Haier SERVICE MANUAL

Order No. AC1107S001V0

Wall mounted Type

ON/OFF EK-Series

Model No. HSU-18HEK13/R2
HSU-24HEK13/R2

⚠WARNING

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

Haier Group

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1. Features

Intelligent air：With twin-blade technology ,the airflow can be adjusted not to blow directly to human

ESF filter : Trap harmful dust and remove unpleasant odors effectively

DRY function: Make dehumidifying in the room when the unit is working in the "DRY" mode

Anti-mold filter: Catches most small particles and remove unpleasant odors effectively

Sleep mode: The setting temprature and the indoor noise can be adjusted to a more comfortable level when you set the "sleep mode"during night sleep

24 Hour timer: Use the timer function to set on,or off,or from on to off,or from off to on

Auto restart: The function permits automatic return to previous peration conditions

Easy clean design: The panel is easy to wash and the airflow vents can be detached without any special tools for quick cleaning of the inside of the air conditioner

Auto mode: According to the fixed temperature "26 ℃" ,the unit will adjust the operation mode automatically.

2. Introduction

2.1 Safety Cautions

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

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

About the pictograms

△ This symbol indicates an item for which caution must be exercised.
The pictogram shows the item to which attention must be paid.

○ This symbol indicates a prohibited action.
The prohibited item or action is shown inside or near the symbol.

● This symbol indicates an action that must be taken, or an instruction.
The instruction is shown inside or near the symbol.

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

2.1.1 Caution in Repair

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

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

2.1.2 Cautions Regarding Products after Repair

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

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

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

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

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When relocating the equipment, make sure that the new installation site has sufficient strength to withstand the weight of the equipment. If the installation site does not have sufficient strength and if the installation work is not conducted securely, the equipment can fall and cause injury.	
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2.1.4 Using Icons

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

2.1.5 Using Icons List

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

3. Specifications

Model				HSU-18HEK13/R2		HSU-24HEK13/R2	
				Cooling	Heating	Cooling	Heating
Capacity Rated			Kw	5.27	5.27	6.45/6.27	6.45/6.27
			Btu/h	18000	18000	22000/21400	22000/21400
NOMINAL DISTRIBUTION SYSTEM VOLTAGE	Phase			1PH		1PH	
	Frequency		HZ	60		60	
	Voltage		V	230/208V		230/208V	
Moisture Removal			pints/hr	3.5	3.5	4.6	4.6
Running Current (Rated)			A	7.8	7.8	8.6/9.3	8.6/9.3
Power Consumption Rated			W	1640	1640	1950/1900	1950/1900
EER/COP			BTU/(h.w)	10.98	10.98	11.28/11.26	11.28/11.26
Piping Connections (external diameter)	Liquid		inches	1/4		3/8	
	Gas		inches	1/2		5/8	
	Drain		inches	5/8		5/8	
Heat Insulation				Both Liquid and Gas Pipes		Both Liquid and Gas Pipes	
Max. Piping Length			inches	98 7/16		98 7/16	
Max. Level Difference			inches	59 1/16		59 1/16	
Chargeless			inches	19 11/16		19 11/16	
Amount of Additional Charge of Refrigerant			OZ/inches	1.79		1.79	
Indoor Unit							
Front Panel Color				white		white	
Air Flow Rate	m^3/min(cfm)		H	18.3/647.2	18.3/647.2	21.7/764.8	21.7/764.8
			M	16.9/595.4	16.9/595.4	20.1/708.2	19.7/695.3
			L	15.4/543.6	15.4/543.6	18.5/651.5	17.7/625.8
Fan	Type			Cross Flow Fan		Cross Flow Fan	
	Motor Output		W	20		20	
	Speed		Steps	3 Steps, Silent, Auto		3 Steps, Silent, Auto	
Air Direction Control				Horizontal, Downward			
Air Filter				Removable / Washable / Mildew Proof			
Run current (rated)			A	0.11	0.11	0.11	0.11
Power consumption			W	25	25	25	25
Temperature Control				Microcomputer Control		Microcomputer Control	
Dimensions (WxHxD)			inches	41 3/16X11 3/4X9 11/32		15 5/32X12 19/32X10 9/32	
Packaged Dimensions (WxHxD)			inches	41 3/16X11 3/4X9 11/32		48 9/16X15 9/32X14 11/32	
Weight			pounds	28.7		36.4	
Gross Weight			pounds	36.4		43.0	
Operation Sound	H/M/L		dB(A)	47/44/40	47/44/40	49/46/43	49/46/43
Sound Power	H(cooling/heating)		dB(A)	57	57	59	59

Outdoor Unit				
Casing Color			White	White
Compressor	Type		Rotary Compressor	Rotary Compressor
	Model		50A452P	ASH218RN
	Motor Output	W	1805	1480
	Oil Type		NMOC Ze-Gles RB68EP or equivalent	NMOC Ze-Gles RB68EP or equivalent
	Oil Charge	pints	1.0	1.1
Refrigerant	Model		R410A	R410A
	Charge	pounds	2.9	5.4
Air Flow Rate（H）	m³/min		18.3	19.6
	cfm		568.3	691.9
Fan	Type		Axial fan	Axial fan
	Motor Output	W	72	65
Runing current（rated）		A	7.8	9.2
Power Consumption （rated）		W	1805	1480
Dimensions (H×W×D) (stop valve, and bottom support is not included)		inches	33 7/8X12 1/8X28 3/4	37 5/16X13 3/8X33 1/16
Packaged Dimensions (H×W×D)		inches	39 3/16X16 1/2X32 1/16	42 7/8X17 5/16X36 13/16
Weight		pounds	106.7	136.4
Gross Weight		pounds	115.5	145.2
OperationSound	H	dB(A)	56	58
Sound Power	H(cooling/heating)	dB(A)	56	58

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

Cooling	Heating	Piping Length
Indoor: 26.7°CDB/19.4°CWB Outdoor: 35°CDB/ 23.9°CWB	Indoor:21.1°CDB/15.6°CDB Outdoor: 8.1°CDB/6.3°CWB	5m

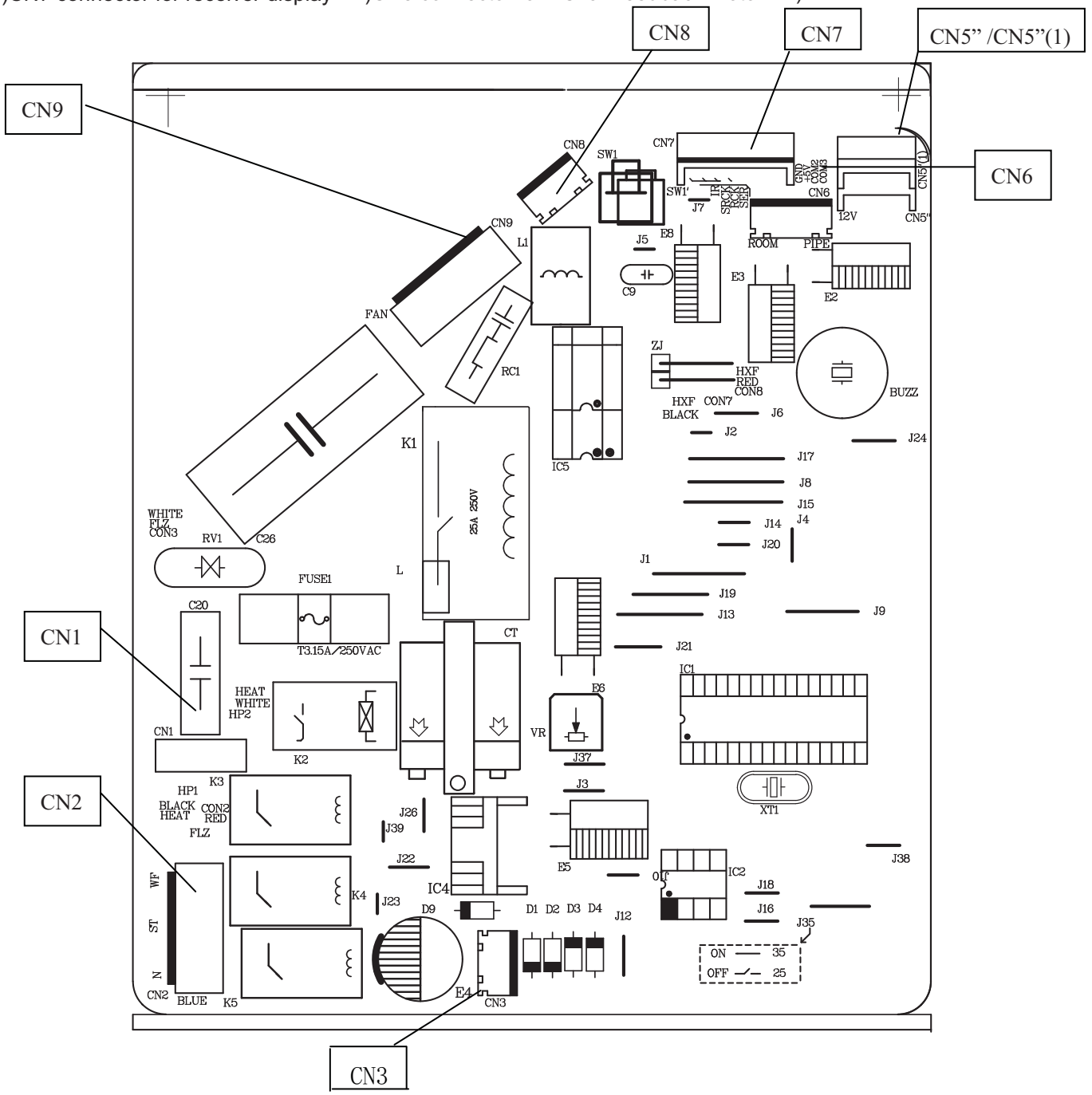
Conversion Formulate
kcal/h=kW×860
Btu/h=kW×3413
cfm=m³/min×35.3

4.Printed Circuit Board Connector Wiring Diagram

4.1 Indoor unit

Connectors Indoor PCB

1)CN1connector for transformer input 2)CN2 connector for terminal block 3)CN3 connector for transformer output
4)CN5" or CN5"(1) connector for up and down step motor 5)CN6 connector for ambient temp. sensor and piping temp
6)CN7 connector for receiver display 7)CN8 connector for AC fan feedback motor 8)CN9 connector for AC fan motor



cooling		SW2-	SW2-2	SW2-3	SW2-4
07	ON	OFF	ON	OFF	ON
09	ON	OFF	ON	OFF	OFF
12	ON	OFF	OFF	OFF	OFF
18	ON	OFF	OFF	OFF	OFF
24	ON	OFF	OFF	OFF	OFF
dip switch instruction	ON	Dip B	cooling capacity choose	room card available	on-07 is available(sw2-2 must be on in the meanwhile)
	OFF	Dip A		room card not available	off-19 12 18 24 is available

5. Functions and control

5.1 main functions and control specifications

Including brief introduction to air conditioners of series models and electric control function.

5.1.1 Automatic running

5.1.1.1 Single cold automatic run mode:

After entering into this mode, the main control “MCU” determines the corresponding work pattern according to the indoor temperature so as to maintain the preset temperature (the preset temperature is 26℃). When the indoor temperature is below 26℃, outlet air from compressor is off, the automatic wind from fan motor is low, and wind can be set to high, medium or low by hand. When the indoor temperature is or above 26℃, the unit enters the cooling mode and conducts the cooling programme (the preset temperature is 26℃), outlet air from compressor is on and indoor fan motor run in fixed wind speed.

5.1.1.2 Automatic running mode

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

a. Tr≥23℃ running cooling mode

b. Tr<23℃ running heating mode

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

5.1.2 Indoor temperature control

Temperature control range : 16℃—30℃

Temperature control precision: ±1℃

Compressor can’t be controlled by temperature sensor within 2 minutes after it starts

5.1.2.1 Cooling mode:

When Tr> Ts, outdoor fan motor and compressor on, and indoor fan motor run at fixed wind speed. When Tr < Ts, outdoor fan motor and compressor off, and when Tr > Ts, outdoor fan motor and compressor are working again .If Tr=Ts, the indoor fan motor , outdoor fan motor and the compressor’s state will not change.

5.1.2.2 Heating mode:

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

When Tr>Ts+5℃, compressor is off, and the indoor fan motor runs as in cold blast avoidance mode.

When Tr<Ts+5℃, compressor, four-ways valve and outdoor fan motor is on, and the indoor fan motor runs as in the mode of avoiding cold blast.

5.1.3 Cooling run mode:

temperature control range :16℃—30℃

temperature control precision: ±1℃

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

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

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

auto: when Tr>=Ts+3℃, the wind speed is high;

When Ts+1℃≤Tr Ts+3℃, the wind speed is medium.

When Tr Ts+1℃, the wind speed is low.

When temperature sensor is off, the fan motor runs at low speed.

when the wind speed changes from low to high, there is no delay, and when it changes from high to low, there is a 3-minutes delay before conversion.

Manual operation:When unit is on the wind speed can be set to high, medium, low or automatic as required (execute instruction 2 seconds later after receiving remote signal)

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

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

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

High temperature expiration prevention:

When the temp.of coil pipe is above 62℃,compressor and outlet air stop running 10 seconds later, and inlet air runs as the temp. sensor is off. When compressor stands by for 3 minute and the temp. of coil pipe is below 60℃, the unit can be started again.

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

Timer on, Timer off and sleep control are available.

5.1.4 Dehumidifying mode:

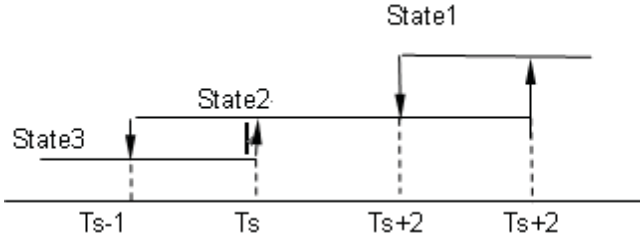
Temperature control range : 16℃—30℃

Control character:

When Tr (indoor temperature) > Ts (temperature setting) +2℃, compressor and outdoor fan motor run continuosly with indoor fan motor runnig in accordance with the wind speed setting(State 1).

When Ts ≤ Tr ≤ Ts +2℃, outlet air from compressor is on for 10 minutes and off for 6 minutes, the indoor fan motor is off in 3 minutes after shut down of compressor and gives breeze in other time(State 2).

When Tr < Ts, outlet air from compressor is unavailable, and the indoor fan motor enter breeze mode 3 minutes later after after shut down of compressor(State 3).



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

5.1.5 Heating mode: (cooling only have no the mode)

*Temperature control range : 16℃—30℃

*Temperature control precision: ±1℃

*Control Character:

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

When Tr Ts+5℃, compressor is off, and the indoor fan motor runs as in warm blast mode.

When Tr<Ts+5℃, compressor, four-ways valve and outdoor fan motor is on, and the indoor fan motor runs as in the mode of avoiding cold blast.

*Control of indoor fan motor:

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

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

When Ts ≤ Tr Ts+2℃, the wind speed is medium.

When Ts+2℃ ≤ Tr, the wind speed is low.

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

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

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

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

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

5.1.5.1 Cold draft prevetion:

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

5.1.5.1.2 If the temperature of coil pipe can't be above 38℃ 4 minutes later after start up, fan motor is running at the preset wind speed.

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

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

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

5.1.5.2 High temperature protection and high temperature expiration protection:

5.1.5.2.1 High temperature prevention: When the temp. of coil pipe is above 56℃, the outdoor fan motor stops.When the temp descends to 52℃, the outdoor fan motor is restarted and fan speed invertage frequence is more than 45 seconds.

5.1.5.2.2 High temperature expiration prevention:When the temp.of coil pipe is above 62℃,compressor and outlet air stop running 10 seconds later, and inlet air runs as the temp. sensor is off.

When compressor stands by for 3 minute and the temp. of coil pipe is below 50℃, the unit can be started again.

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

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

5.1.5.3 Defrosting:

5.1.5.3.1 Entry conditions of defrosting:

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

Intelligentized defrosting:

5.1.5.3.1.1 Indoor unit enter overload protection and air outlet stops when air outlet has been restarted and runs over 10 minutes, and compressor runs over 45 minutes in total and over 20 minutes continuously, and the temp. of indoor coil pipe is below 38℃.

5.1.5.3.1.2 Compressor runs20minutes continuously, and the temp. of indoor coil pipe decreases 1℃ per 6 minutes and this operation repeats 3 times, and the temp. of coil pipe is below 38℃, and 5 minutes later after compressor is restarted.

5.1.5.3.1.3 When compressor runs over 3 hours in total and over 20 minutes continuously and after the temp. of indoor coil pipe is below 38℃, the system enters defrosting mode.

5.1.5.3.1.4 The difference between the temp. of indoor coil pipe and the indoot temp. is below 16℃ and lasts 5 minutes, compressor runs over 45 minutes in total and over 20 minutes continuously after the temp. of indoor coil pipe is below 38℃, the system enters defrosting mode.

5.1.5.3.2 Exit conditions of defrosting:

Defrosting time is higher than 12 minutes (compressor is on).

5.1.5.3.2.1 During the defrosting, if current peak value is cut off, the unit quit the defrosting mode. But the protection of expiration of current peak value is unavailable with 60 senconds after compressor is started.

