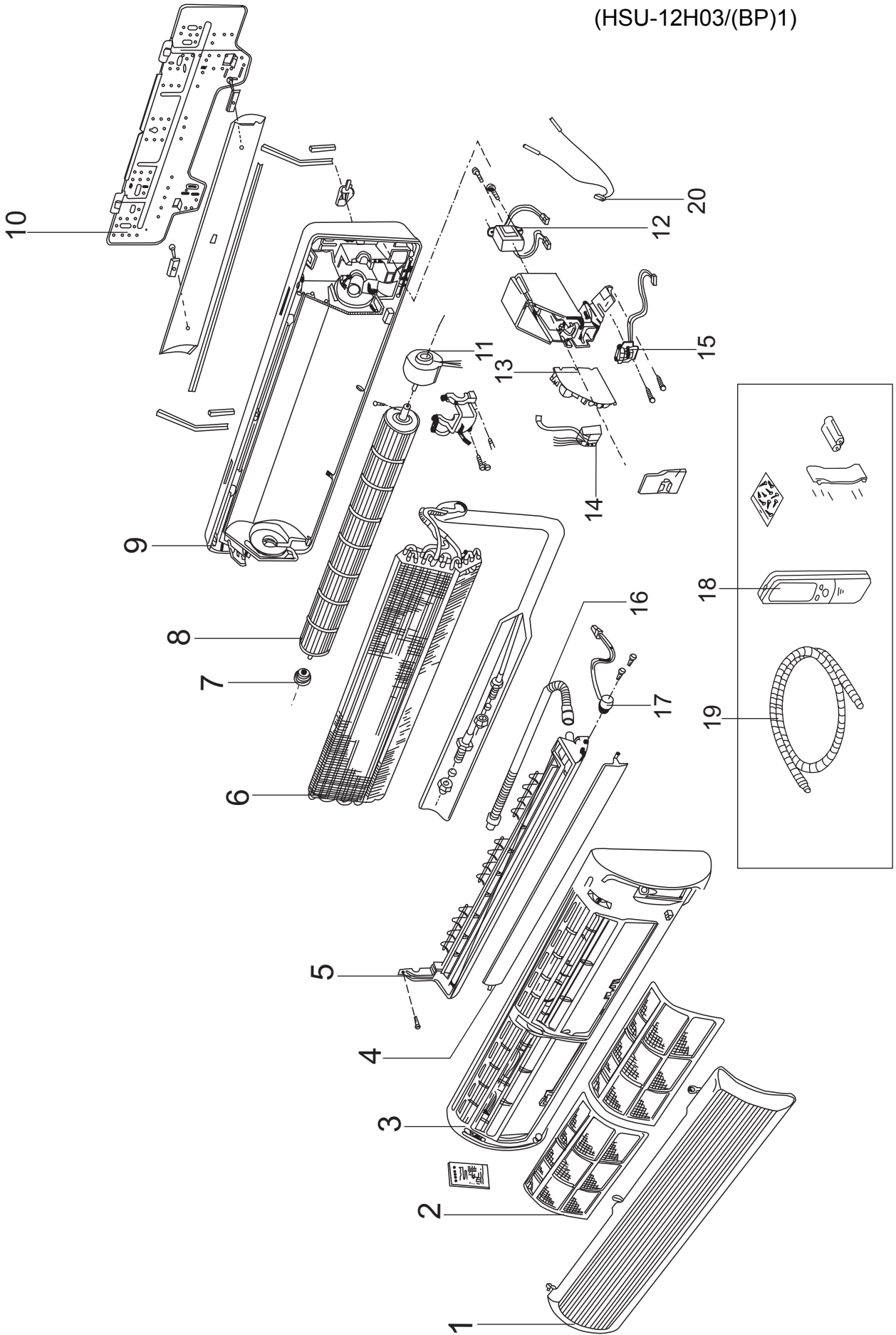


NET DIMENSIONS: Indoor unit for HSU-09H03/(BP)1 HSU-12H03/(BP)1



## Knock-down drawings

## KNOCK-DOWN DRAWINGS FOR INDOOR UNIT(HSU-09H03/(BP)1) (HSU-12H03/(BP)1)





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	0010805360	Front grille	HSU-09H03/(BP)1	1			indoor unit
2	001A2400060/0 01A2400061	Air filter	HSU-09H03/(BP)1	1/1			
3	001A1232074	Front panel assy	HSU-09H03/(BP)1	1			
4	001A1232077	Flap	HSU-09H03/(BP)1	1			
5	001A0900107	Drain pan assy	HSU-09H03/(BP)1	1			
6	001A0400056	Heat exchanger	HSU-09H03/(BP)1	1			
7	001A0300005	Bearing	HSU-09H03/(BP)1	1			
8	0010202415	Fan	HSU-09H03/(BP)1	1			*
9	001A0100206	Rear case assy	HSU-09H03/(BP)1	1			
10	0010101275	Mounting plate	HSU-09H03/(BP)1	1			
11	001A3000052	Motor	HSU-09H03/(BP)1	1			*
12	001A3800032	Transformer	HSU-09H03/(BP)1	1			*
13	0010402938	PCB	HSU-09H03/(BP)1	1			*
14	001A4000095	Terminal block	HSU-09H03/(BP)1	1			
15	001A0600287	PCB(receiver)	HSU-09H03/(BP)1	1			*
16	001A0900011	Drain tube	HSU-09H03/(BP)1	1			
17	001A3000040	Swing motor	HSU-09H03/(BP)1	1			*
18	0010402582	Remote controller	HSU-09H03/(BP)1	1			*
19	001A1434039	Drain tube	HSU-09H03/(BP)1	1			
20	001A3900059	Sensor	HSU-09H03/(BP)1	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 accorded 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.

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	001A0100945	Front grille	HSU-12H03/(BP)1	1			
2	001A2400060/ 001A2400061	Air filter	HSU-12H03/(BP)1	1/1			
3	001A1232074	Front panel assy	HSU-12H03/(BP)1	1			
4	001A1232077	Flap	HSU-12H03/(BP)1	1			
5	001A0900107	Drain pan assy	HSU-12H03/(BP)1	1			
6	001A0400056	Heat exchanger	HSU-12H03/(BP)1	1			
7	001A0300005	Bearing	HSU-12H03/(BP)1	1			
8	0010202415	Fan	HSU-12H03/(BP)1	1			*
9	001A0100206	Rear case assy	HSU-12H03/(BP)1	1			
10	0010101275	Mounting plate	HSU-12H03/(BP)1	1			
11	001A3000052	Motor	HSU-12H03/(BP)1	1			*
12	001A3800032	Transformer	HSU-12H03/(BP)1	1			*
13	0010402939	PCB	HSU-12H03/(BP)1	1			*
14	001A4000095	Terminal block	HSU-12H03/(BP)1	1			
15	001A0600287	PCB(receiver)	HSU-12H03/(BP)1	1			*
16	001A0900011	Drain tube	HSU-12H03/(BP)1	1			
17	001A3000040	Swing motor	HSU-12H03/(BP)1	1			*
18	0010402582	Remote controller	HSU-12H03/(BP)1	1			*
19	001A1434039	Drain tube	HSU-12H03/(BP)1	1			
20	001A3900059	Sensor	HSU-12H03/(BP)1	1			*

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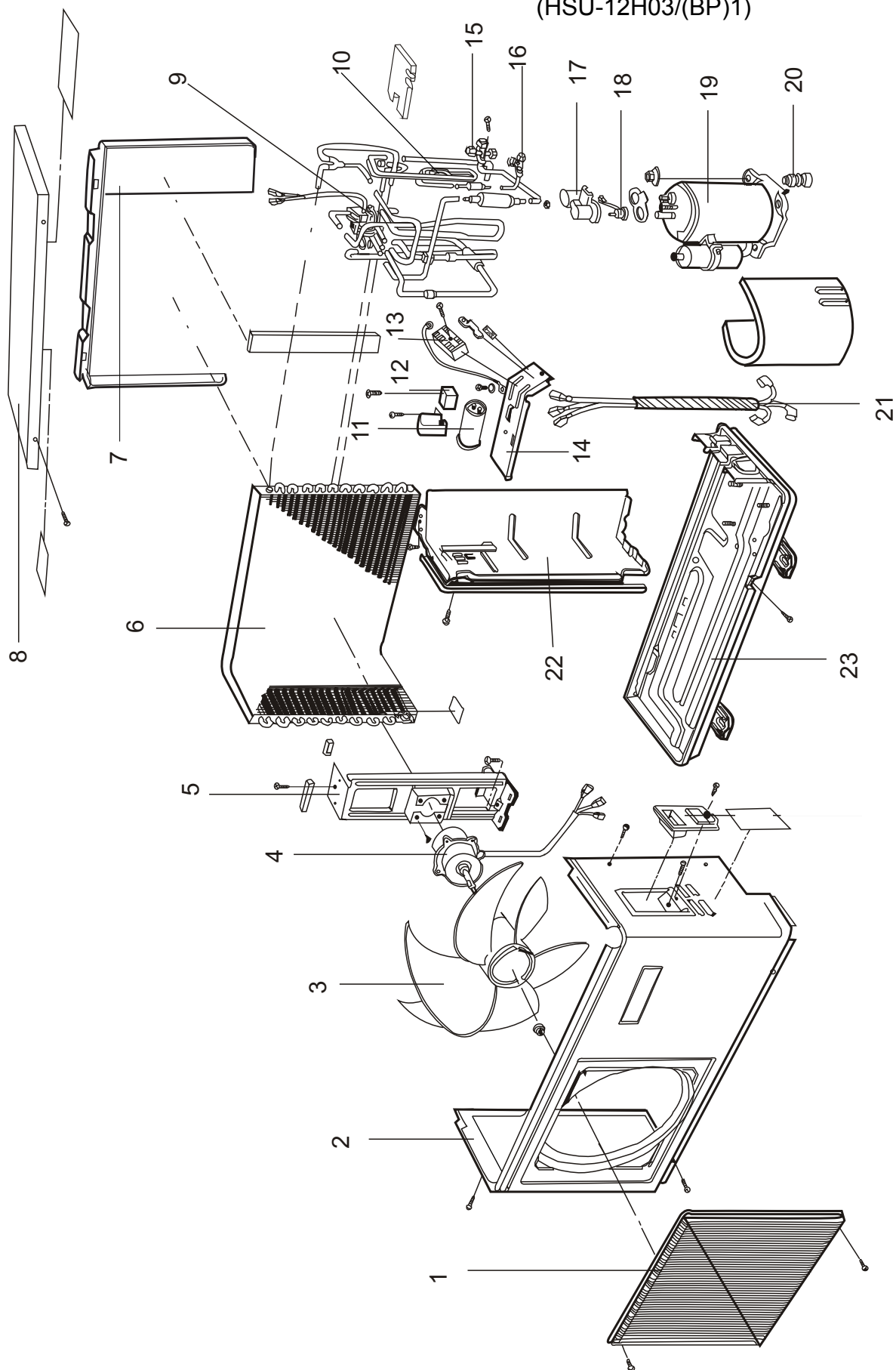
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## KNOCK-DOWN DRAWINGS FOR OUTDOOR UNIT(HSU-09H03/(BP)1) (HSU-12H03/(BP)1)