5.1.5.3.2.2 During the defrosting and 2 minutes After quiting the defrosting mode, abnormality of temp. sensor isn't detected.

5.1.5.3.2.3 After quiting the defrosting mode, the fan motor enter cooling prevention mode.

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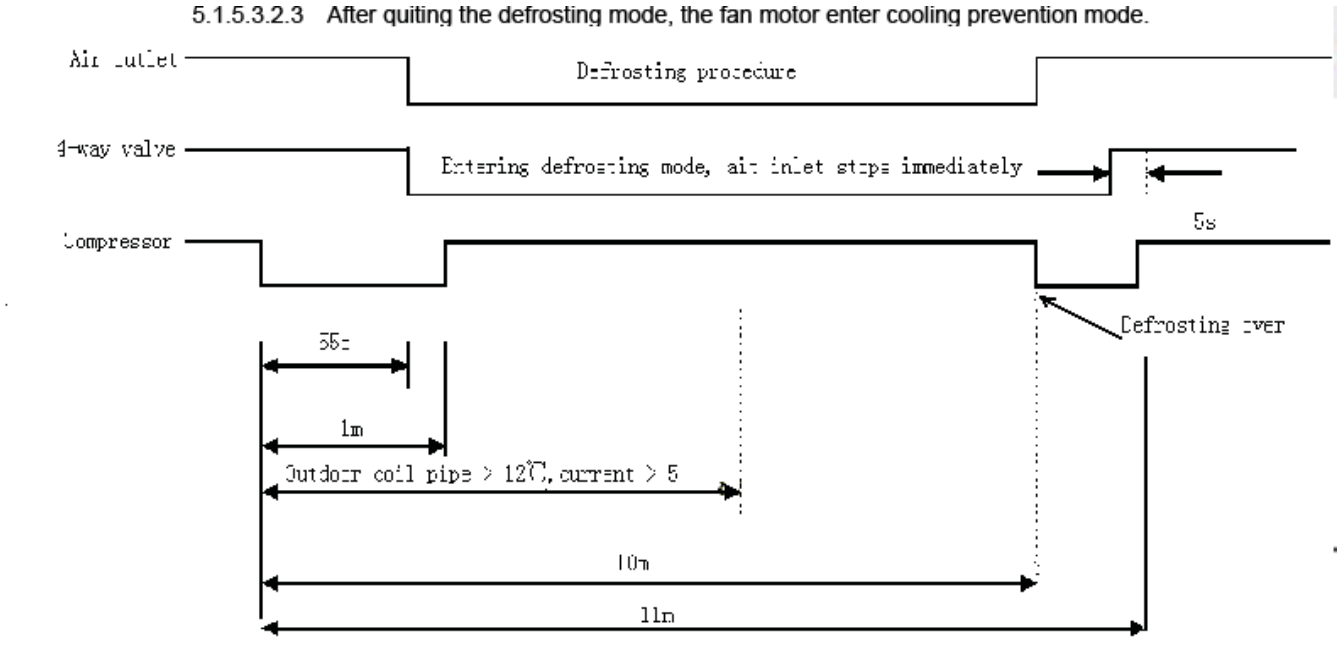


5.1.6 Timer function:

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

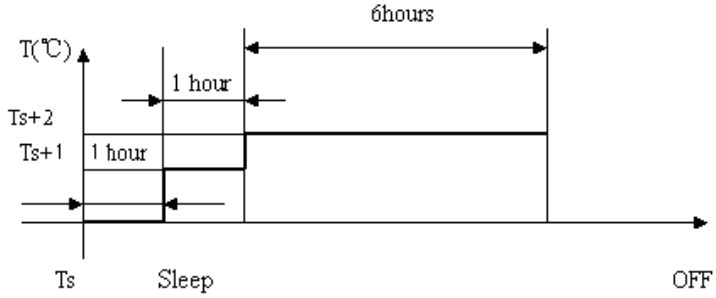
5.1.6.1 Timer on: The LED of “timer on” lights up, and unit behaves with halt status. Timer on is completed, and then unit starts running with the LED of “timer on” off. The unit starts with the the last setting receiving timer signals, and sleep setting is not allowed.

5.1.6.2 Timer off: Unit starts, timer indicator lights up; When reaching time setting, the indicator goes out, unit enters shut down mode, and sleep function can be set. If timer off and sleep are set synchronously, the one which time is short run first. Executing shutdown instruction clear timer and sleep function.

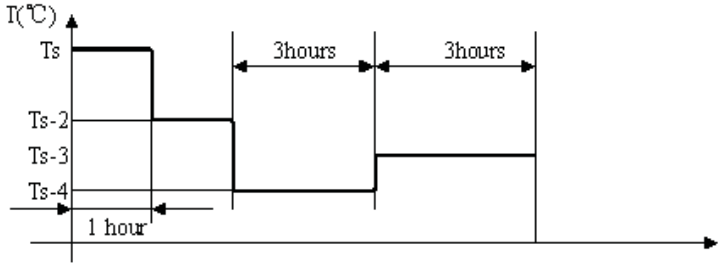
5.1.6.3 Timer on and timer off can be set synchronously.

5.1.7 Sleep function: the timer indicator lights up.

5.1.7.1 In cooling/defrosting mode, the temp. setting increases 1℃ one hour later after start up. After another hour the temp. setting increase by more 1℃ and then run continuously for another 6 hours and then close.



5.1.7.2 In heating mode, the temp. setting decrease 2℃ one hour after start up. After another hour the temp. setting decrease by more 2℃. After 3 hours the temp. setting rise by 1℃and then run continuously for another 3 hours and then close.



5.1.7.3 If the wind speed is set to high before going to bed, the wind speed become medium after start up; If the wind speed is set to medium before going to bed, the wind speed become low after start up; If the wind speed is set to low before going to bed, the wind speed keep unchanged.

5.1.8 Emergency switch imput:

5.1.8.1 Press the switch of emergency operation, then buzzer rings once and unit enters the automatic operation mode. (emergency operation)

5.1.8.2 If the switch is kept pressed for 5 seconds, buzzer ring two times and unit enter enter test run mode.

5.1.8.3 Press the switch again, and then closes.

5.1.8.4 Enter emergency operation from timer mode, then timer is cancelled.

5.1.9 Test run:

5.1.9.1 The temperature sensor of inlet air doesn't work, and compressor starts (but subject to the limit of -minute delay excluding the first time), and high wind, cooling, and air door is open.The indoor fan motor runs, running indicator lights up, compressor relay and the one of outdoor fan motor is closed

5.1.9.2 During test run:

The prevention of freezing of evaporator doesn't work.

Current cross control doesn't work.

The control of current cross peak expiration doesn't work.

Temperature control doesn't work.

Temperature expiration control doesn't work.

5.1.10 memory function: The memory function of power down is available, and the auto recovery function of power on is optional. (In auto, heating, cooling, or defrosting status, press the "sleeping" button 10 times within 5 seconds, and the auto recovery function of power on can be set on/off. If the buzzer rings 4 times, the the auto recovery function of power on is available; If the buzzer rings 2 times, the the auto recovery function of power on is unavailable.)

If there is no EEPROM, the unit is taken off the 'off' function of the memory function of power down. But the memory function of power down can also be set on/off, and the data is the default value of chip.

5.1.11 Alarm from indoor fan motor: 2 minutes later after the indoor fan motor is charged, and the impulse from fan motor is not detected, hen send alarm signals.

5.2 Value of Thermistor

5.2.1 Indoor unit

Room sensor

R25℃=23KΩ±3.5%

B25℃/50℃=4200K±3%

Temp.(℃)	Max.(KΩ)	Normal(KΩ)	Min.(KΩ)	Tolerance(℃)	
-30	568.8372	501.0746	440.8435	-1.97	1.75
-29	530.9600	468.6491	413.1441	-1.95	1.74
-28	495.8488	438.5314	387.3645	-1.93	1.72
-27	463.2850	410.5433	363.3602	-1.91	1.71
-26	433.0683	384.5212	340.9980	-1.90	1.70
-25	405.0156	360.3153	320.1558	-1.88	1.69
-24	378.9588	337.7879	300.7211	-1.86	1.67
-23	354.7440	316.8126	282.5905	-1.84	1.66
-22	332.2300	297.2732	265.6686	-1.82	1.64
-21	311.2873	279.0627	249.8676	-1.80	1.63
-20	291.7969	262.0831	235.1067	-1.78	1.62
-19	273.6494	246.2437	221.3111	-1.76	1.60
-18	256.7445	231.4612	208.4122	-1.74	1.59
-17	240.9897	217.6590	196.3462	-1.72	1.57
-16	226.3000	204.7662	185.0545	-1.70	1.56
-15	212.5973	192.7176	174.4829	-1.68	1.54

-14	199.8093	181.4531	164.5813	-1.66	1.53
-13	187.8698	170.9169	155.3033	-1.64	1.51
-12	176.7176	161.0578	146.6059	-1.62	1.49
-11	166.2961	151.8284	138.4495	-1.60	1.48
-10	156.5532	143.1847	130.7973	-1.58	1.46
-9	147.4409	135.0863	123.6153	-1.56	1.44
-8	138.9148	127.4956	116.8717	-1.53	1.43
-7	130.9337	120.3778	110.5374	-1.51	1.41
-6	123.4597	113.7009	104.5852	-1.49	1.39
-5	116.4577	107.4349	98.9897	-1.47	1.38
-4	109.8953	101.5523	93.7278	-1.45	1.36
-3	103.7422	96.0274	88.7774	-1.43	1.34
-2	97.9708	90.8365	84.1185	-1.40	1.32
-1	92.5551	85.9574	79.7322	-1.38	1.30
0	87.4712	81.3697	75.6011	-1.36	1.29
1	82.6970	77.0544	71.7088	-1.34	1.27
2	78.2118	72.9937	68.0402	-1.31	1.25
3	73.9966	69.1712	64.5813	-1.29	1.23
4	70.0335	65.5716	61.3188	-1.27	1.21
5	66.3062	62.1807	58.2405	-1.24	1.19
6	62.7992	58.9853	55.3351	-1.22	1.17
7	59.4984	55.9729	52.5917	-1.20	1.15
8	56.3905	53.1320	50.0006	-1.17	1.13
9	53.4631	50.4521	47.5523	-1.15	1.11
10	50.7048	47.9230	45.2384	-1.13	1.09
11	48.1049	45.5355	43.0505	-1.10	1.07
12	45.6534	43.2808	40.9813	-1.08	1.04
13	43.3410	41.1509	39.0236	-1.05	1.02
14	41.1592	39.1381	37.1708	-1.03	1.00
15	39.0998	37.2355	35.4167	-1.00	0.98
16	37.1553	35.4363	33.7555	-0.98	0.96
17	35.3186	33.7344	32.1818	-0.95	0.94
18	33.5833	32.1240	30.6905	-0.93	0.91
19	31.9432	30.5997	29.2769	-0.90	0.89
20	30.3925	29.1565	27.9365	-0.88	0.87
21	28.9259	27.7895	26.6651	-0.85	0.84
22	27.5383	26.4944	25.4589	-0.83	0.82
23	26.2252	25.2670	24.3140	-0.80	0.80
24	24.9822	24.1034	23.2271	-0.78	0.77
25	23.8050	23.0000	22.1950	-0.78	0.77
26	22.7500	21.9499	21.1520	-0.78	0.78
27	21.7477	20.9536	20.1638	-0.82	0.81
28	20.7951	20.0081	19.2272	-0.86	0.85
29	19.8895	19.1104	18.3394	-0.89	0.88
30	19.0285	18.2581	17.4974	-0.93	0.92

31	18.2094	17.4484	16.6988	-0.97	0.95
32	17.4302	16.6792	15.9410	-1.00	0.99
33	16.6885	15.9480	15.2217	-1.04	1.02
34	15.9825	15.2530	14.5389	-1.08	1.06
35	15.3103	14.5920	13.8903	-1.12	1.09
36	14.6700	13.9632	13.2743	-1.16	1.13
37	14.0599	13.3650	12.6889	-1.20	1.16
38	13.4786	12.7957	12.1325	-1.23	1.20
39	12.9244	12.2537	11.6035	-1.27	1.24
40	12.3960	11.7375	11.1004	-1.31	1.27
41	11.8921	11.2459	10.6218	-1.35	1.31
42	11.4113	10.7775	10.1665	-1.39	1.34
43	10.9526	10.3311	9.7330	-1.43	1.38
44	10.5147	9.9056	9.3204	-1.48	1.42
45	10.0967	9.4999	8.9275	-1.52	1.45
46	9.6976	9.1130	8.5532	-1.56	1.49
47	9.3163	8.7439	8.1965	-1.60	1.53
48	8.9521	8.3916	7.8566	-1.64	1.57
49	8.6040	8.0554	7.5327	-1.68	1.60
50	8.2713	7.7345	7.2237	-1.73	1.64
51	7.9531	7.4280	6.9291	-1.77	1.68
52	7.6489	7.1353	6.6480	-1.81	1.72
53	7.3580	6.8556	6.3797	-1.85	1.76
54	7.0796	6.5884	6.1237	-1.90	1.79
55	6.8131	6.3329	5.8793	-1.94	1.83
56	6.5581	6.0887	5.6459	-1.99	1.87
57	6.3140	5.8552	5.4230	-2.03	1.91
58	6.0802	5.6318	5.2100	-2.07	1.95
59	5.8563	5.4181	5.0065	-2.12	1.99
60	5.6417	5.2136	4.8120	-2.16	2.03
61	5.4361	5.0178	4.6260	-2.21	2.07
62	5.2391	4.8304	4.4481	-2.25	2.11
63	5.0502	4.6510	4.2780	-2.30	2.15
64	4.8691	4.4791	4.1153	-2.35	2.19
65	4.6954	4.3145	3.9596	-2.39	2.23
66	4.5287	4.1567	3.8105	-2.44	2.27
67	4.3689	4.0055	3.6678	-2.49	2.31
68	4.2154	3.8605	3.5312	-2.53	2.35
69	4.0682	3.7216	3.4004	-2.58	2.39
70	3.9268	3.5883	3.2750	-2.63	2.43
71	3.7910	3.4605	3.1549	-2.68	2.48
72	3.6606	3.3378	3.0398	-2.73	2.52
73	3.5353	3.2201	2.9294	-2.77	2.56
74	3.4150	3.1072	2.8237	-2.82	2.60
75	3.2993	2.9987	2.7222	-2.87	2.64

76	3.1881	2.8946	2.6249	-2.92	2.68
77	3.0812	2.7946	2.5316	-2.97	2.73
78	2.9785	2.6986	2.4420	-3.02	2.77
79	2.8796	2.6063	2.3560	-3.07	2.81
80	2.7845	2.5176	2.2735	-3.12	2.86
81	2.6931	2.4324	2.1943	-3.17	2.90
82	2.6050	2.3505	2.1182	-3.22	2.94
83	2.5203	2.2717	2.0451	-3.28	2.99
84	2.4388	2.1960	1.9749	-3.33	3.03
85	2.3602	2.1231	1.9075	-3.38	3.07
86	2.2846	2.0530	1.8426	-3.43	3.12
87	2.2118	1.9856	1.7803	-3.48	3.16
88	2.1416	1.9207	1.7204	-3.54	3.20
89	2.0740	1.8582	1.6628	-3.59	3.25
90	2.0089	1.7981	1.6074	-3.64	3.29
91	1.9461	1.7402	1.5541	-3.70	3.34
92	1.8856	1.6844	1.5028	-3.75	3.38
93	1.8272	1.6307	1.4535	-3.80	3.43
94	1.7709	1.5789	1.4060	-3.86	3.47
95	1.7166	1.5291	1.3603	-3.91	3.52
96	1.6643	1.4810	1.3163	-3.97	3.56
97	1.6138	1.4347	1.2739	-4.02	3.61
98	1.5650	1.3900	1.2331	-4.08	3.66
99	1.5180	1.3470	1.1937	-4.13	3.70
100	1.4726	1.3054	1.1559	-4.19	3.75
101	1.4287	1.2654	1.1194	-4.24	3.80
102	1.3864	1.2268	1.0842	-4.30	3.84
103	1.3455	1.1895	1.0503	-4.36	3.89
104	1.3060	1.1535	1.0176	-4.42	3.94
105	1.2679	1.1188	0.9860	-4.47	3.98
106	1.2310	1.0853	0.9556	-4.53	4.03
107	1.1954	1.0529	0.9263	-4.59	4.08
108	1.1610	1.0217	0.8980	-4.65	4.13
109	1.1277	0.9915	0.8707	-4.70	4.17
110	1.0955	0.9624	0.8443	-4.76	4.22
111	1.0644	0.9342	0.8189	-4.82	4.27
112	1.0344	0.9070	0.7943	-4.88	4.32
113	1.0053	0.8807	0.7706	-4.94	4.37
114	0.9771	0.8553	0.7478	-5.00	4.41
115	0.9499	0.8307	0.7256	-5.06	4.46
116	0.9235	0.8070	0.7043	-5.12	4.51
117	0.8980	0.7840	0.6837	-5.18	4.56
118	0.8734	0.7618	0.6637	-5.24	4.61
119	0.8495	0.7404	0.6445	-5.30	4.66
120	0.8263	0.7196	0.6258	-5.36	4.71