No. in exploded view	Spare parts number	Spare parts description in english	Model	Qty	Failure rate	The proportion of the spare part	Remark
1	001A1436043	Front grille	HSU-09H03/(BP)1	1			
2	0010101387	Front panel	HSU-09H03/(BP)1	1			
3	001A2331030	Fan	HSU-09H03/(BP)1	1			*
4	0010400896	Motor	HSU-09H03/(BP)1	1			*
5	0010100419	Bracket	HSU-09H03/(BP)1	1			
6	0010705814	Heat exchanger	HSU-09H03/(BP)1	1			X
7	0010101388	Back grille	HSU-09H03/(BP)1	1			
8	001A0100018	Top panel	HSU-09H03/(BP)1	1			X
9	001A2500053	4-way valve coil	HSU-09H03/(BP)1	1			*
10	0010705819	pipe assy	HSU-09H03/(BP)1	1			
11	001A3600034	Capacitor for comp.	HSU-09H03/(BP)1	1			*
12	-----	Capacitor for motor	HSU-09H03/(BP)1	1			*
13	001A4000105	Terminal block	HSU-09H03/(BP)1	1			*
14	0010804823	Electric box	HSU-09H03/(BP)1	1			
15	0010702427	Stop valve	HSU-09H03/(BP)1	1			X
16	0010702410	Stop valve	HSU-09H03/(BP)1	1			X
17	-----	wires cover	HSU-09H03/(BP)1	1			
18	-----	Protector	HSU-09H03/(BP)1	1			
19	0010702261	compressor	HSU-09H03/(BP)1	1			*
20	-----	cushion	HSU-09H03/(BP)1	1			
21	0010403343	wires	HSU-09H03/(BP)1	1			
22	0010804838	Separating plate	HSU-09H03/(BP)1	1			X
23	0010804839	Bottom plate assy	HSU-09H03/(BP)1	1			X

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No. in exploded view	Spare parts number	Spare parts description in english	Model	Qty	Failure rate	The proportion of the spare part	Remark
1	001A1436043A	Front grille	HSU-12H03/(BP)1	1			
2	0010101387	Front panel	HSU-12H03/(BP)1	1			
3	001A2331030A	Fan	HSU-12H03/(BP)1	1			*
4	001A3000029	Motor	HSU-12H03/(BP)1	1			*
5	0010100418	Bracket	HSU-12H03/(BP)1	1			
6	0010705802	Heat exchanger	HSU-12H03/(BP)1	1			X
7	0010101388	Back grille	HSU-12H03/(BP)1	1			
8	001A0100018	Top panel	HSU-12H03/(BP)1	1			X
9	001A2500053	4-way valve coil	HSU-12H03/(BP)1	1			*
10	0010705816	pipe assy	HSU-12H03/(BP)1	1			
11	001A3600034	Capacitor for comp.	HSU-12H03/(BP)1	1			*
12	001A3600007A	Capacitor for motor	HSU-12H03/(BP)1	1			*
13	001A4000105	Terminal block	HSU-12H03/(BP)1	1			*
14	0010804825	Electric box	HSU-12H03/(BP)1	1			
15	0010702427	Stop valve	HSU-12H03/(BP)1	1			X
16	0010702408	Stop valve	HSU-12H03/(BP)1	1			X
17	-----	wires cover	HSU-12H03/(BP)1	1			
18	-----	Protector	HSU-12H03/(BP)1	1			
19	0010704061	compressor	HSU-12H03/(BP)1	1			*
20	-----	cushion	HSU-12H03/(BP)1	1			
21	0010403344	wires	HSU-12H03/(BP)1	1			
22	0010804196	Separating plate	HSU-12H03/(BP)1	1			X
23	0010804839	Bottom plate assy	HSU-12H03/(BP)1	1			X

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## Brief introduction to electrical control functions

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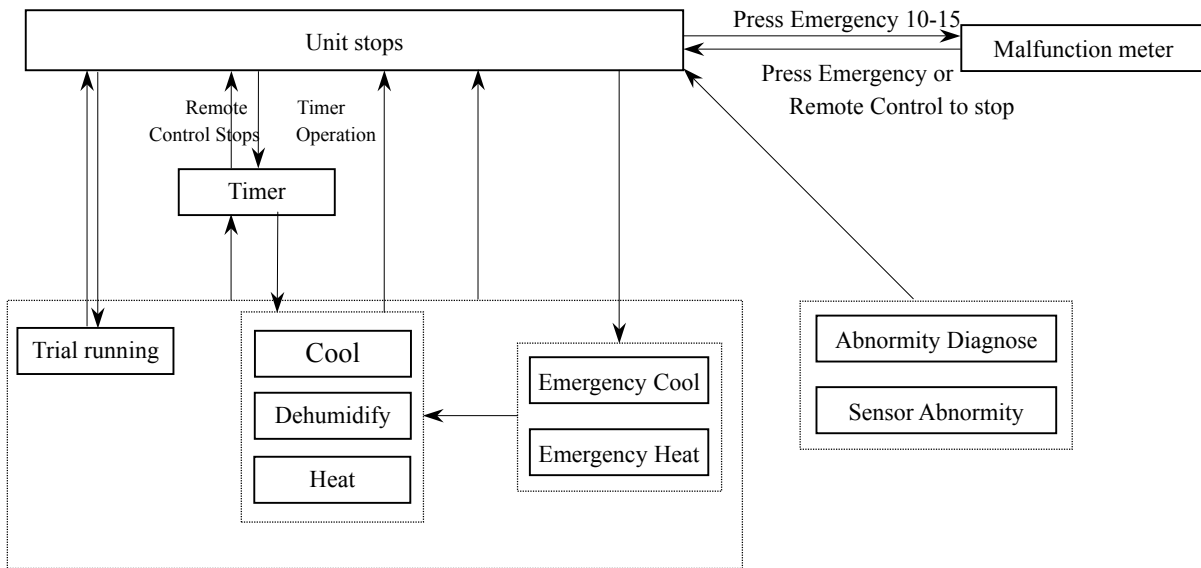
### 1. Introduction to electrical control function

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

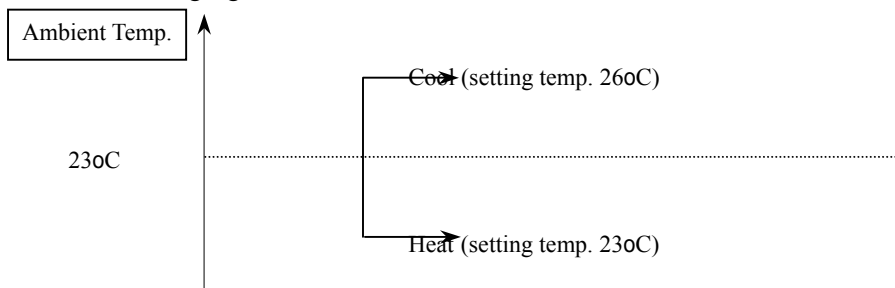
As the following figure:



##### 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. $-0.33^{\circ}\text{C}$ )

When setting manual control, wind speed will run according 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  $T$  ( ambient temp. - compensation temp. - setting temp. ). See the following table for details:

Temperature difference (oC)	$T > 4.3$	$4.3 > T > 0.3$	$T < 0.3$
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)	$T > 4.3$	$4.3 > T > 1.3$	$1.3 > T > -1$	$T < -1$
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)
$T \geq 26$	No limitation
$T < 26$	60 Hz

### 1.1.3 Dehumidification running

#### 1.1.3.1 Air volume control under dehumidification running (Cool compensation temperature $-0.33^{\circ}\text{C}$ )

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)	$T > 0.3$	$T < 0.3$
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)	$T > 4.3$	$4.3 > T > 0.3$	$T < 0.3$
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 (°C)	$T > 4.3$	$4.3 > T > 1.3$	$1.3 > T > -1$	$T < -1$
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).

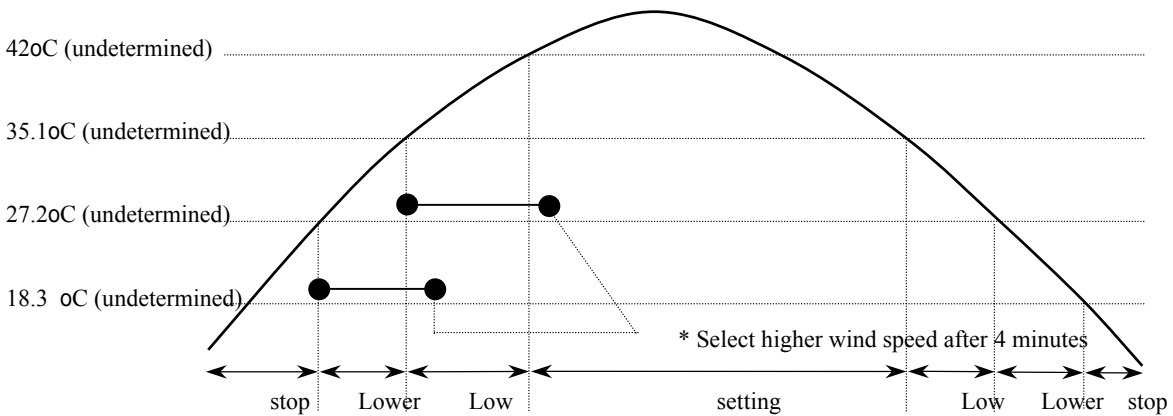
Outdoor ambient temp. (°C)	Maximum frequency (Hz)
$T \geq 26$	No limitation
$T < 26$	60 Hz

### 1.1.4 Heating running (heat compensation temp. 4.67°C)

#### 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 (°C)	$T > 4.7$	$4.7 > T > 0.7$	$T < 0.7$
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 (°C)	$T > 5.7$	$5.7 > T > 1.3$	$1.3 > T > -0.7$	$T < -0.7$
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. (°C)	Maximum frequency (Hz)
$T \geq 15$	74 Hz
$T < 15$	No limitation

### 1.1.5 Defrosting running

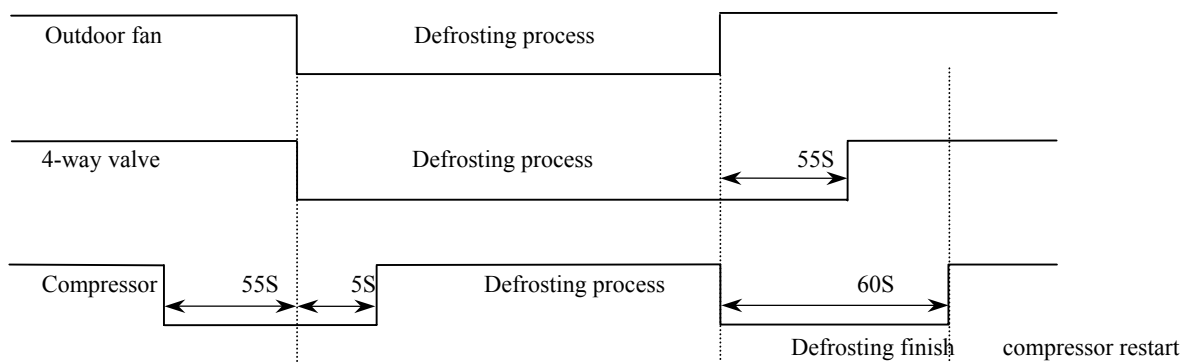
#### 1.1.5.1 Defrosting process

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 -4°C (model: 09) or -5°C (12) 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.

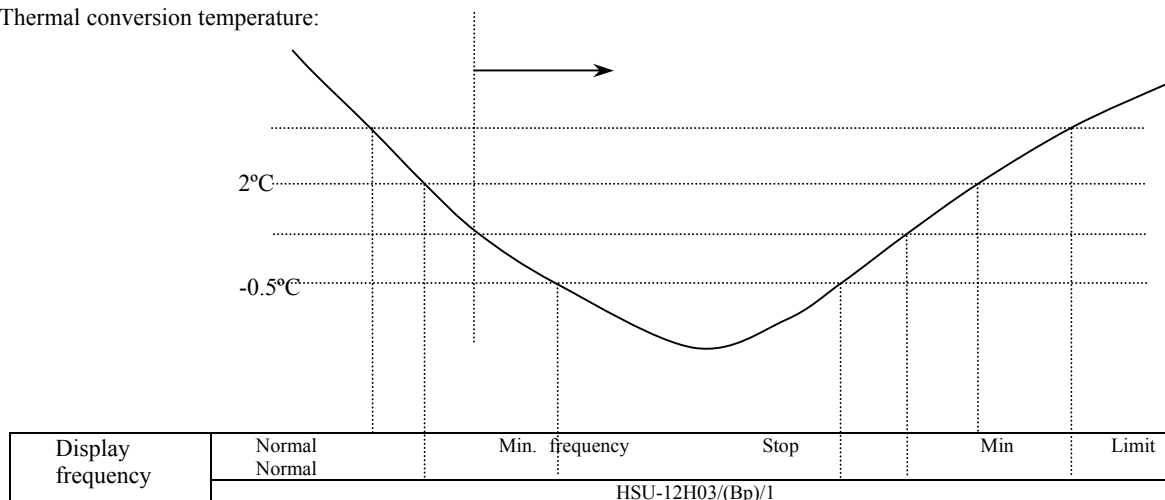
## 1.1.7 Protection function

### 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:



Indoor coil pipe temperature sensor type: R (25°C)=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 2°C and coil-pipe temperature is above -0.5°C.

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

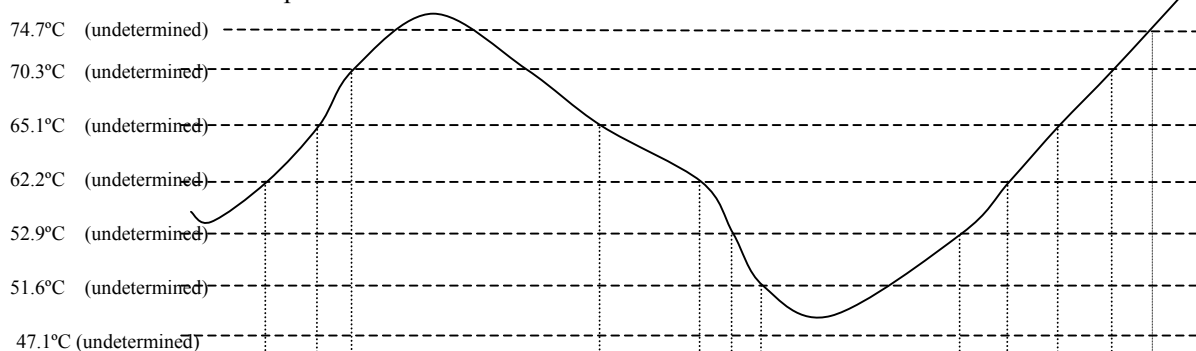
When indoor coil-pipe temperature is 2.1°C, the compressor restarts.

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:

Thermal conversion temperature



Indicate frequency	<b>HSU-12H03/(BP)1</b>							
	Stop	C	3 minutes standby	C	B	A	B	C

		Parameters
Frequency A	Fpqhheat0	110Hz
Frequency B	Fpqhheat1	100Hz
Frequency C	Fpqhheat2	80Hz
Frequency D	Fpqhheat3	40Hz
Frequency D	Fpqhheat4	30Hz

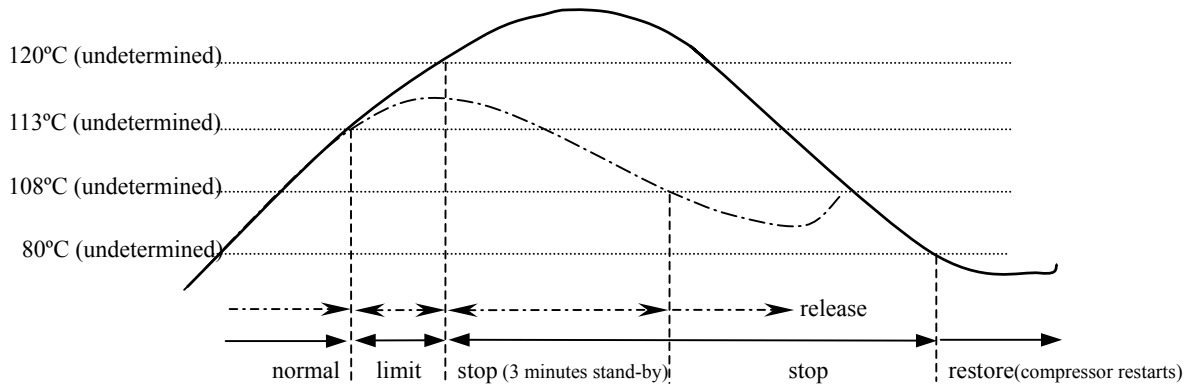
When high-load protection is limited to act twice within 30 minutes, it is high-load protection alarm.

When indoor coil pipe temperature is lower than 45°C, 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.

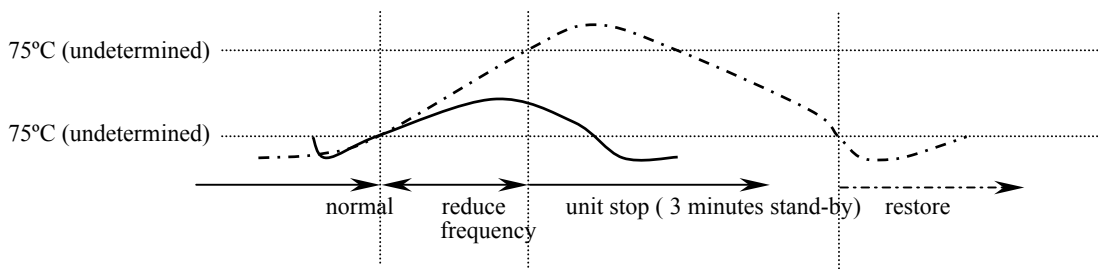
The dotted line indicates the descending curve of the discharge temperature after frequency is limited, and the real line indicates the continuous ascending curve of the discharge temperature after frequency is limited.

### 1.1.7.4 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.

### 1.1.7.5 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 126°C or below -31°C 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 196°C or below -53°C is abnormal.

When leaving the above ranges, operation resets automatically.

If abnormality 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.

Outdoor ambient temperature sensor abnormal.

Displayed as thermistor abnormality 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 abnormality released. If abnormality appears, the low-load protection shall be released.

#### 1.1.8.4 Control action of outdoor unit protection.

Displaying abnormality 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.

#### 1.1.8.5 Transmission abnormality

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 abnormality after outdoor unit receives the signal of transmission abnormality.

Transmission abnormality is released by running stopping.