Pipe Sensor

R25℃=10KΩ±3%

B25℃/50℃=3700K±3%

Temp.((℃))	Max.(KΩ)	Normal(KΩ)	Min.(KΩ)	Tolerance(℃)	
-30	165.2170	147.9497	132.3678	-1.94	1.75
-29	155.5754	139.5600	125.0806	-1.93	1.74
-28	146.5609	131.7022	118.2434	-1.91	1.73
-27	138.1285	124.3392	111.8256	-1.89	1.71
-26	130.2371	117.4366	105.7989	-1.87	1.70
-25	122.8484	110.9627	100.1367	-1.85	1.69
-24	115.9272	104.8882	94.8149	-1.83	1.67
-23	109.4410	99.1858	89.8106	-1.81	1.66
-22	103.3598	93.8305	85.1031	-1.80	1.64
-21	97.6556	88.7989	80.6728	-1.78	1.63
-20	92.3028	84.0695	76.5017	-1.76	1.62
-19	87.2775	79.6222	72.5729	-1.74	1.60
-18	82.5577	75.4384	68.8710	-1.72	1.59
-17	78.1230	71.5010	65.3815	-1.70	1.57
-16	73.9543	67.7939	62.0907	-1.68	1.55
-15	70.0342	64.3023	58.9863	-1.66	1.54
-14	66.3463	61.0123	56.0565	-1.64	1.52
-13	62.8755	57.9110	53.2905	-1.62	1.51
-12	59.6076	54.9866	50.6781	-1.60	1.49
-11	56.5296	52.2278	48.2099	-1.58	1.47
-10	53.6294	49.6244	45.8771	-1.56	1.46
-9	50.8956	47.1666	43.6714	-1.54	1.44
-8	48.3178	44.8454	41.5851	-1.51	1.42
-7	45.8860	42.6525	39.6112	-1.49	1.40
-6	43.5912	40.5800	37.7429	-1.47	1.39
-5	41.4249	38.6207	35.9739	-1.45	1.37
-4	39.3792	36.7676	34.2983	-1.43	1.35
-3	37.4465	35.0144	32.7108	-1.41	1.33
-2	35.6202	33.3552	31.2062	-1.38	1.31
-1	33.8936	31.7844	29.7796	-1.36	1.29
0	32.2608	30.2968	28.4267	-1.34	1.28
1	30.7162	28.8875	27.1431	-1.32	1.26
2	29.2545	27.5519	25.9250	-1.29	1.24
3	27.8708	26.2858	24.7686	-1.27	1.22
4	26.5605	25.0851	23.6704	-1.25	1.20
5	25.3193	23.9462	22.6273	-1.23	1.18
6	24.1432	22.8656	21.6361	-1.20	1.16
7	23.0284	21.8398	20.6939	-1.18	1.14
8	21.9714	20.8659	19.7982	-1.15	1.12
9	20.9688	19.9409	18.9463	-1.13	1.09

10	20.0176	19.0621	18.1358	-1.11	1.07
11	19.1149	18.2270	17.3646	-1.08	1.05
12	18.2580	17.4331	16.6305	-1.06	1.03
13	17.4442	16.6782	15.9315	-1.03	1.01
14	16.6711	15.9601	15.2657	-1.01	0.99
15	15.9366	15.2770	14.6315	-0.98	0.96
16	15.2385	14.6268	14.0271	-0.96	0.94
17	14.5748	14.0079	13.4510	-0.93	0.92
18	13.9436	13.4185	12.9017	-0.91	0.90
19	13.3431	12.8572	12.3778	-0.88	0.87
20	12.7718	12.3223	11.8780	-0.86	0.85
21	12.2280	11.8126	11.4011	-0.83	0.83
22	11.7102	11.3267	10.9459	-0.81	0.80
23	11.2172	10.8634	10.5114	-0.78	0.78
24	10.7475	10.4216	10.0964	-0.75	0.75
25	10.3000	10.0000	9.7000	-0.75	0.75
26	9.8975	9.5974	9.2980	-0.76	0.76
27	9.5129	9.2132	8.9148	-0.80	0.80
28	9.1454	8.8465	8.5496	-0.84	0.83
29	8.7942	8.4964	8.2013	-0.87	0.86
30	8.4583	8.1621	7.8691	-0.91	0.90
31	8.1371	7.8428	7.5522	-0.95	0.93
32	7.8299	7.5377	7.2498	-0.98	0.97
33	7.5359	7.2461	6.9611	-1.02	1.00
34	7.2546	6.9673	6.6854	-1.06	1.04
35	6.9852	6.7008	6.4222	-1.10	1.07
36	6.7273	6.4459	6.1707	-1.13	1.11
37	6.4803	6.2021	5.9304	-1.17	1.14
38	6.2437	5.9687	5.7007	-1.21	1.18
39	6.0170	5.7454	5.4812	-1.25	1.22
40	5.7997	5.5316	5.2712	-1.29	1.25
41	5.5914	5.3269	5.0704	-1.33	1.29
42	5.3916	5.1308	4.8783	-1.37	1.33
43	5.2001	4.9430	4.6944	-1.41	1.36
44	5.0163	4.7630	4.5185	-1.45	1.40
45	4.8400	4.5905	4.3500	-1.49	1.44
46	4.6708	4.4252	4.1887	-1.53	1.47
47	4.5083	4.2666	4.0342	-1.57	1.51
48	4.3524	4.1145	3.8862	-1.61	1.55
49	4.2026	3.9686	3.7443	-1.65	1.59
50	4.0588	3.8287	3.6084	-1.70	1.62
51	3.9206	3.6943	3.4780	-1.74	1.66
52	3.7878	3.5654	3.3531	-1.78	1.70
53	3.6601	3.4416	3.2332	-1.82	1.74
54	3.5374	3.3227	3.1183	-1.87	1.78

55	3.4195	3.2085	3.0079	-1.91	1.82
56	3.3060	3.0989	2.9021	-1.95	1.85
57	3.1969	2.9935	2.8005	-2.00	1.89
58	3.0919	2.8922	2.7029	-2.04	1.93
59	2.9909	2.7948	2.6092	-2.08	1.97
60	2.8936	2.7012	2.5193	-2.13	2.01
61	2.8000	2.6112	2.4328	-2.17	2.05
62	2.7099	2.5246	2.3498	-2.22	2.09
63	2.6232	2.4413	2.2700	-2.26	2.13
64	2.5396	2.3611	2.1932	-2.31	2.17
65	2.4591	2.2840	2.1195	-2.36	2.21
66	2.3815	2.2098	2.0486	-2.40	2.25
67	2.3068	2.1383	1.9803	-2.45	2.29
68	2.2347	2.0695	1.9147	-2.49	2.34
69	2.1652	2.0032	1.8516	-2.54	2.38
70	2.0983	1.9393	1.7908	-2.59	2.42
71	2.0337	1.8778	1.7324	-2.63	2.46
72	1.9714	1.8186	1.6761	-2.68	2.50
73	1.9113	1.7614	1.6219	-2.73	2.54
74	1.8533	1.7064	1.5697	-2.78	2.58
75	1.7974	1.6533	1.5194	-2.83	2.63
76	1.7434	1.6021	1.4710	-2.88	2.67
77	1.6913	1.5528	1.4243	-2.92	2.71
78	1.6409	1.5051	1.3794	-2.97	2.75
79	1.5923	1.4592	1.3360	-3.02	2.80
80	1.5454	1.4149	1.2942	-3.07	2.84
81	1.5000	1.3721	1.2540	-3.12	2.88
82	1.4562	1.3308	1.2151	-3.17	2.93
83	1.4139	1.2910	1.1776	-3.22	2.97
84	1.3730	1.2525	1.1415	-3.27	3.01
85	1.3335	1.2153	1.1066	-3.32	3.06
86	1.2953	1.1794	1.0730	-3.38	3.10
87	1.2583	1.1448	1.0405	-3.43	3.15
88	1.2226	1.1113	1.0092	-3.48	3.19
89	1.1880	1.0789	0.9789	-3.53	3.24
90	1.1546	1.0476	0.9497	-3.58	3.28
91	1.1223	1.0174	0.9215	-3.64	3.33
92	1.0910	0.9882	0.8942	-3.69	3.37
93	1.0607	0.9599	0.8679	-3.74	3.42
94	1.0314	0.9326	0.8424	-3.80	3.46
95	1.0030	0.9061	0.8179	-3.85	3.51
96	0.9756	0.8806	0.7941	-3.90	3.55
97	0.9490	0.8558	0.7711	-3.96	3.60
98	0.9232	0.8319	0.7489	-4.01	3.64
99	0.8983	0.8088	0.7275	-4.07	3.69

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

6. System Configuration

6.1 System Configuration

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

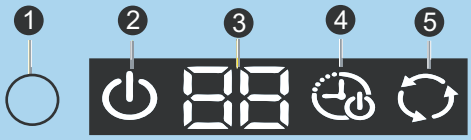
Parts and Functions

Indoor Unit

① Inlet
② Inlet grille
③ Air Purifying Filter (inside)
④ Outlet
⑤ Horizontal flap
(adjust up and down air flow
Don't adjust it manually)
⑥ Vertical blade
(adjust left and right air flow)

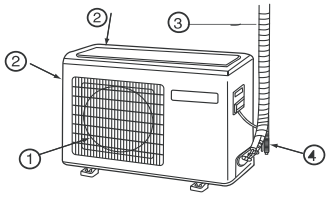
Actual inlet grille may vary from the one shown in the manual according to the product purchased

⑦ Display board



1 Signal receiver hole
2 ON/OFF display
3 Ambient temp.display
When receiving the remote control signal, display the set temperature and in the rest time the room temperature is displayed and this room temperature is only for reference.
4 TIMER ON\OFF display
TIMER ON-OFF display
SLEEP display
Note to the power failure resume:
press the sleep button ten times in five seconds and enter function after hearing four sounds.And press the sleep button ten times within five seconds and leave this function after hearing two sounds.
5 COOL\HEAT\Dry\AUTO display

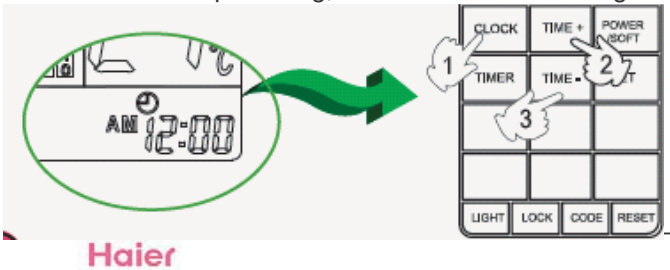
Outdoor Unit



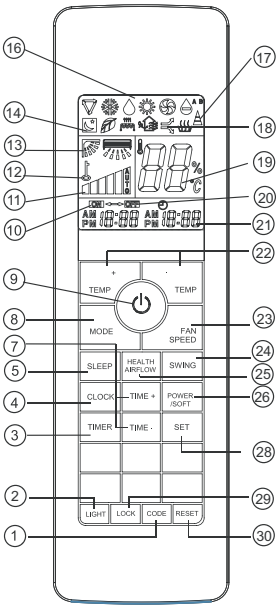
① OUTLET
② INLET
③ CONNECTING PIPING AND ELECTRICAL WIRING
④ DRAIN HOSE

Clock set

Press CLOCK button, "AM" or "PM" flashes.
Press "TIME + "or "TIME –" to set correct time. Each press will increase or decrease 1min. If the button is kept pressed,time will change quickly. After time setting is confirmed,press SET, "AM "and "PM" stop flashing,while clock starts working.



Remote controller



1.CODE
Used to select CODE A or B which will be displayed on LCD.Please select A without special explanation.
2.LIGHT button
Control the lightening and extinguishing of the indoor LED display board.
3. TIMER button
4. CLOCK button
5. SLEEP button

7. HOUR button
8. MODE button
9. ON/OFF button
10. TIMER ON display
11. FAN SPEED display

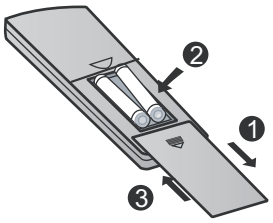
12. LOCK display
13. SWING display
14. SLEEP display
16. Operation mode display

Operation mode	AUTO	COOL	DRY	FAN	HEAT
Remote controller					

17.Signal sending display
18. POWER/SOFT display
19. TEMP display
20. TIMER OFF display
21. CLOCK display
22. TEMP button
23. FAN SPEED button
24.SWING button
25. HEALTH AIRFLOW button
26. POWER/SOFT button
28. SET button
29. LOCK button
If pressed, the other buttons will be disabled.Press it once again,lock will be cancelled.
30. RESET button
When the remote controller appears abnormal,use a sharp pointed article to press this button to reset the remote controller normal.

NOTE:
Cooling only unit do not have displays and functions related with heating
If the unit which you purchased has healthy function,follow it.If not,please ignore.

Loading of the battery



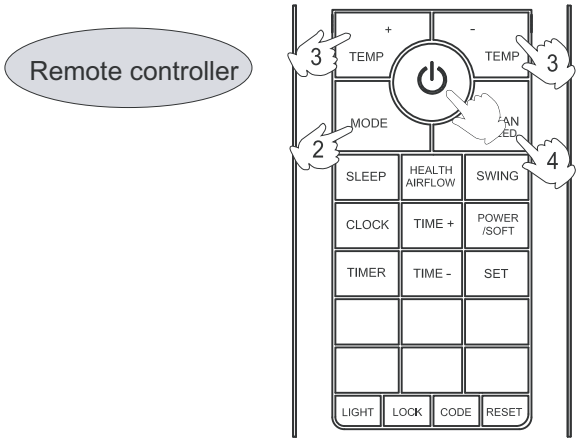
1 Remove the battery cover;
2 Load the batteries as illustrated. 2 R-03 batteries, resetting key(cylinder);
3 Be sure that the loading is in line with the" + "/"-";
4 Load the battery,then put on the cover again.

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

Hint:
Remove the batteries in case unit won't be in usage for a long period.
If there are any display after taking-out, just need to press reset key

Operation

Base Operation



1. Unit start

Press ON/OFF on the remote controller, unit starts.

2.Select operation mode

Press MODE button. For each press, operation mode changes as follows:

Remote controller:

3.Select temp.setting

Press TEMP+ / TEMP- button

TEMP+ Every time the button is pressed, temp.setting increase 1℃,if kept depressed, it will increase rapidly

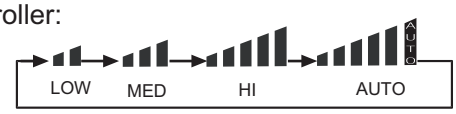
TEMP- Every time the button is pressed, temp.setting decrease 1℃,if kept depressed, it will decrease rapidly

Select a desired temperature.

4.Fan speed selection

Press FAN SPEED button. For each press, fan speed changes as follows:

Remote controller:

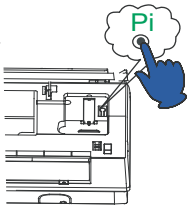


Air conditioner is running under displayed fan speed. When FAN is set to AUTO, the air conditioner automatically adjusts the fan speed according to room temperature.

Operation Mode	Remote Controller	Display Board	Note
AUTO			Under the mode of auto operation, air conditioner will automatically select Cool or Heat operation according to room temperature. When FAN is set to AUTO, the air conditioner automatically adjusts the fan speed according to room temperature.
COOL			
DRY			In DRY mode, when room temperature becomes lower than temp.setting+2°C,unit will run intermittently at LOW speed regardless of FAN setting.
HEAT			
FAN			In FAN operation mode, the unit will not operate in COOL or HEAT mode but only in FAN mode ,AUTO is not available in FAN mode.And temp.setting is disabled. In FAN mode,SLEEP operation is not available.

Emergency operation and test operation

Emergency Operation:



- Use this operation only when the remote controller is defective or lost.
- When the emergency operation switch is pressed,the" Pi "sound is heard once, which means the start of this operation.
- In this operation, the system automatically selects the operation modes,cooling or fan or heat, according to the room temperature.

Room temperature	Operation mode	Designated temperature	Timer mode	Air flow
ABOVE 23°C	COOLING	26°C	NO	AUTOMATIC
BELOW 23°C	HEAT	23°C	NO	AUTOMATIC

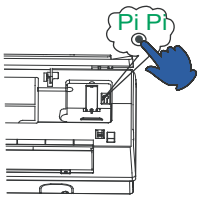
(cooling only uint) Room temperature	Operation mode	Designated temperature	Timer mode	Air flow
BELOW 23°C	FAN	26°C	NO	AUTOMATIC

- It is not possible to operate in dry mode.

Test operation:

Test operation switch is the same as emergency switch.

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



Air Flow Direction Adjustment

1.Status display of air flow

Vertical flap

Pos.1 Pos.2 Pos.3

Pos.4 Pos.5 (Auto swing)

2.Left and right air flow adjustment(manual)

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

- Remote controller can memorize each operation status. When starting it next time,just press ON/OFF button and unit will run in previous status.

Cautions:

- When adjusting the flap by hand,turn off the unit.
- When humidity is high,condensate water might occur at air outlet if all vertical louvers are adjusted to left or right.
- It is advisable not to keep horizontal flap at downward position for a long time in COOLor DRY mode , otherwise, condensate water might occur.

Note:

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

Operation

Sleep Operation

Before going to bed,you can simply press the SLEEP button and unit will operate in SLEEP mode and bring you a sound sleep.

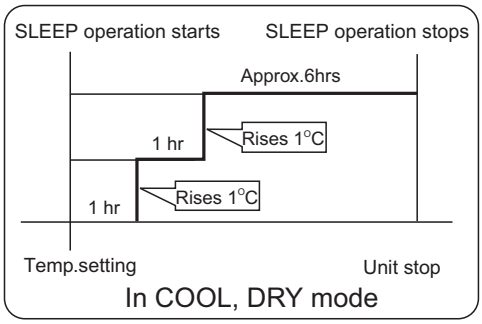
Use of SLEEP function

After the unit starts,set the operation status, then press SLEEP button before which the clock must be adjusted and time being set.

Operation Mode

1. In COOL,DRY mode

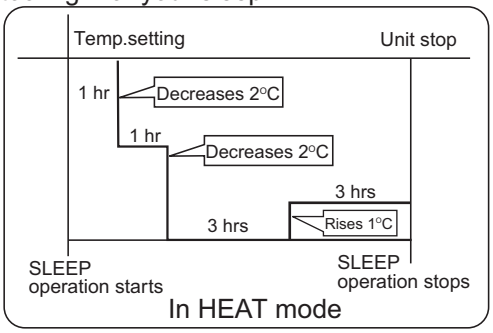
1 hours after SLEEP mode starts,temp.will become 1°C higher than temp.setting.After another 1 hours, temp.rises by 1°C futher.The unit will run for further 6 hours then stops Temp. is higher than temp. setting so that room temperature won't be too low for your sleep.



In COOL, DRY mode

2. In HEAT mode

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



In HEAT mode

3. In AUTO mode

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

4. In FAN mode

It has no SLEEP function.

5.Set the wind speed change when sleeping

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

Note

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

POWER/SOFT Operation

(This function is unavailable on some models.)

(1) POWER Operation

When you need rapid heating or cooling, you can use this function. In COOL mode, fan speed automatically takes high speed of AUTO fan mode. In HEAT mode, fan speed automatically takes medial speed of AUTO fan mode.

(2) SOFT Operation

You can use this function when silence is needed for rest or reading. In SOFT operation mode, fan speed automatically takes low speed of AUTO fan mode.

Note：

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

To cancel POWER or SOFT operation
Press POWER/SOFT button again ,POWER or SOFT disappears.

Operation

Timer On/Off On-Off Operation

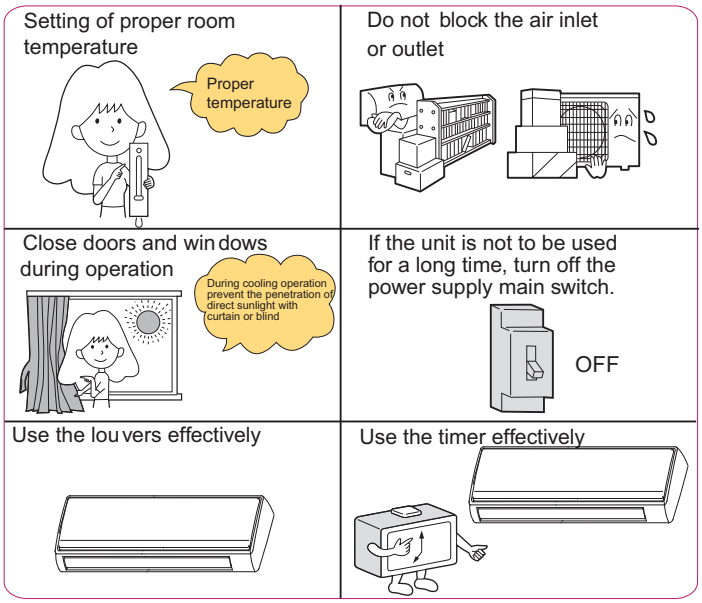
Set clock correctly before starting TIMER operation.
1.After unit starts, select your desired operation mode.
2.Press TIMER button to change TIMER mode. Every time the button is pressed, display changes as follows:
Remote controller:

Then select your desired TIMER mode (TIMER ON or TIMER OFF or TIMER ON-OFF). " ON "or " OFF "will flash.
3.Press TIME+ /TIME- button to set time.
It can be adjusted within 24 hours.
4.After setting correct time, press SET button to confirm " ON "or" OFF " on the remote controller stops flashing.
5.Cancel TIMER mode
Just press TIMER button several times until TIMER mode disappears.
Hints:
After replacing batteries or a power failure happens, time setting should be reset.
Remote controller possesses memory function,when use TIMER mode next time, just press SET button after mode selecting if time setting is the same as previous one.
According to the Time setting sequence of TIMER ON or TIMER OFF, either Start-Stop or Stop-Start can be achieved.

Healthy airflow Operation

1.Press ON/OFF to starting
Setting the comfort work conditions.
2.The setting of healthy airflow function
1).Press the button of healthy airflow, appears on the display. Horizontal airflow sending. Avoid the airflow blows direct to the body.
2).Press the button of healthy airflow again, appears on the display. Downward airflow sending. Avoid the airflow blows direct to the body.
3.The cancel of the healthy airflow function
Press the button of healthy airflow again, the unit goes on working under the condition before the setting of healthy airflow function.
Notice: Do not direct the flap by hand. Otherwise, the grille will run incorrectly. If the grille is not run correctly, stop for a minute and then start, adjusting by remote controller.
Note:
1.After setting the healthy airflow function, the position grill is fixed.
2.In heating, it is better to select the mode.
3.In cooling, it is better to select the mode.
4.In cooling and dry, using the air conditioner for a long time under the high air humidity, condensate water may occur at the grille .

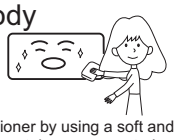
For Smart Use of The Air Conditioner



Remote Controller

Do not use water , wipe the controller with a dry cloth.Do not use glass cleaner or chemical cloth.

Indoor Body



Wipe the air conditioner by using a soft and dry cloth.For serious stains,use a neutral detergent diluted with water.Wring the water out of the cloth before wiping.then wipe off the detergent completely.

Do not use the following for cleaning

Gasoline,benzine, thinner or cleanser may damage the coating of the unit.

Hot water over 40°C(104°F) may cause discoloring or deformation.

Air Filter cleaning

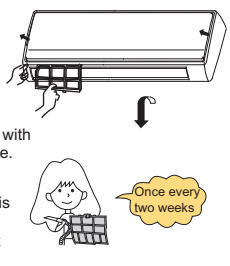
1 Open the inlet grille by pulling it upward.

2 Remove the filter.
Push up the filter's center tab slightly until it is released from the stopper, and remove the filter downward.

3 Clean the filter.
Use a vacuum cleaner to remove dust, or wash the filter with water.After washing, dry the filter completely in the shade.

4 Attach the filter.
Attach the filter correctly so that the "FRONT" indication is facing to the front.Make sure that the filter is completely fixed behind the stopper.If the right and left filters are not attached correctly, that may cause defects.

5 Close the inlet grille.



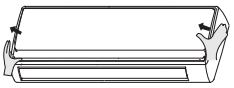
Maintenance

Replacement of Air Purifying Filter

(NOTE: Air purifying filter is optional part)

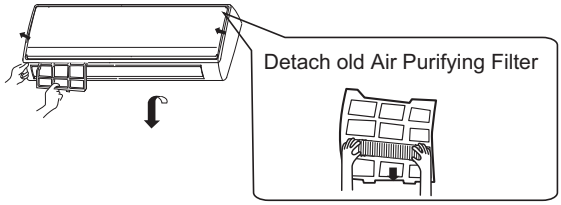
1.Open the Inlet Grille

Prop up the inlet grille by using a small device named grille-support which located in the right side of the indoor unit.



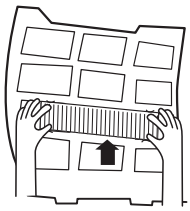
2.Detach the standard air filter

Slide the knob slightly upward to release the filter, then withdraw it.



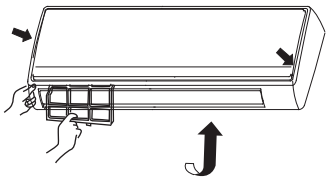
3.Attach Air Purifying Filter

Put air purifying filter appliances into the right and left filter frames.



4.Attach the standard air filter

(Necessary installation)



ATTENTION:

The white side of the photocatalyst air purifying filter face outside,and the black side face the unit.

The green side of the bacteria-killing medium air purifying filter face outside,and the white side face the unit.

5.Close the Inlet Grille

Close the Grille surely

NOTE:

- The photocatalyst air purifying filter will be solarized in fixed time. In normal family, it will be solarized every 6 months.
- The bacteria-killing medium air purifying filter will be used for a long time,no need for replacement. But in the period of using them ,you should remove the dust frequently by using vacuum cleaner or flaping them lightly,otherwise , its performance will be affected.
- Please keep the bacteria-killing medium air purifying filter in the cool and dry conditions avoid long time directly sunshine when you stop using it,or its ability of sterilization will be reduced.

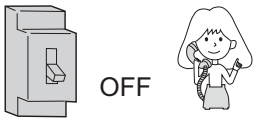
Cautions

⚠ WARNING

Please call Sales/Service Shop for the Installation.
Do not attempt to install the air conditioner by yourself because improper works may cause electric shock, fire, water leakage.

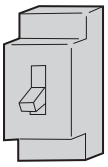
⚠ WARNING

When abnormality such as burnt-small found, immediately stop the operation button and contact sales shop.



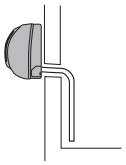
STRICT ENFORCEMENT

Use an exclusive power source with a circuit breaker



Check proper installation of the drainage securely

STRICT ENFORCEMENT



Connect power supply cord to the outlet completely

STRICT ENFORCEMENT

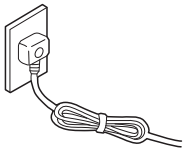
Use the proper voltage

STRICT ENFORCEMENT

1.Do not use power supply cord extended or connected in halfway
2.Do not install in the place where there is any possibility of inflammable gas leakage around the unit.
3.Do not get the unit exposed to vapor or oil steam.

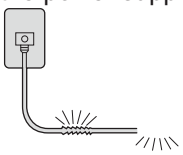
PROHIBITION

Do not use power supply cord in a bundle.



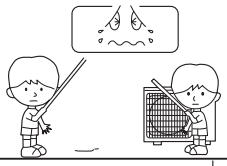
PROHIBITION

Take care not to damage the power supply cord.



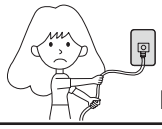
PROHIBITION

Do not insert objects into the air inlet or outlet.



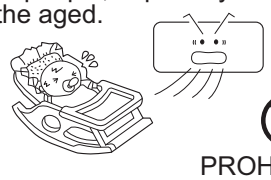
PROHIBITION

Do not start or stop the operation by disconnecting the power supply cord and so on.



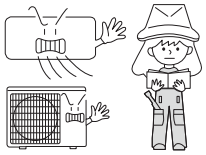
PROHIBITION

Do not channel the air flow directly at people, especially at infants or the aged.

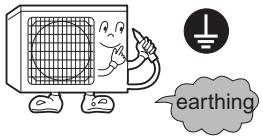


PROHIBITION

Do not try to repair or reconstruct by yourself.

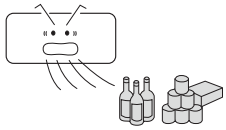


Connect the earth cable.



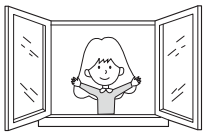
⚠ CAUTION

Do not use for the purpose of storage of food, art work, precise equipment, breeding, or cultivation.



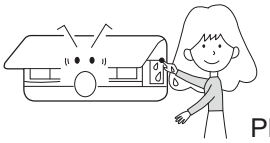
PROHIBITION

Take fresh air occasionally especially when gas appliance is running at the same time.



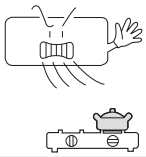
STRICT ENFORCEMENT

Do not operate the switch with wet hand.



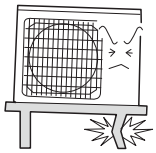
PROHIBITION

Do not install the unit near a fireplace or other heating apparatus.



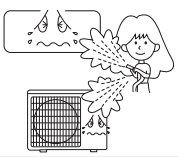
PROHIBITION

Check good condition of the installation stand



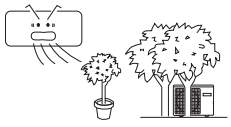
PROHIBITION

Do not pour water onto the unit for cleaning



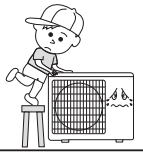
PROHIBITION

Do not place animals or plants in the direct path of the air flow



PROHIBITION

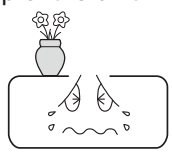
Do not place any objects on or climb on the unit.



PROHIBITION

Do not place flower vase or water containers on the top of the unit.

PROHIBITION



Trouble shooting

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, paint, 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.
	In dry mode, fan speed can't be changed.	• In DRY mode, when room temperature becomeslower than temp.setting+2°C,unit will run intermittently at LOW speed regardless of FAN setting.
Multiple check		• Is power plug inserted? • Is there a power failure? • Is fuse blownout?
	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?

T1: Application temp. range of air conditioner -7°C~43°C.
T3: Application temp. range of air conditioner -7°C~54°C.

Cautions

The machine is adaptive in following situation

1.Applicable ambient temperature range:

For: T1

Cooling	Indoor	Maximum: D.B / W.B Minimum: D.B / W.B	32°C/23°C 18°C/14°C
	Outdoor	Maximum: D.B Minimum: D.B	43°C/26°C 18°C
Heating	Indoor	Maximum: D.B Minimum: D.B	27°C 15°C
	Outdoor	Maximum: D.B / W.B Minimum: D.B / W.B	24°C/18°C -7°C/-8°C

For: T3

Cooling	Indoor	Maximum: D.B / W.B Minimum: D.B / W.B	29°C/19°C 18°C/14°C
	Outdoor	Maximum: D.B / W.B Minimum: D.B	54°C/24°C 18°C
Heating	Indoor	Maximum: D.B Minimum: D.B	27°C 15°C
	Outdoor	Maximum: D.B / W.B Minimum: D.B / W.B	24°C/18°C -7°C/-8°C

2. 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
3. If the fuse on PC board is broken please change it with a fuse type T. 3.15A/250V.
   If the fuse of outdoor unit on PC board is broken, please change it with the type of T. 25A/250V.
4. The distance between the indoor unit and the floor should be more than 2m.
5. The wiring method should be in line with the local wiring standard.
6. After installation, the power plug should be easily reached..
7. The used batteries should be disposed of properly.
8. The appliance is not intended to use by young children or infirm persons without supervision.
9. Young children should be supervised ensure that they do not play with the appliance.
10. The appliance must be installed on a strong enough support.
11. The wiring diagram is attached inside the machine.

7.Codes and Description

7.1.Problem Symptoms and Measures

Symptom	Check Item	Details of Measure
None of the units operates	Check the power supply.	Check to make sure that the rated voltage is supplied.
	Check the indoor PCB	Check to make sure that the indoor PCB is broken
Equipment operates but does not cool, or does not heat (only for heat pump)	Diagnosis by service port pressure and operating current.	Check for insufficient gas.
Large operating noise and vibrations	Check the installation condition.	Check to make sure that the required spaces for installation (specified in the Technical Guide, etc.) are provided.

7.2 Error Codes and Description indoor display

	Code indication	Description	Reference Page
	indoor		
Indoor Malfunction	E1	Room temperature sensor failure	15
	E2	Heat-exchange sensor failure	15
	E4	Indoor EEPROM error	15

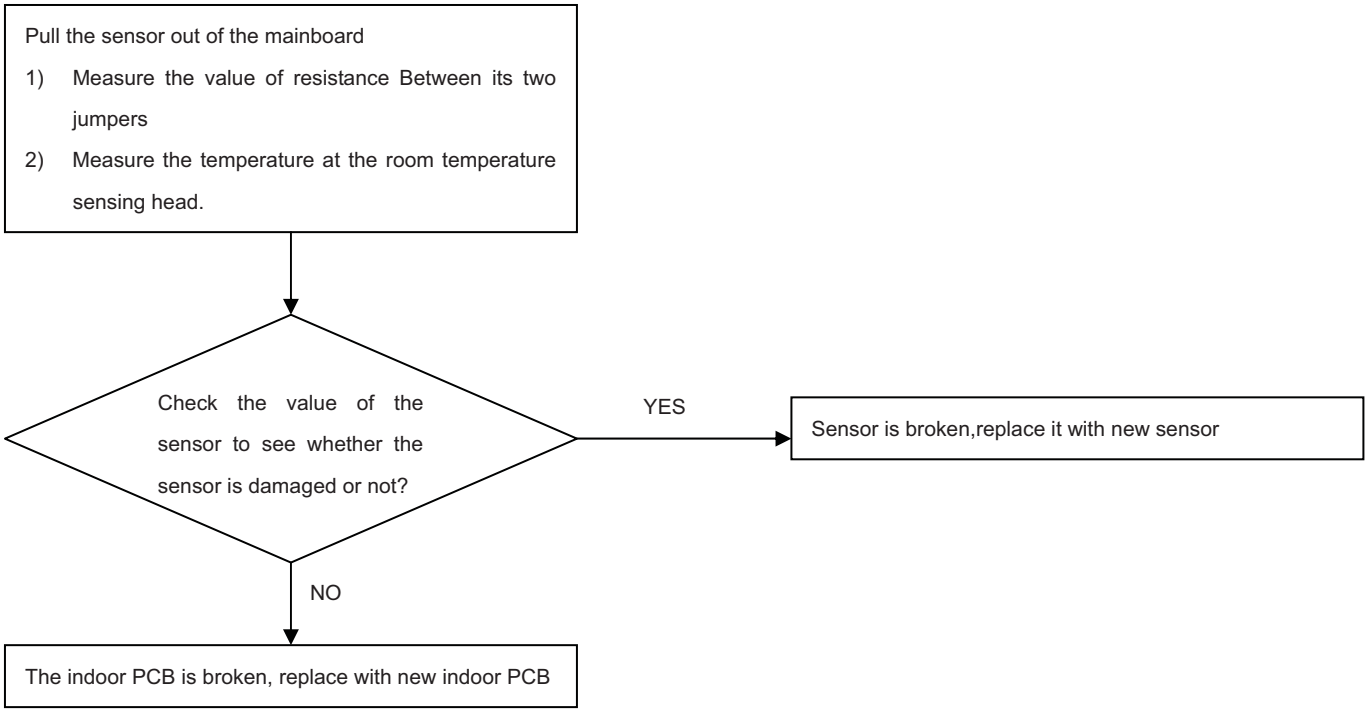
The code indication that is listed above is the main fault

Troubleshooting

Caution：Be sure to turn off power switch before connect or disconnect connector, or else parts damage may be occurred.