#### 1.1.8.6 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			Indo or	Outd oor	Autom atic restore
	Powe r	Time r	Run ning			
Abnormity of indoor thermistor				*		*
Abnormity of thermal conversion thermistor				*		*
Abnormity of defrosting thermistor					*	*
Abnormity of discharging thermistor					*	*
Abnormity of control board thermistor					*	*
Abnormity of module thermistor					*	*
Abnormity of outdoor thermistor					*	*
Transmission abnormality				*		
					*	

Compressor running abnormality		*	
Overhigh discharging temperature protection		*	
AC current protection		*	
DC current protection		*	
Insufficient current protection		*	
Outdoor control board temperature protection		*	
Module temperature rising protection		*	
High-load protection		*	
CT wiring disconnected protection		*	
EEPROM abnormality		*	
Note:	: Lightning : Flashing : Blackout	* Indicating that this function is provided.	

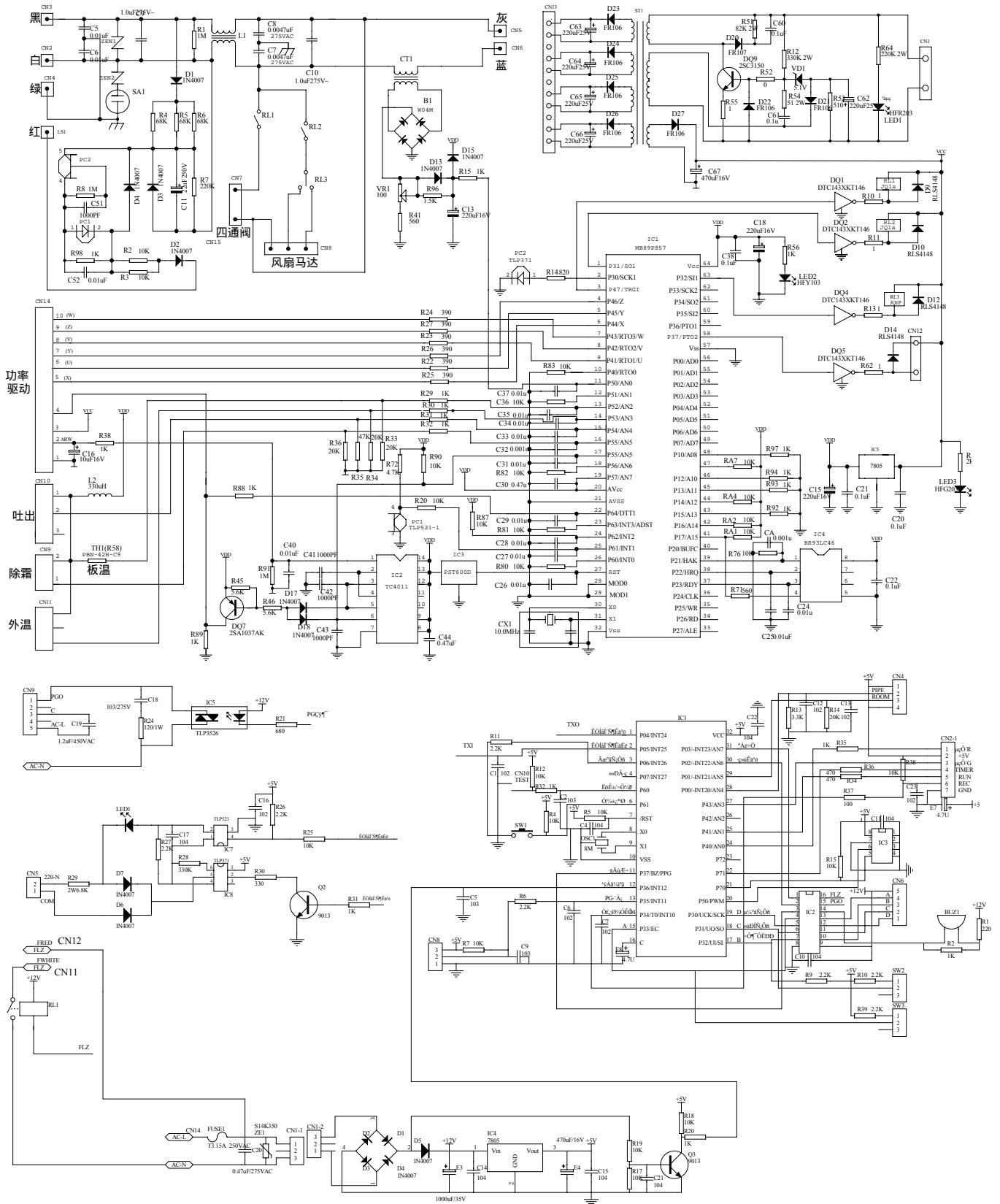
For the appeared abnormal phenomena, please refer to the following table for trouble analysis and troubleshooting:

List of error code:

Abnormity mode	Error display			Indoor	Outdoor	Automatic restore	Possible reason
	Power	Timer	Running				
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.
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.



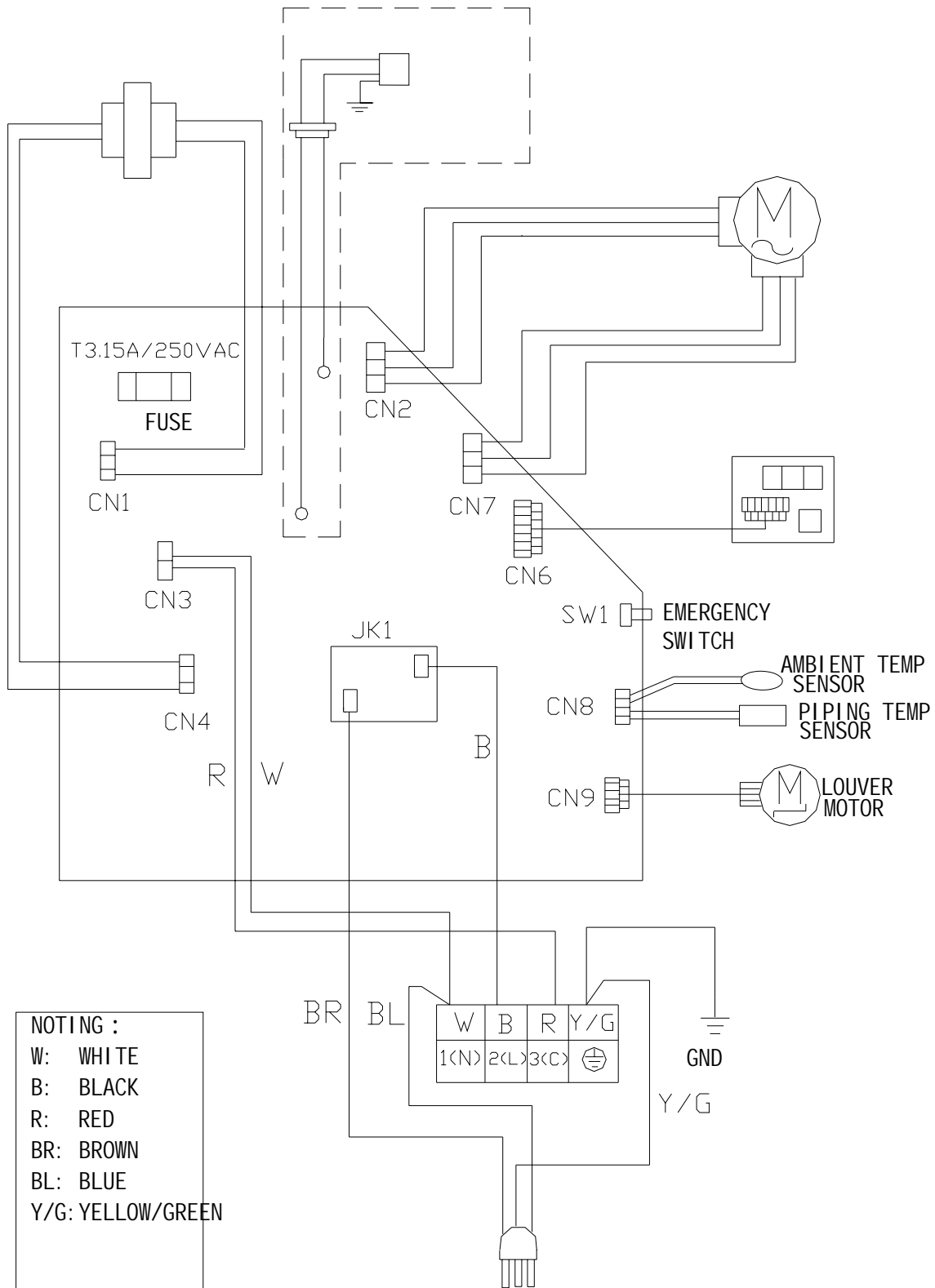
Outdoor control board temperature protection		*		<ol style="list-style-type: none"> <li>Whether control board is abnormal.</li> <li>Whether outdoor ambient temperature is too high.</li> </ol>
Module temperature rising protection		*		<ol style="list-style-type: none"> <li>Whether compressor shaft is seized.</li> <li>Whether power module is damaged.</li> <li>Whether heat emission glue is evenly distributed.</li> <li>Whether system voltage is too high (above242V) or too low (below 187V)</li> </ol>
High-load protection		*		<ol style="list-style-type: none"> <li>Whether filter is blocked.</li> <li>Whether the indoor/outdoor ambient temperature is too high</li> <li>Whether system is charged too much gases.</li> <li>Whether control board component is damaged.</li> <li>Whether voltage is too high or too low.</li> </ol>
CT wiring disconnected protection		*		<ol style="list-style-type: none"> <li>Whether control board is damaged.</li> <li>Whether 4-way valve is converted.</li> <li>Whether charged gas is normal</li> </ol>
EEPROM abnormality		*		1. Whether control board is damaged.
		*		1. Whether control board is damaged.
Note:	: Lightning : Flashing : Blackout	* Indicating that this function is provided.		