E1: Room temperature sensor failure CN6

E2: Heat-exchange sensor failure CN6

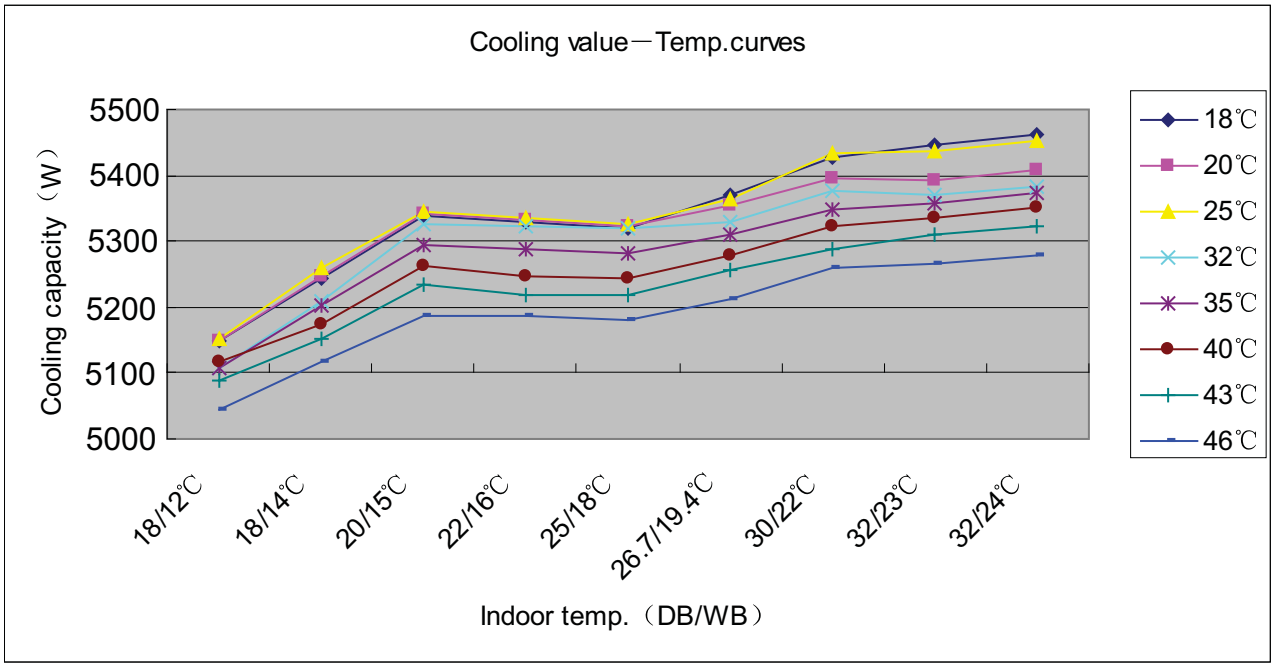


E4：Indoor EEPROM error:：Replace the PCB of indoor unit

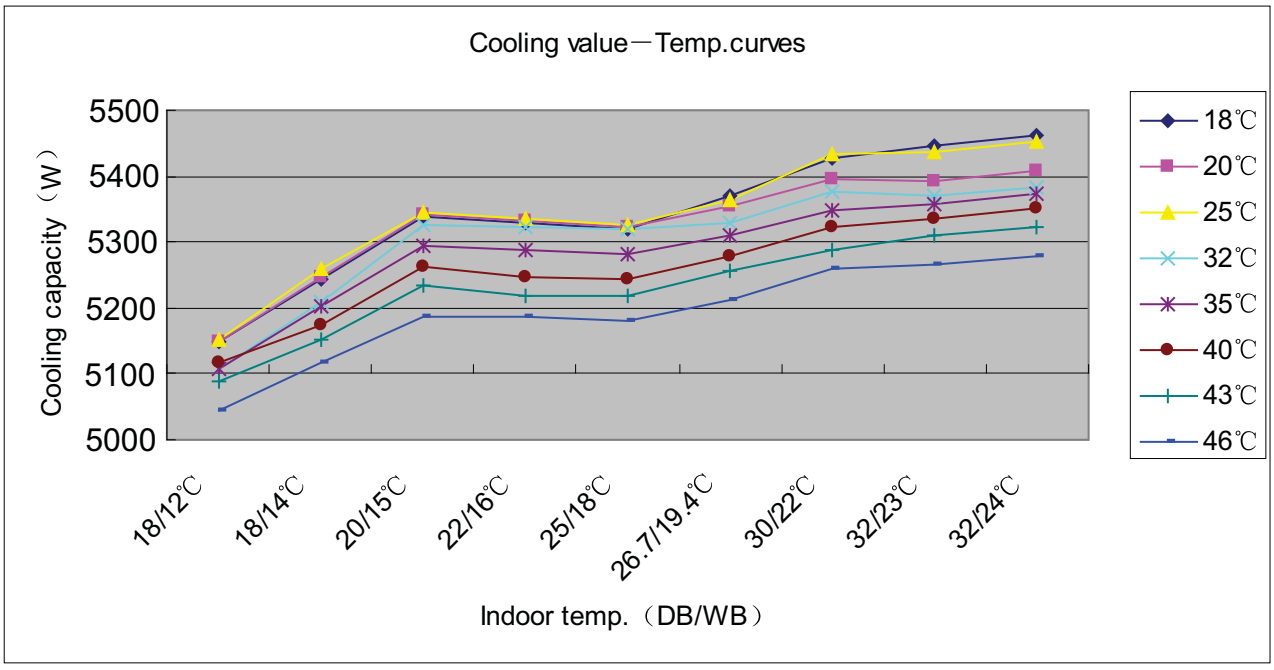
8. Capacity diagrams and curves diagrams

8.1 Cooling Capacity-temperature Curves

HSU-18 HEK13/R2 performan cecurves coolin g value-temperatur e table								
indoor temp.	outdoor temp.(humidity 46%)							
DB/WB	18℃	20℃	25℃	32℃	35℃	40℃	43℃	46℃
18/12℃	5300	5281	5264	5240	5209	5188	5130	5058
18/14℃	5315	5295	5286	5279	5231	5216	5134	5095
20/15℃	5315	5309	5300	5295	5248	5231	5145	5100
22/16℃	5329	5318	5310	5297	5251	5247	5159	5102
25/18℃	5340	5326	5314	5305	5265	5250	5162	5105
26.7/19.4℃	5345	5338	5317	5304	5270	5254	5236	5125
30/22℃	5351	5340	5324	5316	5283	5266	5230	5190
32/23℃	5362	5353	5348	5321	5296	5280	5248	5225
32/24℃	5418	5372	5361	5354	5329	5315	5286	5260

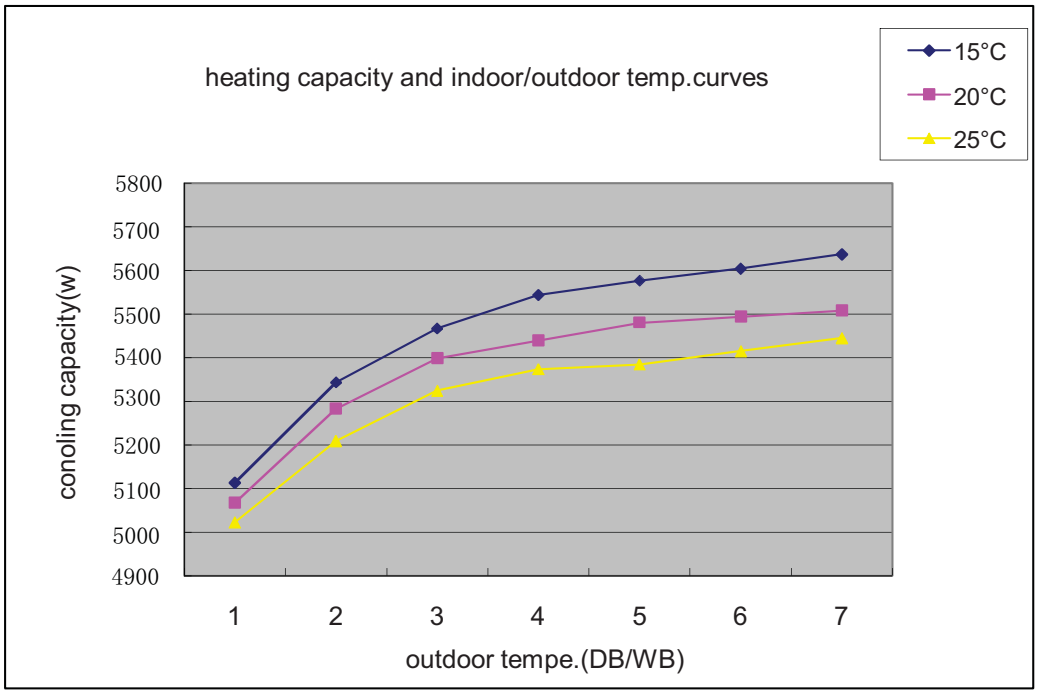


HSU-24 HEK13/R2 performan cecurves coolin g value-temperatur e table								
indoor temp.	outdoor temp.(humidity 46%)							
DB/WB	18℃	20℃	25℃	32℃	35℃	40℃	43℃	46℃
18/12℃	6350	6320	6275	6240	6210	6182	6147	6125
18/14℃	6410	6389	6360	6341	6327	6315	6310	6305
20/15℃	6431	6405	6372	6350	6340	6324	6317	6300
22/16℃	6460	6450	6447	6420	6417	6410	6408	6405
25/18℃	6478	6470	6431	6427	6422	6415	6412	6410
26.7/19.4℃	6492	6489	6476	6458	6450	6442	6400	6384
30/22℃	6528	6495	6484	6462	6458	6450	6436	6421
32/23℃	6570	6536	6518	6476	6460	6454	6445	6430
32/24℃	6630	6620	6600	6553	6524	6500	6470	6462

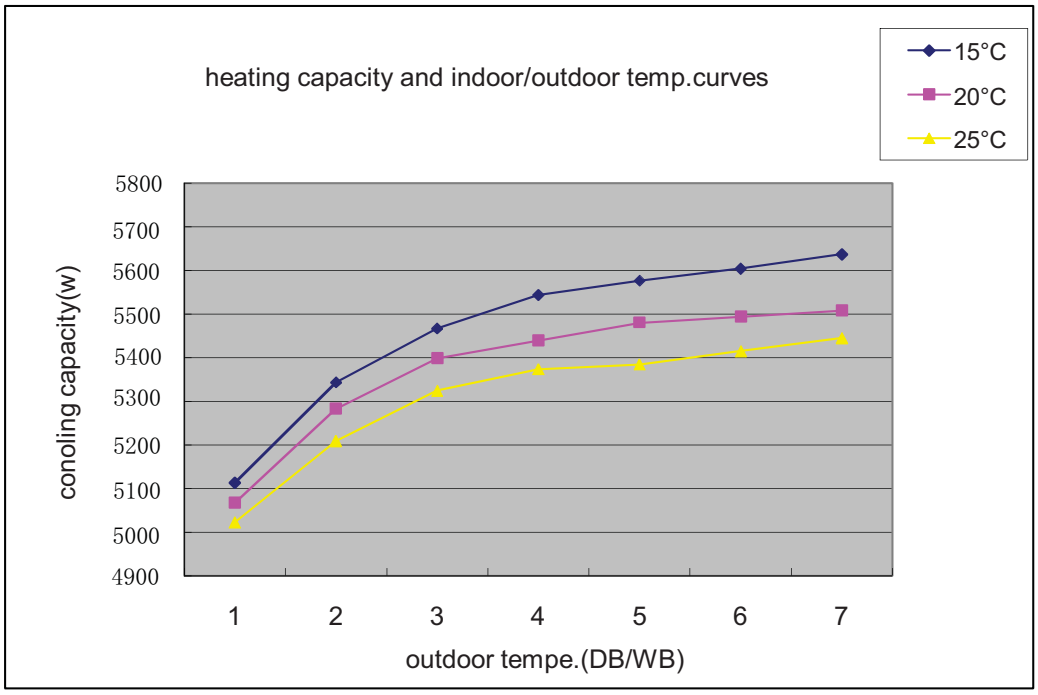


8.2Heating capacity-temperature curves

HSU-18HEK13/R2performance curves **heating capacity and indoor/outdoor temp.table**			
outdoor temp.	indoor temp.(humidity 46%)		
DB/WB	15℃	20℃	25℃
-15℃	5120	5036	4970
-5℃	5230	5167	5036
5℃	5317	5245	5102
7/6℃	5442	5270	5135
15℃	5563	5345	5278
20℃	5631	5579	5346
25℃	5745	5665	5486

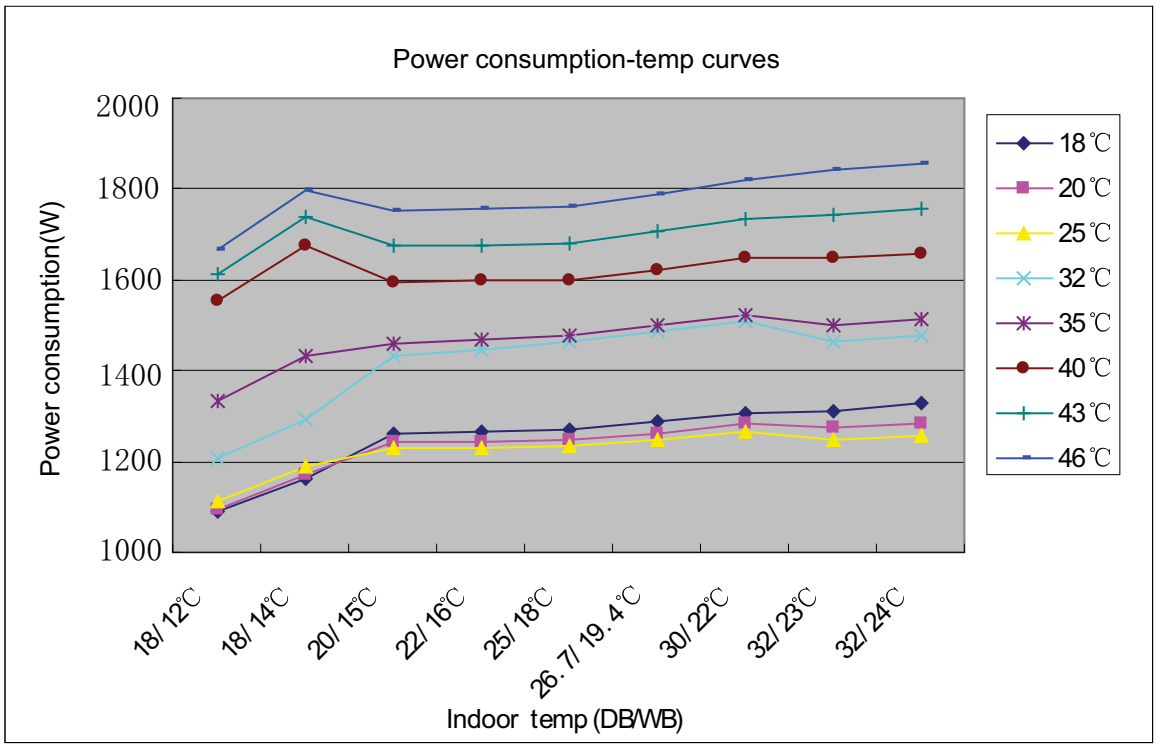


HSU-24HEK13/R2performance curves **heating capacity and indoor/outdoor temp.table**			
outdoor temp.	indoor temp.(humidity 46%)		
DB/WB	15℃	20℃	25℃
-15℃	6180	6071	5960
-5℃	6377	6286	6143
5℃	6442	6325	6278
7/6℃	6575	6450	6324
15℃	6660	6579	6447
20℃	6735	6640	6525
25℃	6780	6698	6579