Outdoor control board temperature protection		*		<ol style="list-style-type: none"> <li>Whether control board is abnormal.</li> <li>Whether outdoor ambient temperature is too high.</li> </ol>
Module temperature rising protection		*		<ol style="list-style-type: none"> <li>Whether compressor shaft is seized.</li> <li>Whether power module is damaged.</li> <li>Whether heat emission glue is evenly distributed.</li> <li>Whether system voltage is too high (above242V) or too low (below 187V)</li> </ol>
High-load protection		*		<ol style="list-style-type: none"> <li>Whether filter is blocked.</li> <li>Whether the indoor/outdoor ambient temperature is too high</li> <li>Whether system is charged too much gases.</li> <li>Whether control board component is damaged.</li> <li>Whether voltage is too high or too low.</li> </ol>
CT wiring disconnected protection		*		<ol style="list-style-type: none"> <li>Whether control board is damaged.</li> <li>Whether 4-way valve is converted.</li> <li>Whether charged gas is normal</li> </ol>
EEPROM abnormality		*		1. Whether control board is damaged.
		*		1. Whether control board is damaged.
Note:	: Lightning : Flashing : Blackout	* Indicating that this function is provided.		

## Wiring diagram

## WIRING DIAGRAM OF INDOOR UNIT 0010509756

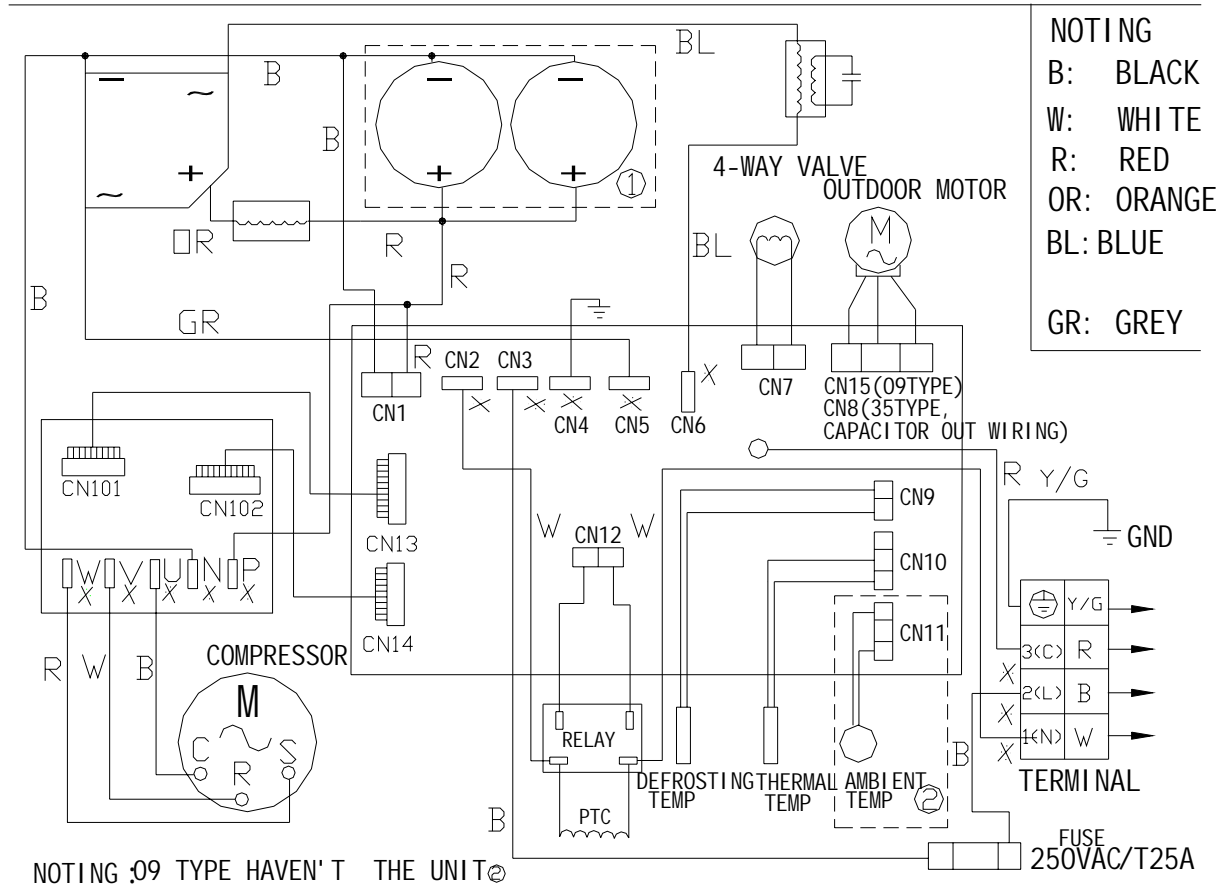


**NOTING :**  
W: WHITE  
B: BLACK  
R: RED  
BR: BROWN  
BL: BLUE  
Y/G: YELLOW/GREEN

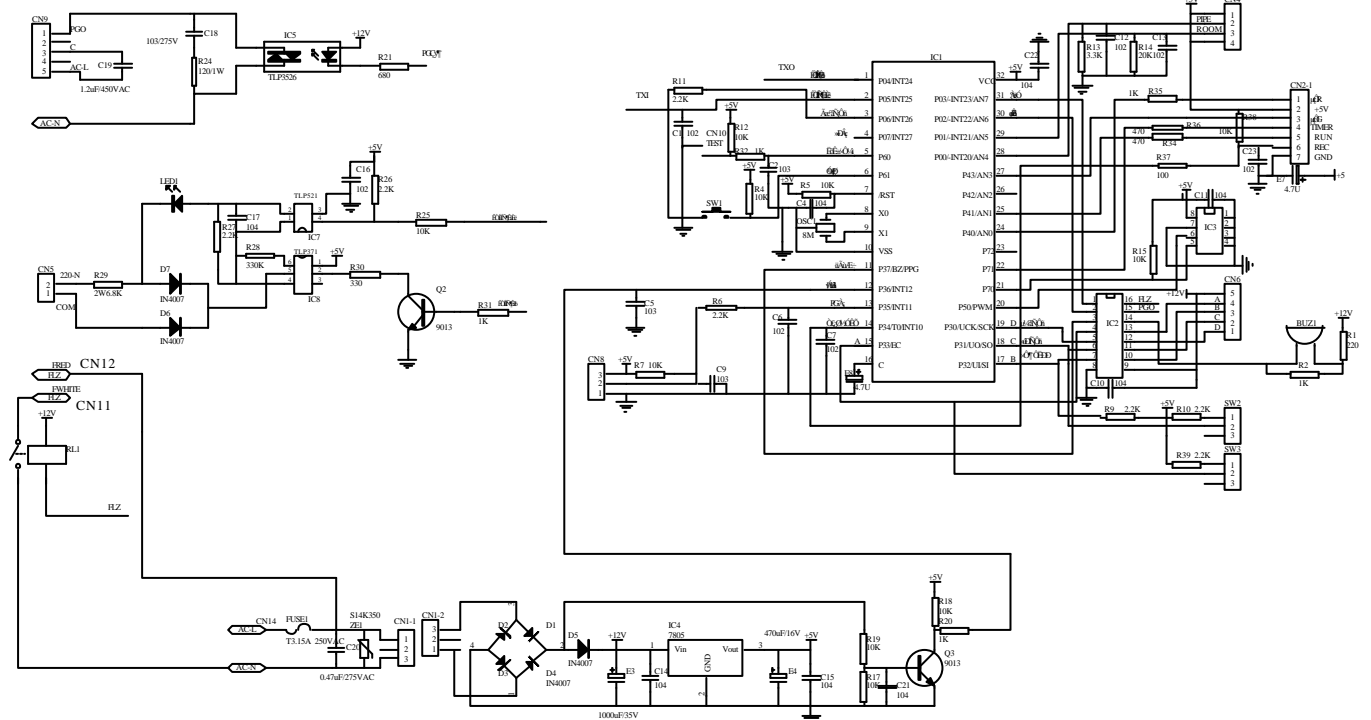
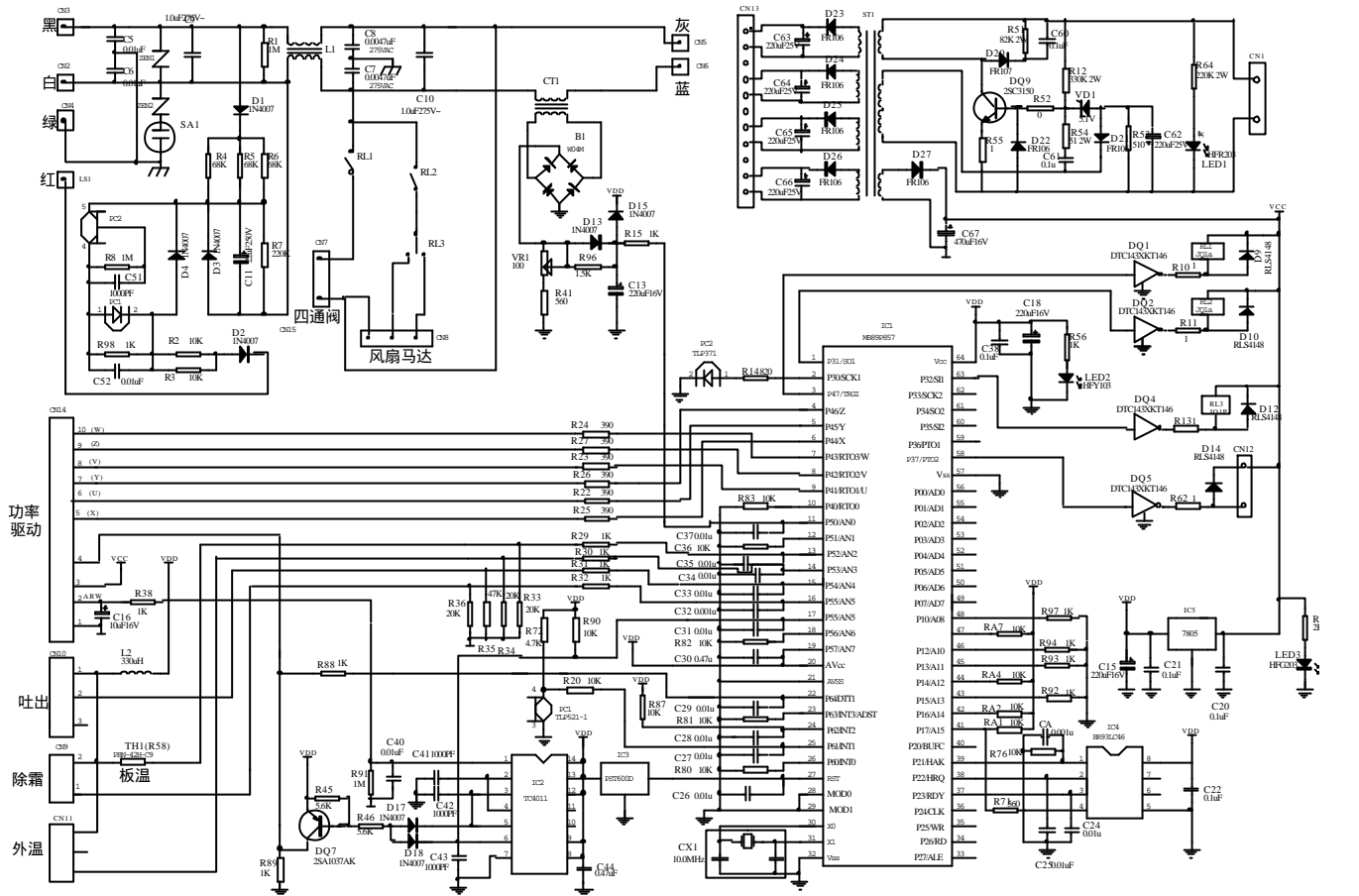
POWER 1PH. 220V~. 50Hz