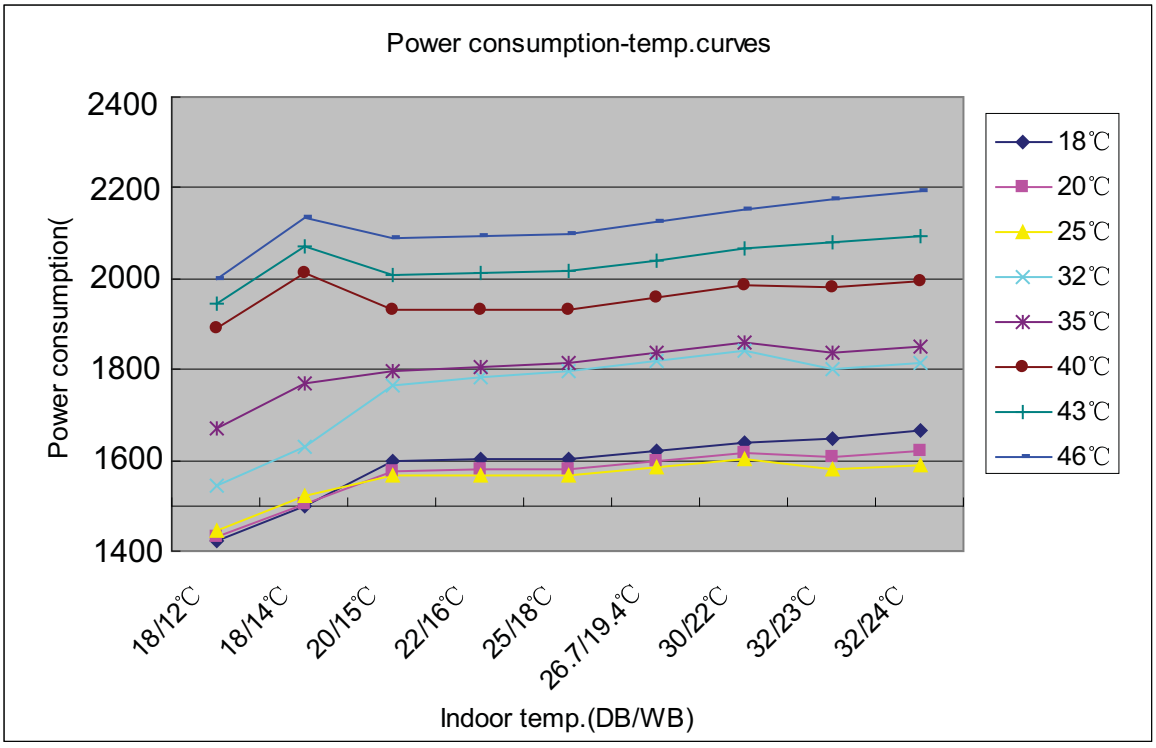


8.3 Cooling Power Consumption Value-temperature Curves

HSU-18HEK13/R2 performance curves power consumption value-temp.table								
indoor temp.	outdoor temp.(humidity 46%)							
DB/WB	18℃	20℃	25℃	32℃	35℃	40℃	43℃	46℃
18/12℃	1072	1165	1240	1329	1448	1520	1586	1560
18/14℃	1245	1364	1387	1472	1514	1560	1603	1640
20/15℃	1325	1460	1475	1520	1575	1593	1640	1655
22/16℃	1386	1452	1486	1560	1594	1621	1657	1682
25/18℃	1420	1490	1523	1589	1615	1642	1687	1720
26.7/19.4℃	1496	1523	1585	1610	1640	1689	1712	1735
30/22℃	1514	1585	1626	1697	1768	1795	1826	1859
32/23℃	1537	1620	1665	1691	1750	1782	1830	1893
32/24℃	1624	1680	1751	1825	1892	1924	1962	1990

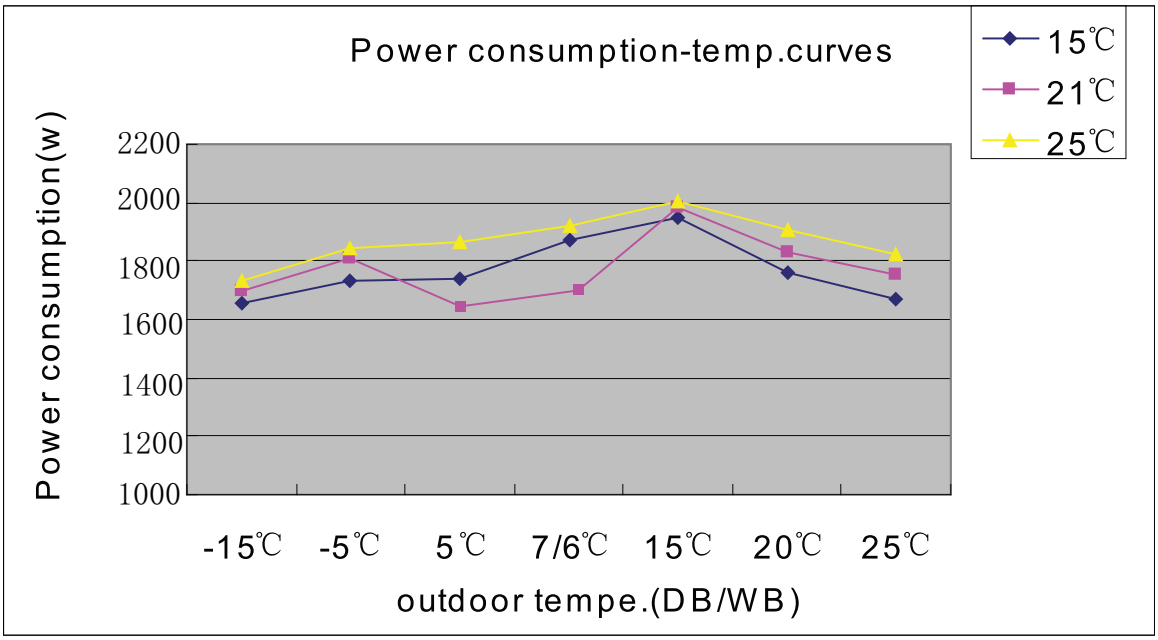


HSU-24HEK13/R2 performance curves power consumption value-temp.table								
indoor temp.	outdoor temp.(humidity 46%)							
DB/WB	18℃	20℃	25℃	32℃	35℃	40℃	43℃	46℃
18/12℃	1532	1613	1601	1612	1653	1674	1689	1786
18/14℃	1574	1596	1607	1628	1675	1698	1723	1893
20/15℃	1605	1623	1664	1713	1764	1803	1862	1921
22/16℃	1694	1725	1764	1782	1835	1881	1925	1962
25/18℃	1765	1796	1823	1867	1905	1923	1985	2039
26.7/19.4℃	1912	1934	1965	1989	2010	2035	2078	2162
30/22℃	1956	1968	1989	2006	2035	2074	2126	2185
32/23℃	2013	2067	2095	2115	2137	2165	2234	2274
32/24℃	2035	2062	2105	2130	2161	2236	2248	2289

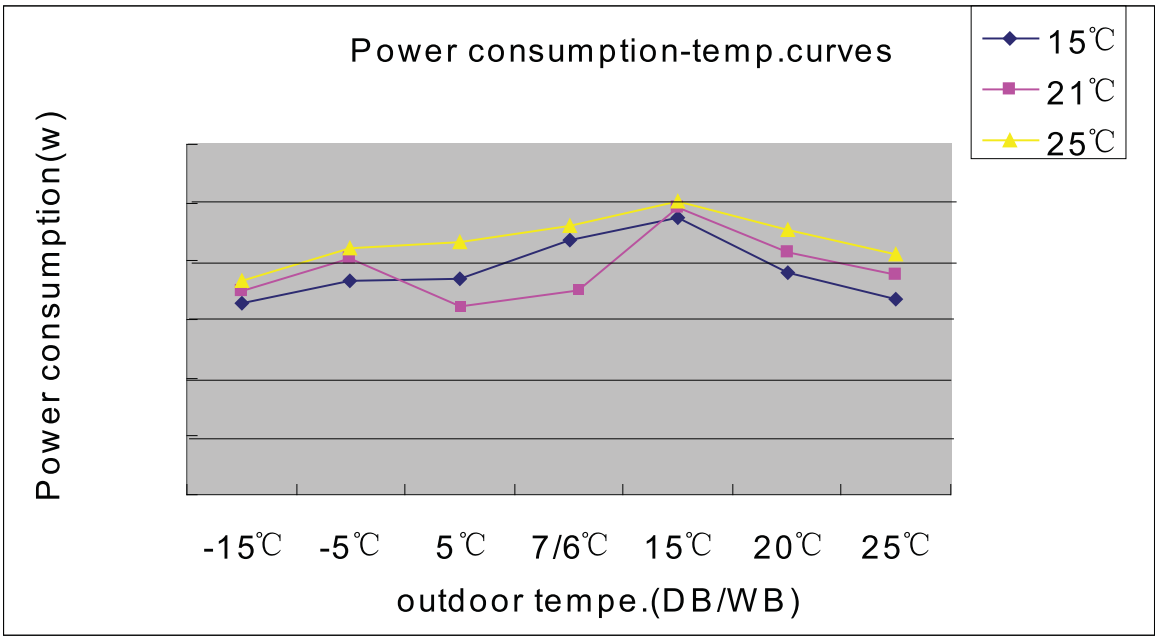


8.4 Heating Power Consumption Value-temperature Curves

HSU-18HEK13/R2 performance curves power consumption value-temp.table			
outdoor temp.	indoor temp.(humidity 46%)		
DB/WB	15 ℃	21 ℃	25 ℃
-15 ℃	1380	1465	1540
-5 ℃	1451	1529	1620
5 ℃	1526	1608	1655
7/6 ℃	1587	1640	1695
15 ℃	1624	1681	1706
20 ℃	1685	1708	1736
25 ℃	1726	1755	1820



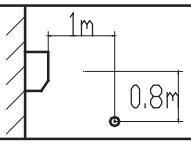
HSU-24HEK13/R2 performance curves power consumption value-temp.table			
outdoor temp.	indoor temp.(humidity 46%)		
DB/WB	15 ℃	21 ℃	25 ℃
-15 ℃	1730	1795	1861
-5 ℃	1752	1835	2063
5 ℃	1864	1915	2175
7/6 ℃	1975	2010	2068
15 ℃	2035	2067	2152
20 ℃	2073	2136	2187
25 ℃	2141	2189	2253

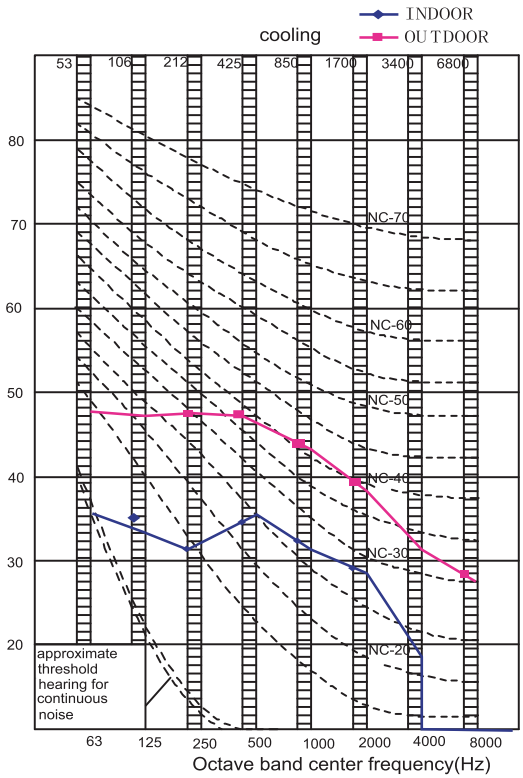


8.5 Sound level

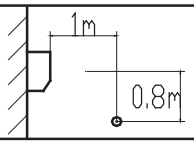
HSU-18HEK13/R2

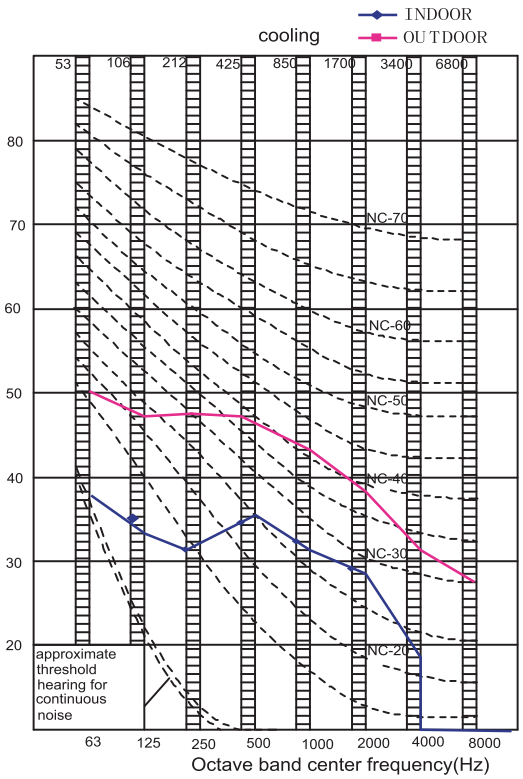
HSU-18 24HEK13/R2

Model	Sound pressure level			Measuring location Location of microphone	sound power level (cooling/heating)	
	220V, 60HZ Cooling/heating					
	H	M	L			
HSU-18HEK13/R2	47	44	40		56	220V,60HZ



HSU-24HEK13/R2

Model	Sound pressure level				sound power level (cooling/heating)
	220V, 60HZ			Measuring location Location of microphone	
	Cooling/heating				
	H	M	L		
HSU-24HEK13/R2	49	46	43		58



9. Installations

Preparation

Necessary Tools for Installation

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

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 Installation Place

Indoor Unit

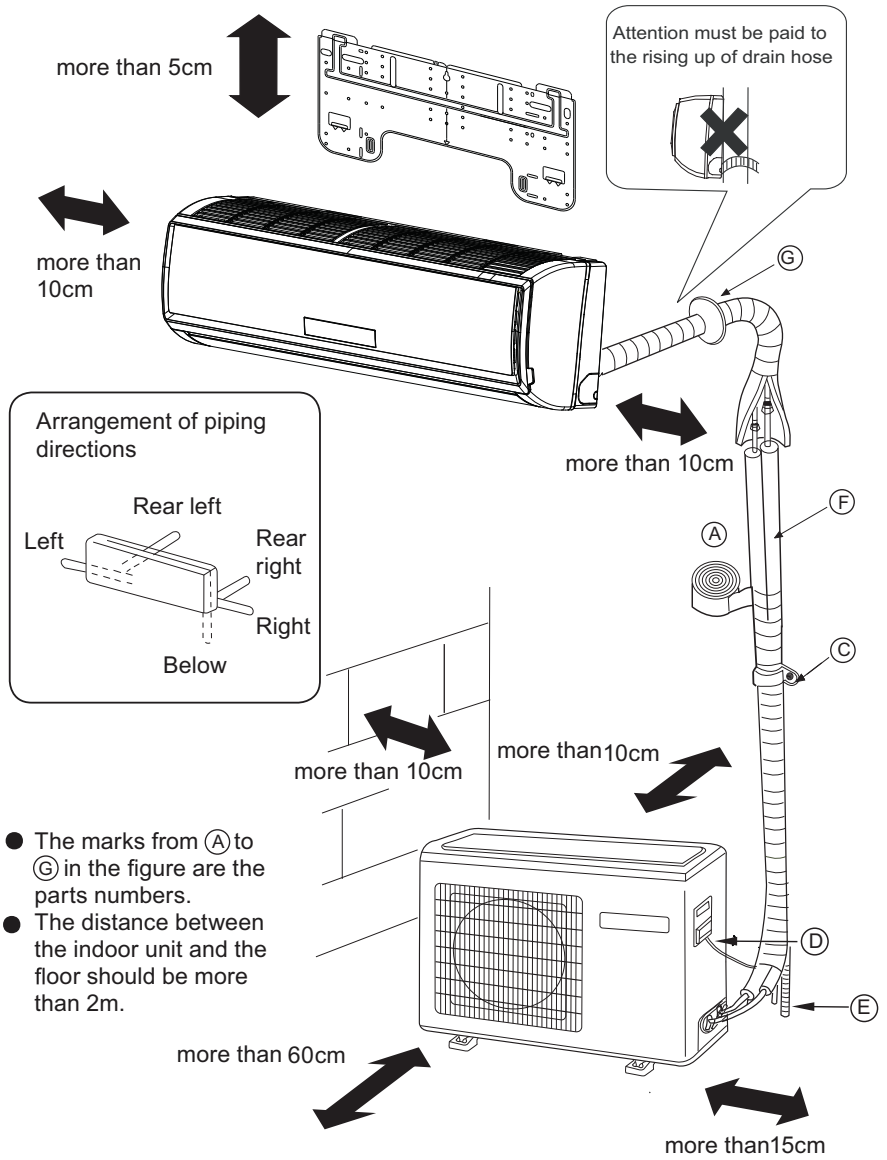
- Place, robust not causing vibration, where the body can be supported sufficiently.
- Place, not affected by heat or steam generated in the vicinity, where inlet and outlet of the unit are not disturbed.
- Place, possible to drain easily, where piping can be connected with the outdoor unit.
- Place,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

Outdoor Unit

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

Drawing for the installation of indoor and outdoor units

The models adopt HFC free refrigerant R410A



- 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.

Please be subject to the actual product purchased , the above picture is just for your reference.

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

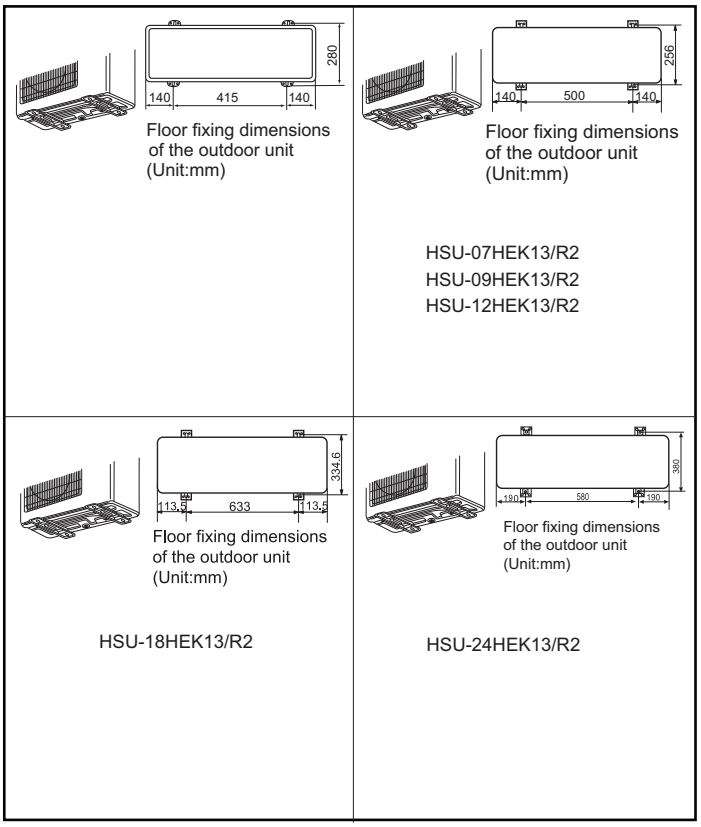
Accessory parts

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	ϕ4X25 Screw; Plastic cap	4
⑦	Drain-elbow	1
⑧	Cover	1
⑨	Cushion	4
⑩	Pipe supporting plate	1
⑪	Connecting cable	1

Note:Cooling only units don't have Drain-elbow

Optional parts for piping

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



Selection of pipe

	For 07- 12K	For 18K	For >18K
Liquid pipe (ϕ)	6.35mm(1/4")	6.35mm(1/4")	9.52mm(3/8")
Gas pipe (ϕ)	9.52mm(3/8")	12.7mm(1/2")	15.88mm(5/8")

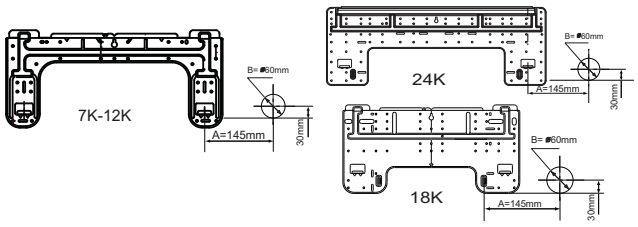
NOTE：The thickness of the pipe must be 0.8mm at least.

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

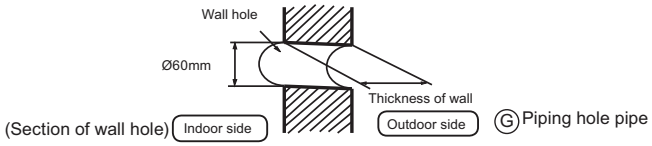


When the mounting plate is fixed side bar and lintel

- 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



3 Installation of the Indoor Unit

Drawing of pipe

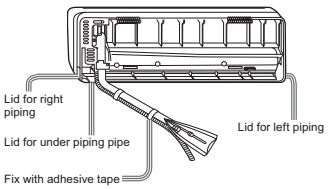
[Rear piping]

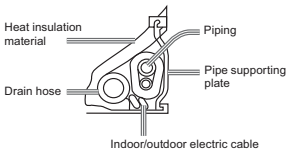
- Draw pipes and the drain hose, then fasten them with the adhesive tape

[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





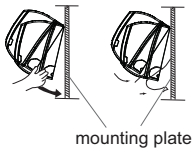
- Indoor/outdoor electric cable and drain hose must be bound with refrigerant piping by protecting tape.

[Other direction piping]

- Cut away, with a nipper, the lid for piping according to the piping direction and then bend the pipe according to theposition 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.

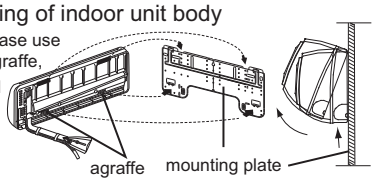
Fixing the indoor unit body

- 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.



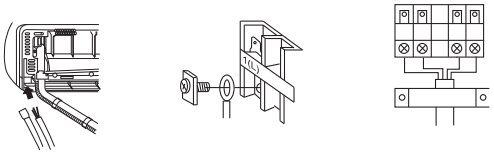
Unloading of indoor unit body

- When you unload the indoor unit,please use your hand to arise the body to leave agraffe, then lift the bottom of the body outward slightly and lift the unit aslant until it leaves the mounting plate.

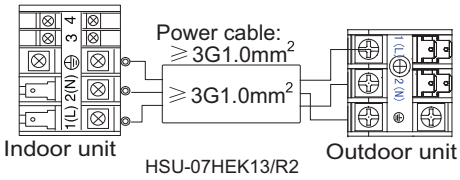


4 Connecting the indoor/outdoor Electric Cable

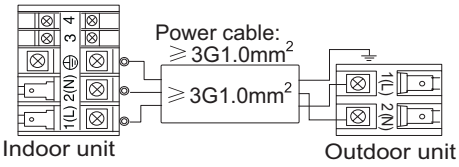
- Remove terminal cover at right bottom corner of indoor unit, then take off wiring cover by removing its screws.
- Insert from outside the room cable into left side of the wall hole, in which the pipe has already existed.
- Pull out the cable on the front side, and connect the cable making a loop.
- 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.



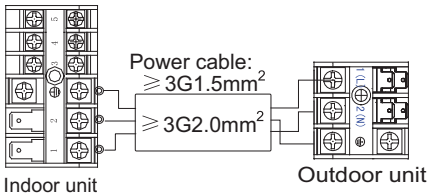
Note When connecting the cable, confirm the terminal number of indoor and outdoor units carefully. If wiring is not correct, proper operation can not be carried out and will cause defect.



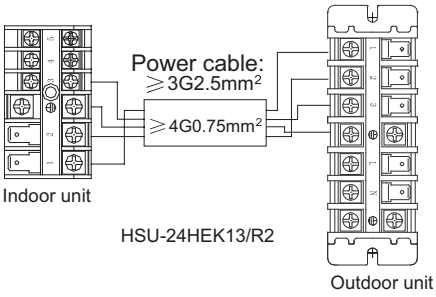
HSU-07HEK13/R2



HSU-09HEK13/R2
HSU-12HEK13/R2



HSU-18HEK13/R2



HSU-24HEK13/R2

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.
5. A breaker should be incorporated into fixed wiring. The breaker should be all-pole switch and the distance between its two contacts should be not less than 3mm.

Outdoor unit

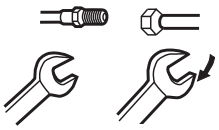
1 Installation of Outdoor Unit

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.

Half union Flare nut



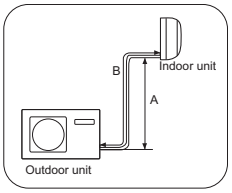
Spanner Torque wrench

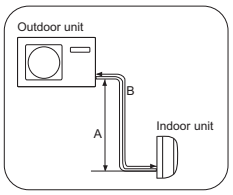
Forced fastening without careful centering may damage the threads and cause a leakage of gas.

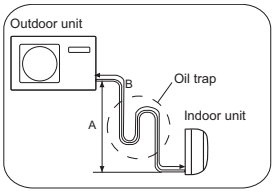
Pipe Diameter(ø)	Fastening torque
Liquid side6.35mm(1/4")	18N.m
Liquid/Gas side9.52mm(3/8")	42 N.m
Gas side 12.7mm(1/2")	55N.m
Gas side 15.88mm(5/8")	60 N.m

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 7m, the function of the unit will be affected. If the pipe has to be lengthened, the refrigerant should be charged, according to 20 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.

CAUTION







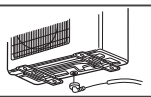
- Max.Elevation: Amax=10m
- In case the elevation A is more than 5m, oil trap shoud be installed every 5~7m
- Max. Length: Bmax=15m
- In case the pipe length B is more than 7m, the refrigerant should be charged, according to 20 g/m.

3 Connection

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

4 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.
3. Vacuumize for over 15min.And check the level gauge which should read -0.1MPa (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 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 .
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

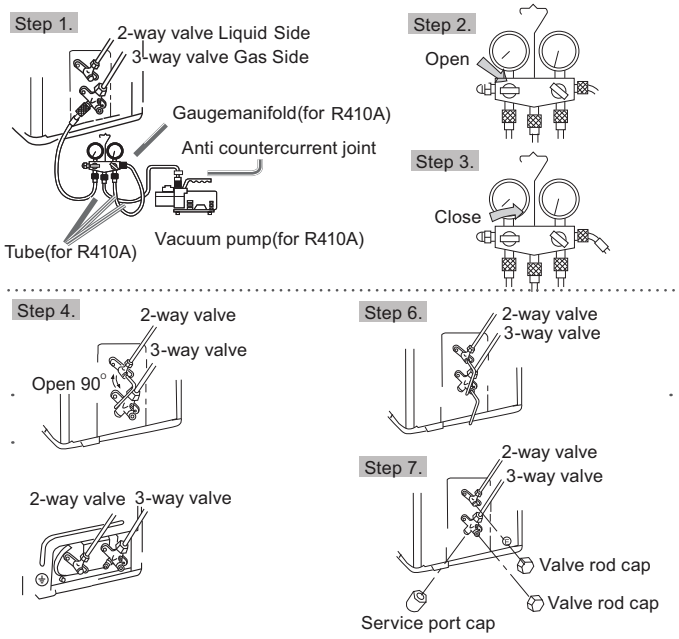
↓

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 anticlockwiseuntil 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

- 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.
- Please do not let other cooling medium, except specified one (R410A), 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.

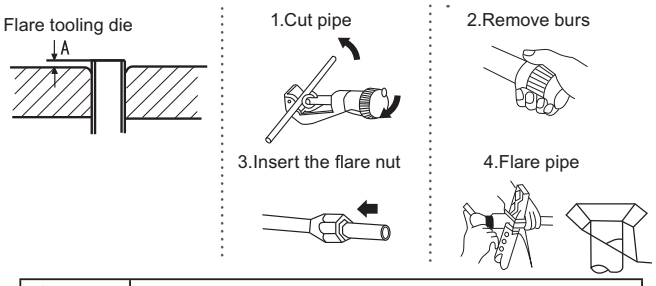
1 Power Source Installation

- The power source must be exclusively used for air conditioner. (Over I0A)
- 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.

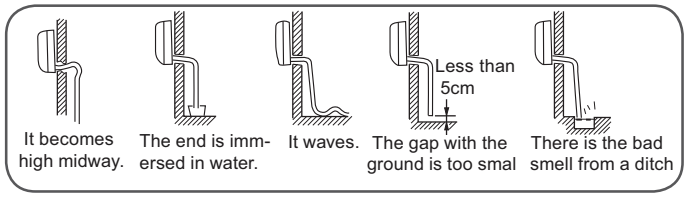
	Flare tool for R410A	Conventional flare tool	
	Clutch-type	clutch-type(Rigid-type)	Wing-nut type (Imperial-type)
A	0~0.5mm	1.0~1.5mm	1.5~2.0mm



Correct	Incorrect				
	Lean	Damage of flare	Crack	Partial	Too outside

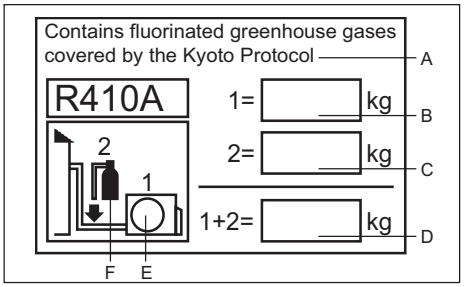
3 On Drainage

- 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.

■ Refrigerant charge label



This product contains fluorinated greenhouse gases covered by the Kyoto Protocol. Do not vent into the atmosphere.
Refrigerant type:R410A
GWP* value:1975
GWP=global warming potential
Please fill in with indelible ink,
• 1 the factory refrigerant charge of the product
• 2 the additional refrigerant amount charged in the field and
• 1+2 the total refrigerant charge
on the refrigerant charge label supplied with the product.
The filled out label must be adhered in the proximity of the product charging port (e.g. onto the inside of the stop value cover).
A contains fluorinated greenhouse gases covered by the Kyoto Protocol
B factory refrigerant charge of the product: see unit name plate
C additional refrigerant amount charged in the field
D total refrigerant charge
E outdoor unit
F refrigerant cylinder and manifold for charging

■ Check for Installation and Test Run

■ Please kindly explain to our customers how to operate through the instruction manual.

Check Items for Test Run

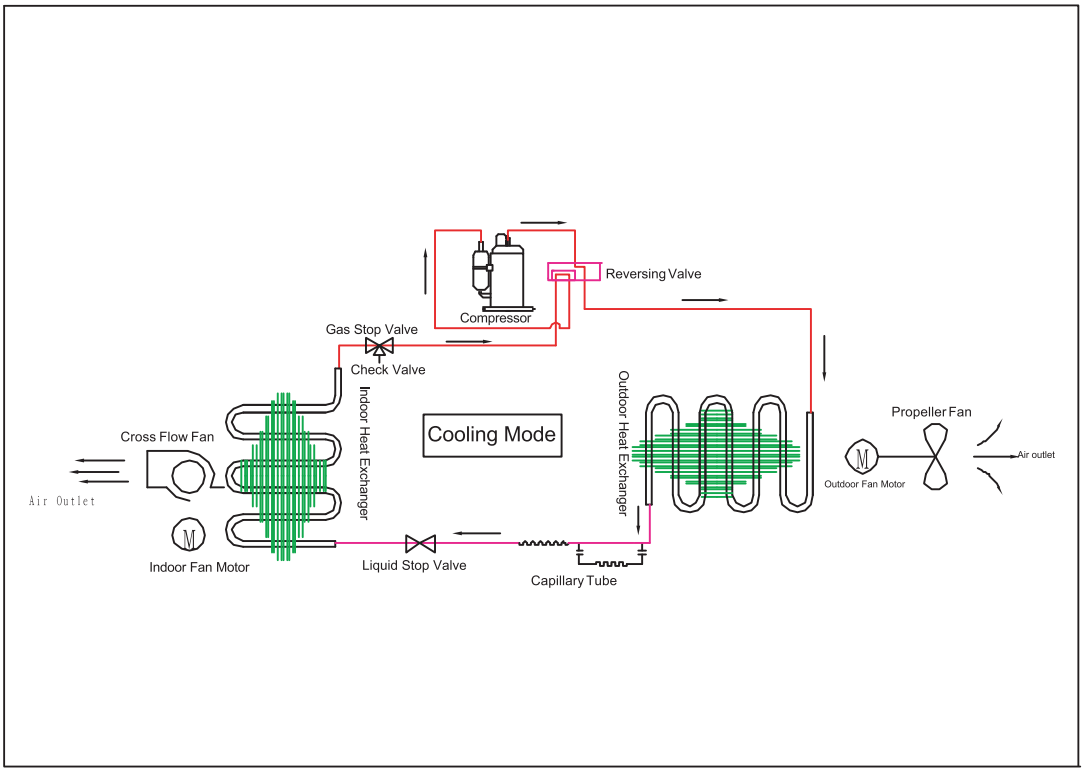
□ Put check mark ✓ in boxes

- □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?