## WIRING DIAGRAM OF OUTDOOR UNIT

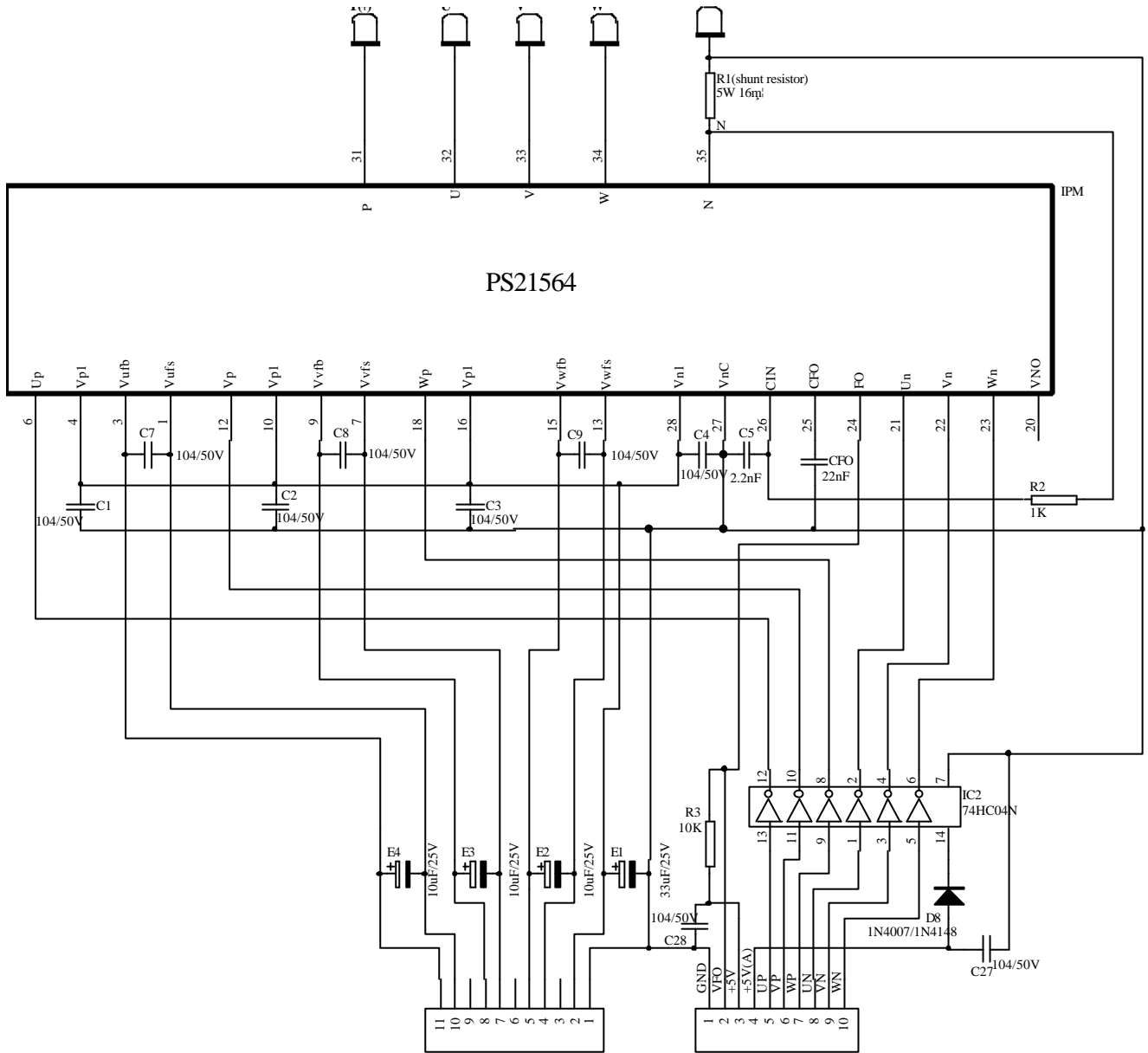
0010510214



## CIRCUIT DIAGRAM







## **ABNORMITY DIAGNOSE**

## Abnormality diagnosing

- a. The temperature sensor of coil pipe of indoor unit is in short circuit or broken circuit, the timing indicator of indoor unit is on, the power indicator is flickered in 1Hz;
- b. The room temperature sensor of indoor unit is in short circuit or broken circuit: the timing indicator of indoor unit is off, the power indicator is flickered in 1Hz;
- c. The motor of indoor unit has no backfeed of signal, the power indicator of indoor unit and running indicator are flickered twice, then the power indicator, running indicator and timing indicator are all flickered for 1 second, then repeating the cycle.

**Brief introduction to electrical function**

1.1.8.7 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.






1.1.8.8 List of error code

Abnormity mode	Error display			Indoor	Outdoor	Automatic restore
	Power	Time	Running			
Abnormity of indoor thermistor	★	■	■	*		*
Abnormity of thermal conversion thermistor	★	□	□	*		*
Abnormity of defrosting thermistor	□	□	★		*	*
Abnormity of discharging thermistor	★	□	■		*	*
Abnormity of control board thermistor	□	■	★		*	*
Abnormity of module thermistor	□	★	□		*	*
Abnormity of outdoor thermistor	□	★	■		*	*
Transmission abnormality	■	■	★	*		
					*	
Compressor running abnormality	★	■	□		*	
Overhigh discharging temperature protection	■	★	■		*	
AC current protection	★	★	■		*	
DC current protection	★	★	□		*	
Insufficient current protection	■	★	□		*	
Outdoor control board temperature protection	■	★	★		*	
Module temperature rising protection	□	★	★		*	
High-load protection	★	★	★	*		
CT wiring disconnected protection	★	■	★		*	
EEPROM abnormality	★	□	★	*		
					*	
Note:	□: Lightning ★: Flashing ■: Blackout			* Indicating that this function is provided.		

## TROUBLE SHOOTING

## Trouble Shooting

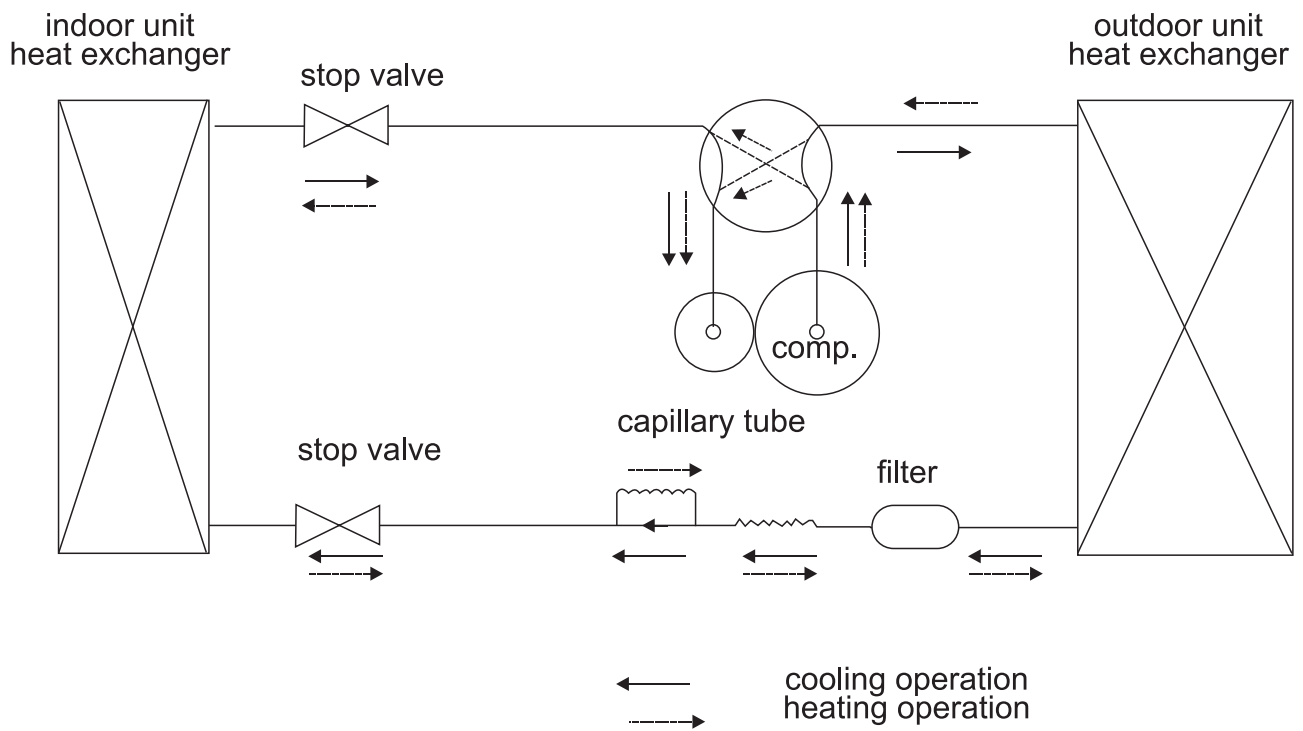
Before asking for service, check the following first.

	Phenomenon	Cause or check points
Normal Performance inspection	The system does not restart immediately. 	<ul style="list-style-type: none"> <li>• When unit is stopped, it won't restart immediately until 3 minutes have elapsed to protect the system.</li> <li>• When the electric plug is pulled out and reinserted, the protection circuit will work for 3 minutes to protect the air conditioner.</li> </ul>
	Noise is heard. 	<ul style="list-style-type: none"> <li>• 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.)</li> <li>• During unit operation, a cracking noise may be heard. This noise is generated by the casing expanding or shrinking because of temperature changes.</li> <li>• Should there be a big noise from air flow in unit operation, air filter may be too dirty.</li> </ul>
	Smells are generated.	<ul style="list-style-type: none"> <li>• This is because the system circulates smells from the interior air such as the smell of furniture, cigarettes.</li> </ul>
	Mist or steam are blown out. 	<ul style="list-style-type: none"> <li>• During COOL or DRY operation, indoor unit may blow out mist. This is due to the sudden cooling of indoor air.</li> </ul>
Multiple check	Does not work at all. 	<ul style="list-style-type: none"> <li>• Is power plug inserted?</li> <li>• Is there a power failure?</li> <li>• Is fuse blown out?</li> </ul>
	Poor cooling 	<ul style="list-style-type: none"> <li>• Is the air filter dirty? Normally it should be cleaned every 15 days.</li> <li>• Are there any obstacles before inlet and outlet?</li> <li>• Is temperature set correctly?</li> <li>• Are there some doors or windows left open?</li> <li>• Is there any direct sunlight through the window during the cooling operation?(Use curtain)</li> <li>• Are there too much heat sources or too many people in the room during cooling operation?</li> </ul>

Application temp. range of air conditioner -7°C~43°C.

## REFRIGERATING CYCLE DIAGRAM

## Refrigerating cycle diagram



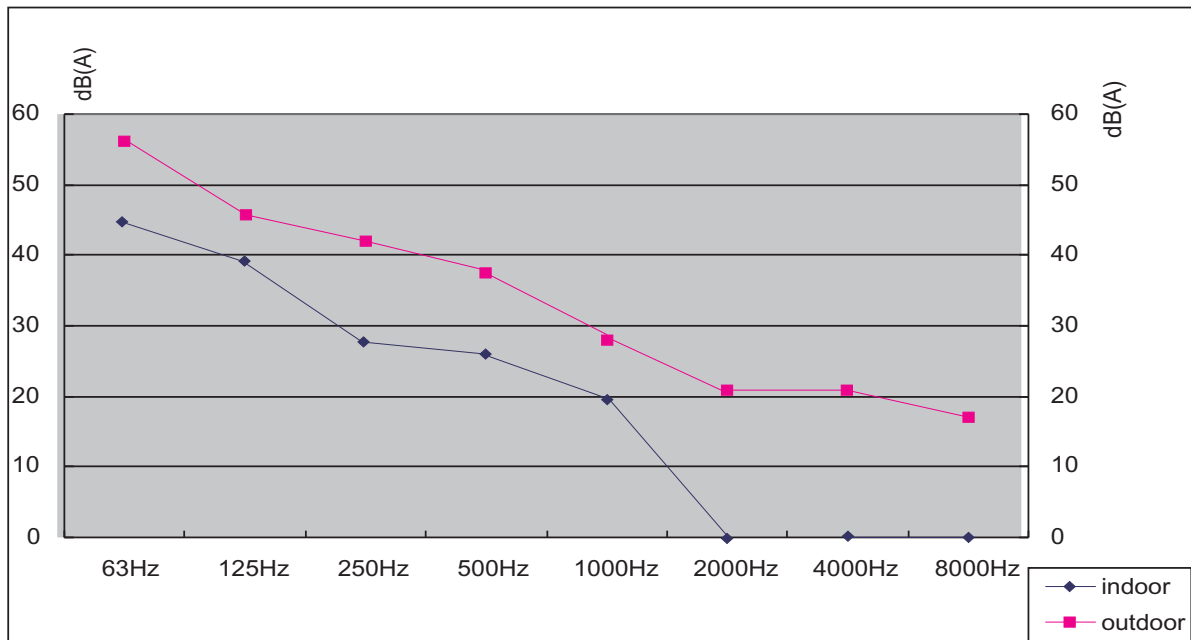


## Noise level test chart and air velocity distribution

## Noise level test chart and air velocity distribution

### Noise level test chart

MODEL: HSU-09H03/(BP)1 HSU-12H03/(BP)1



Noise level test chart and air velocity distribution

Air velocity distribution

MODEL: HSU-09H03/(BP)1      HSU-12H03/(BP)1

Air velocity distribution

Fig 1  
 top view  
 flow control panel horizontal  
 louver:center

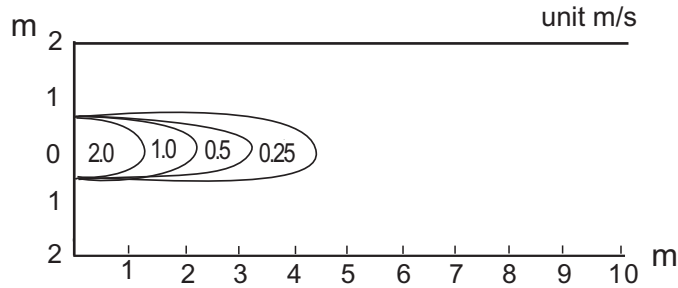


Fig 2  
 top view  
 flow control panel horizontal  
 louver:right and left

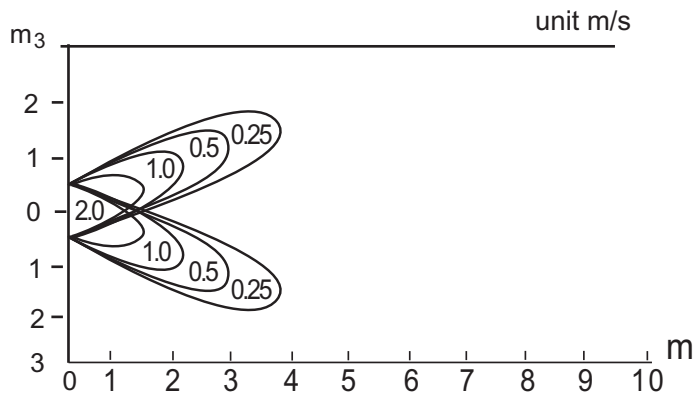


Fig 3  
 top view  
 flow control panel horizontal  
 louver:center

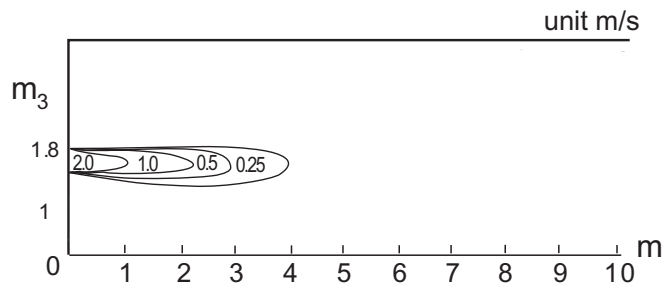
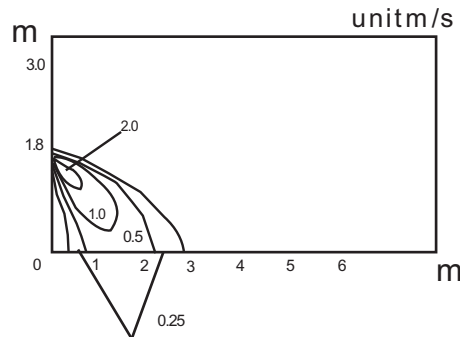


Fig 4  
 top view  
 flow control panel vertical  
 louver:center



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

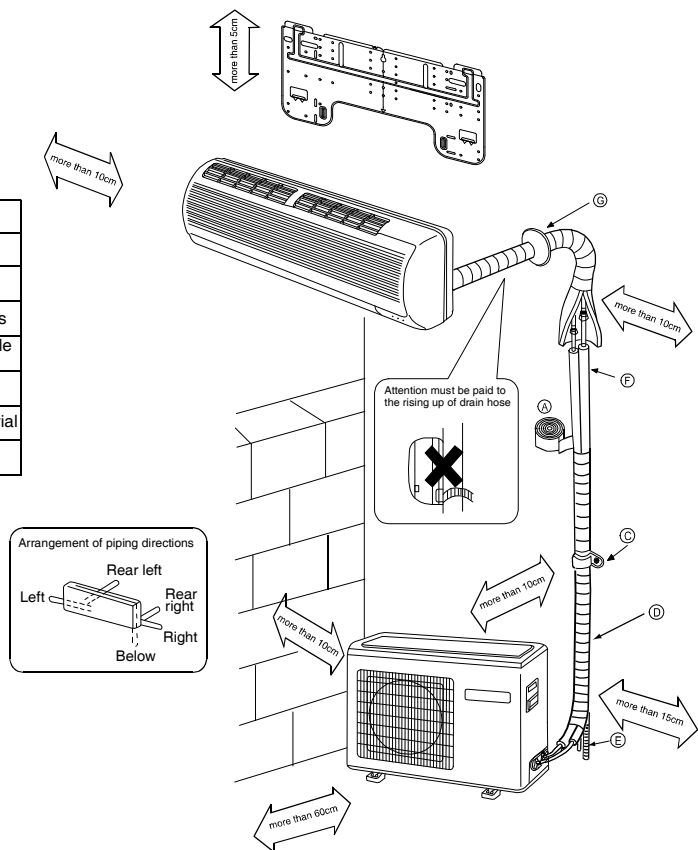
### Drawing for the installation of indoor and outdoor units

#### 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	$\phi$ 4X50 Steel nail, cement	6
⑥	$\phi$ 4X25 Screw Plastic cap	4
⑦	Drain-elbow	1
⑧	Cover	1
⑨	Cushion	4
⑩	Connecting cable	1

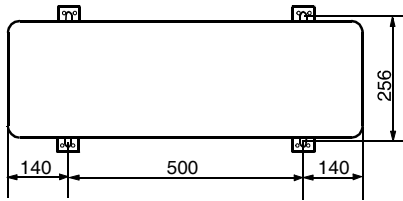
#### Optional parts for piping

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



- ※ The marks from (A) to (G) in the figure are the parts numbers.
- ※ The distance between the indoor unit and the floor should be more than 2m.

No.0010552239



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.

### 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 ⇔ 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.

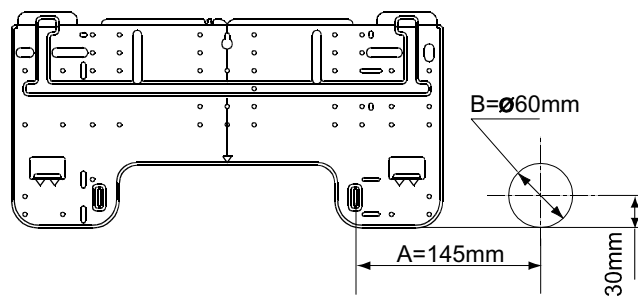
	HSU-09H03/(BP)1	HSU-09H03/(BP)1
Liquid pipe (φ)	6.35mm(1/4")	6.35mm(1/4")
Gas pipe (φ)	9.52mm(3/8")	12.7mm(1/2")

# 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



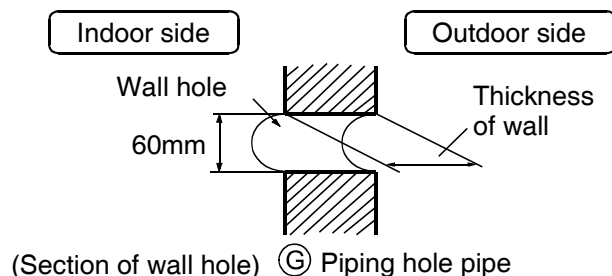
Find the level position

### When the mounting plate is fixed 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 60 mm in diameter, slightly descending to outside the wall.
- Install piping hole cover and seal it off with putty after installation



## Indoor unit

### 3. Installation of the Indoor Unit

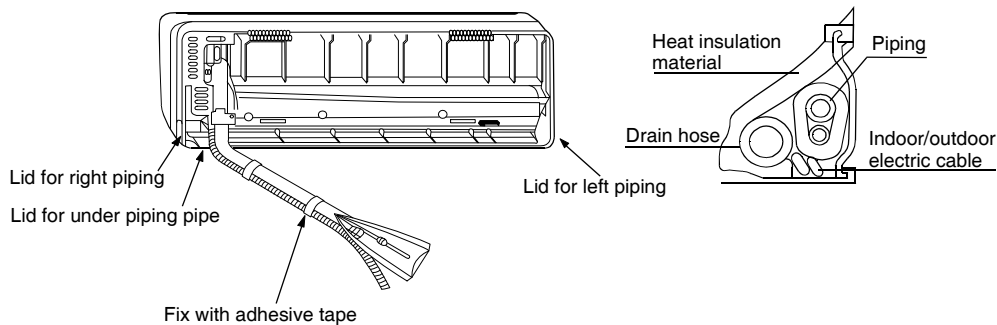
#### Drawing of pipe

##### [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



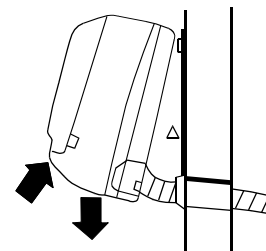
- Indoor/outdoor electric cable and drain hose must be bound with refrigerant piping by protecting tape.

##### [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

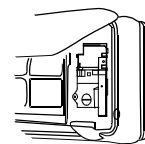
- Hang surely the unit body onto the upper notches of the mounting plate. Move the body from side to side to verify its secure fixing.
- In order to fix the body onto the mounting plate, hold up the body aslant from the underside and then put it down perpendicularly.



### 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.

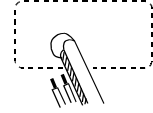




## Indoor unit

### 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.

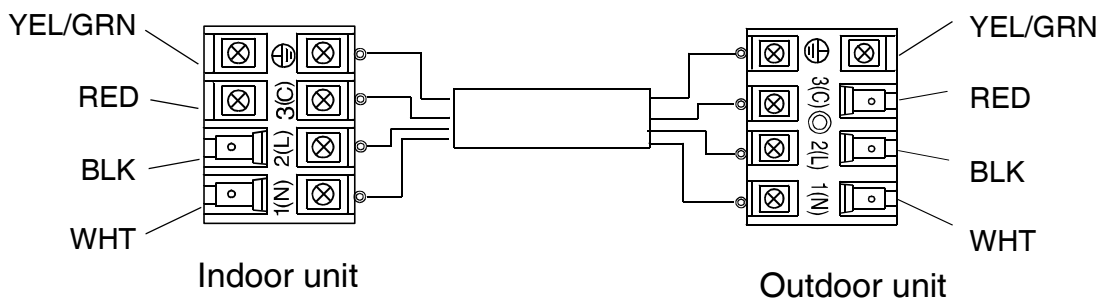
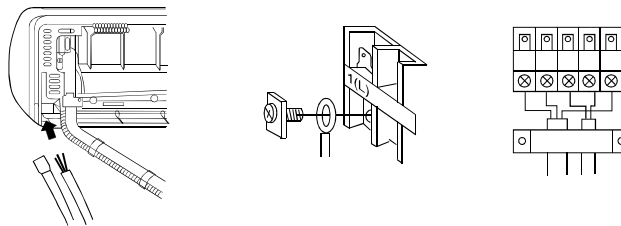


### When connecting the cable before installing the indoor unit

- 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.



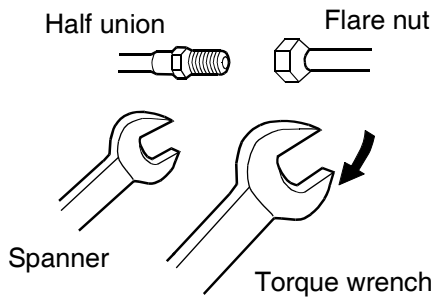
# Outdoor unit

## 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 vertical distance between the indoor unit and the outdoor unit is 5 m.



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

Pipe Diameter ( $\phi$ )	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.

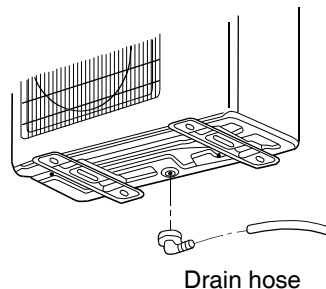
## 3. Connection

- 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.

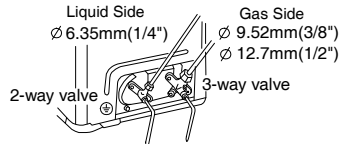


## Outdoor unit

### 5.Purging Method

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

- (1) Remove the valve cap on 2-way valve in outdoor unit.
- (2) Loosen by 1/2 turn the flare nut of gas pipe, which is conncted 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 piping, air inside piping shall be removed by using external refrigerant gas, charge according to the following list.

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 pipes.

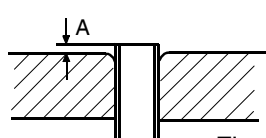
- ★ 1 During this procedure, 50g refrigerant will be discharged in piping.  
(This must be strictly controlled within 90° and 6sec.)

## 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.



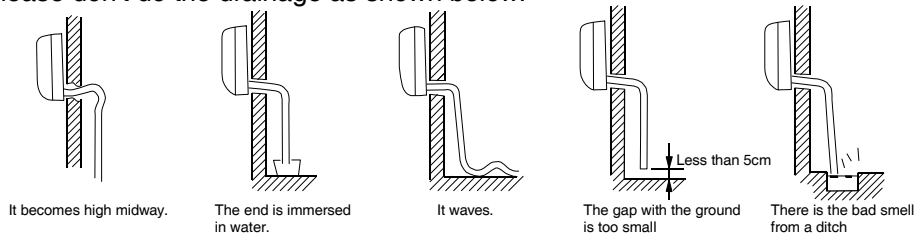
	Pipe diameter $\phi$	Size A (mm)
Liquid side	6.35mm(1/4")	0.8~1.5
Gas side	9.52mm(3/8")	1.0~1.8
Gas side	12.7mm(1/2")	1.2~2.0

Flare tooling die

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.



- 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  $\checkmark$  in boxes

- |  |  |  |
|--|--|--|
| <input type="checkbox"/> Gas leak from pipe connecting?  | <input type="checkbox"/> Is drainage securely carried out?           | <input type="checkbox"/> Is the lamp normally lighting?                                  |
| <input type="checkbox"/> Heat insulation of pipe connecting?   | <input type="checkbox"/> Is the earth line securely connected?       | <input type="checkbox"/> Are cooling and heating (when in heat pump) performed normally? |
| <input type="checkbox"/> Are the connecting wirings of indoor and outdoor firmly inserted to the terminal block? | <input type="checkbox"/> Is the indoor unit securely fixed?          | <input type="checkbox"/> Is the operation of room temperature regulator normal?          |
| <input type="checkbox"/> Is the connecting wiring of indoor and outdoor firmly fixed?                            | <input type="checkbox"/> Is power source voltage abided by the code? |  |
|  | <input type="checkbox"/> Is there any noise?                         |  |

# **Sincere Forever**

## **Haier Group**

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