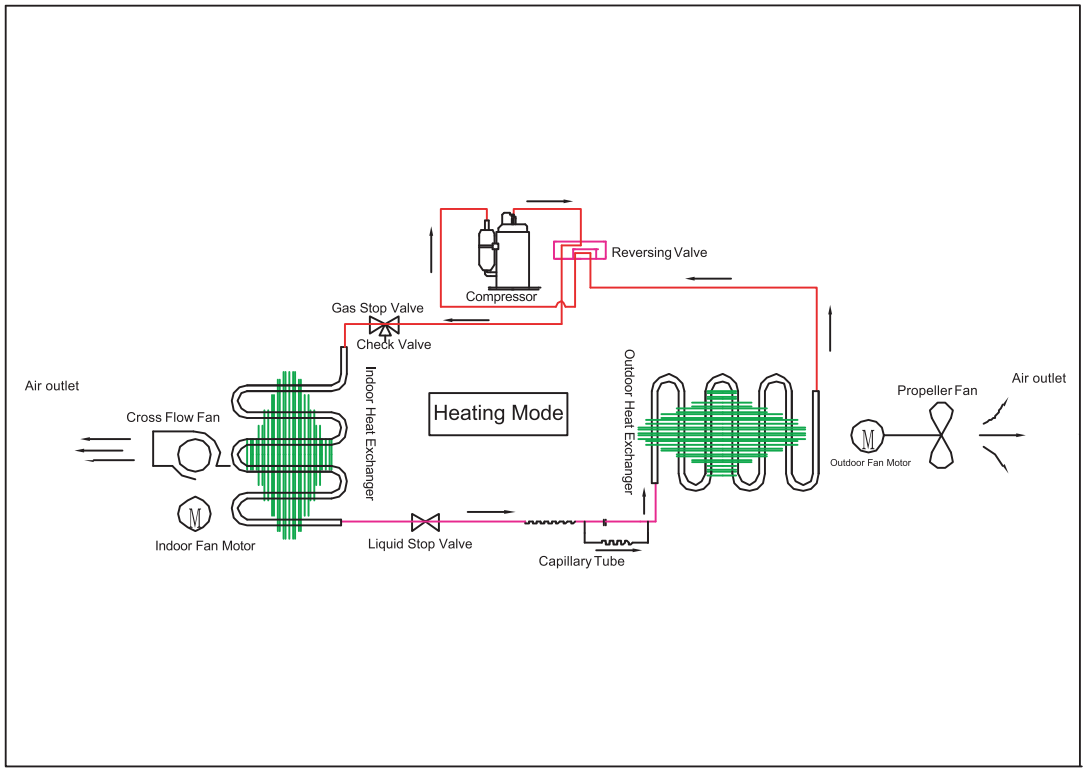
10. Appendix

10.1 Piping Diagrams

Cooling mode

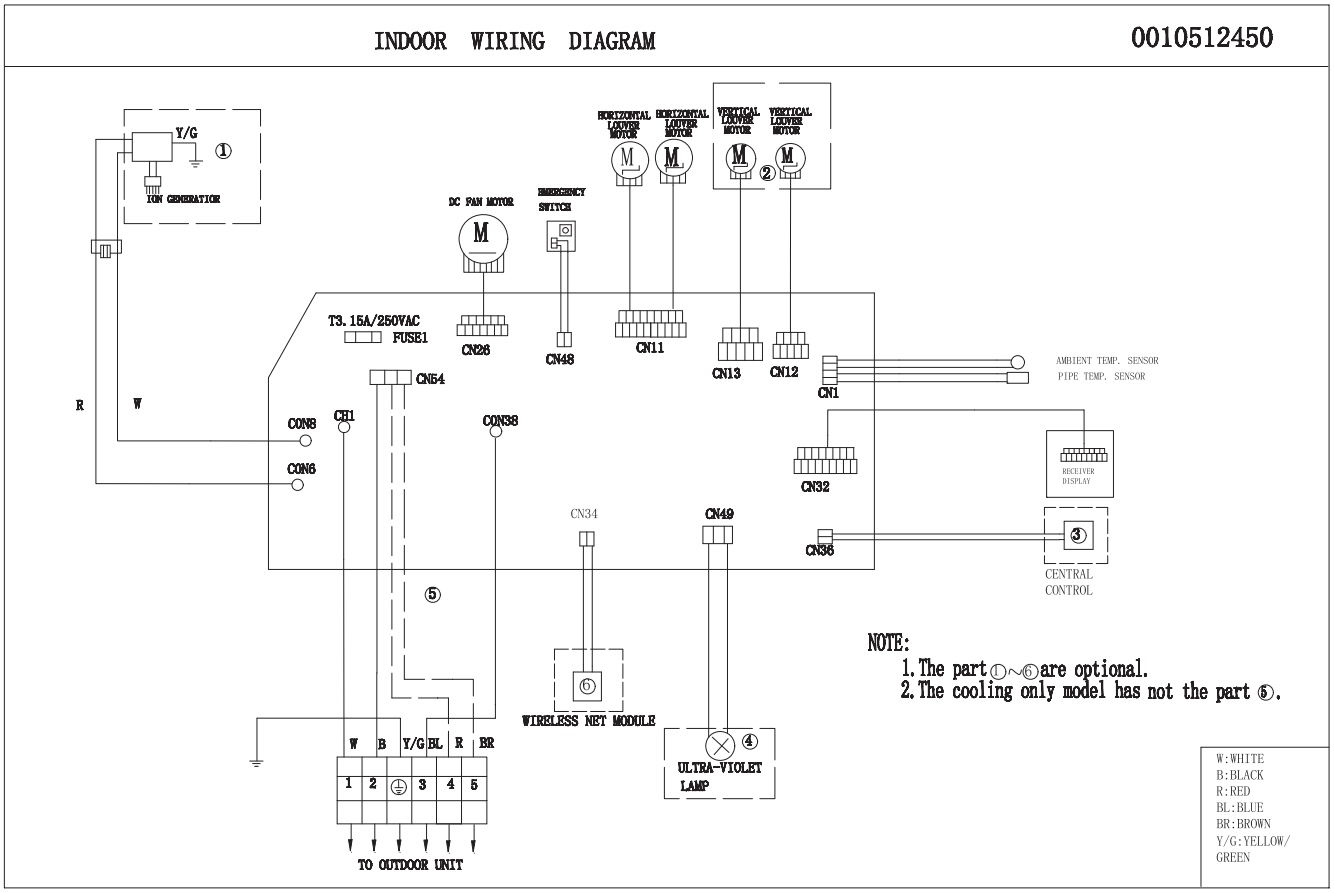


Heating mode

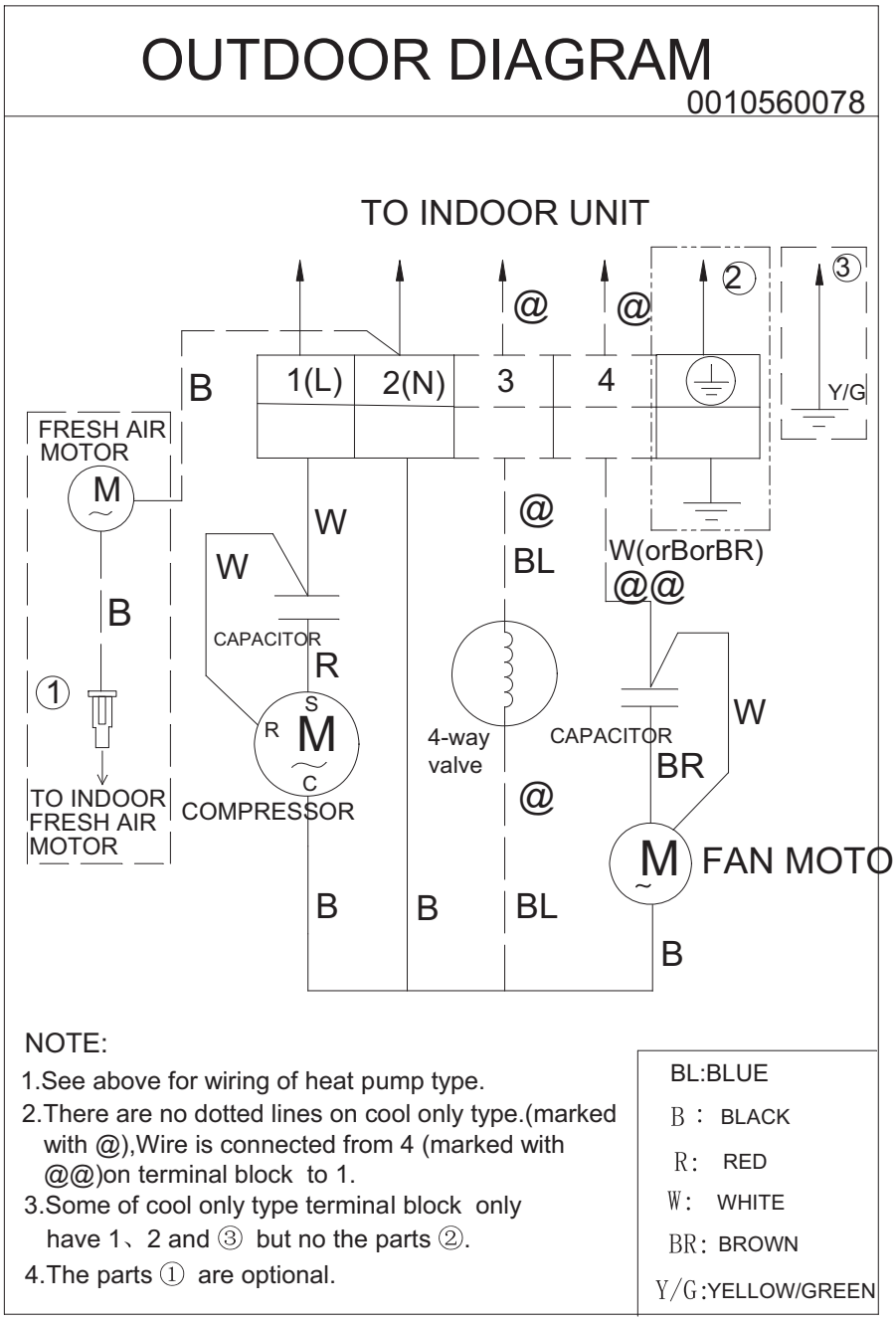


10.2 Wiring Diagrams

Indoor

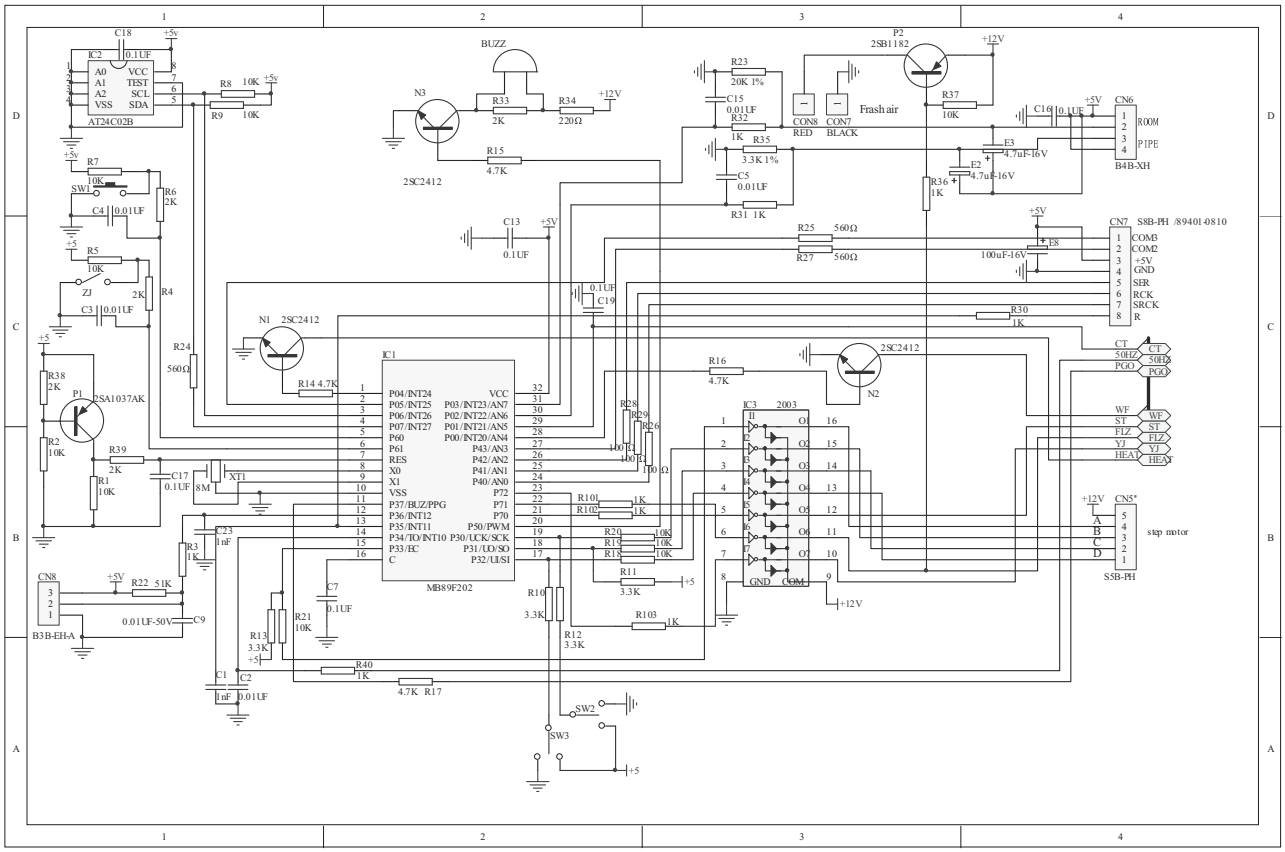


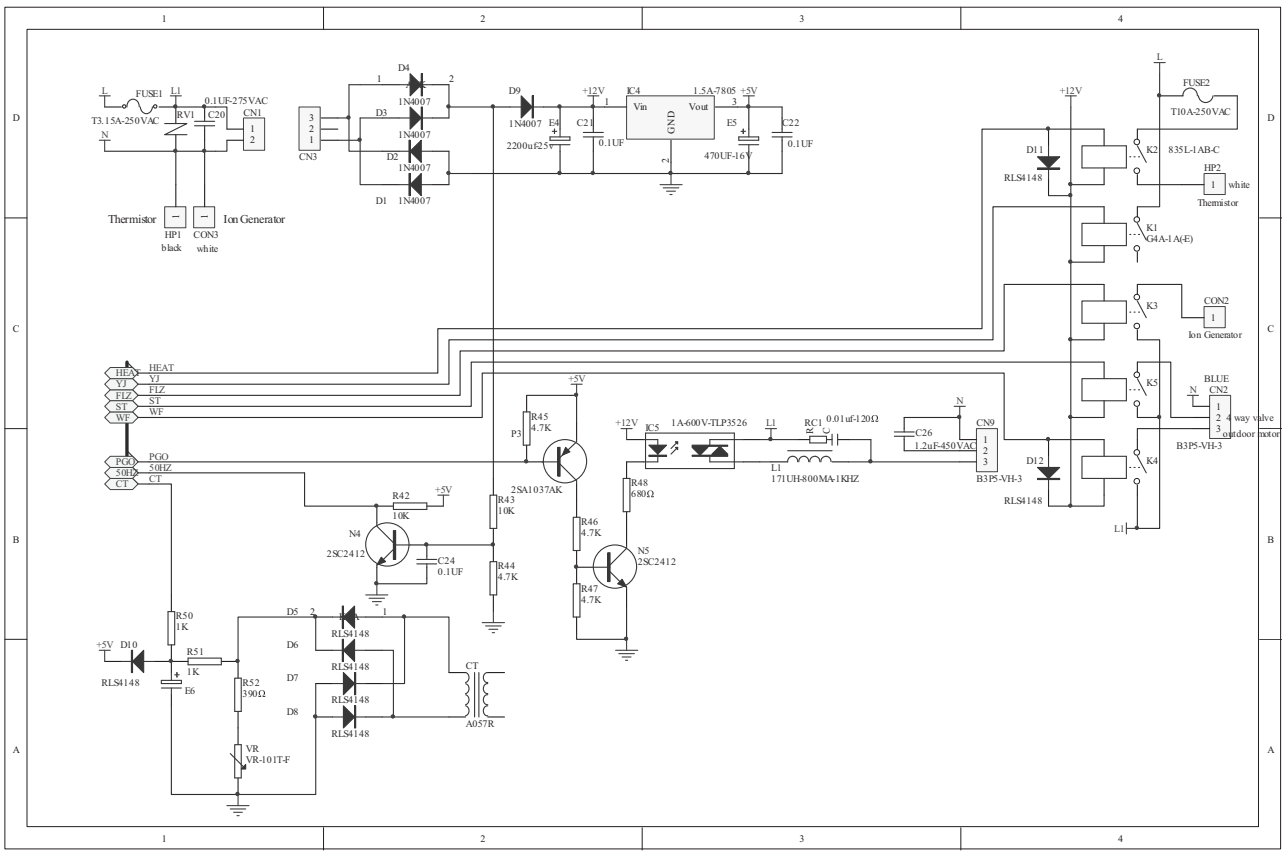
Outdoor


OUTDOOR DIAGRAM
0010560078
TO INDOOR UNIT
1(L)
2(N)
3
4
Y/G
FRESH AIR MOTOR
M
CAPACITOR
4-way valve
CAPACITOR
W(orBorBR)
TO INDOOR FRESH AIR MOTOR
COMPRESSOR
FAN MOTOR
NOTE:
1.See above for wiring of heat pump type.
2.There are no dotted lines on cool only type.(marked with @),Wire is connected from 4 (marked with @@)on terminal block to 1.
3.Some of cool only type terminal block only have 1、2 and ③ but no the parts ②.
4.The parts ① are optional.
BL:BLUE
B : BLACK
R: RED
W: WHITE
BR: BROWN
Y/G:YELLOW/GREEN

10.3 Wiring diagrams

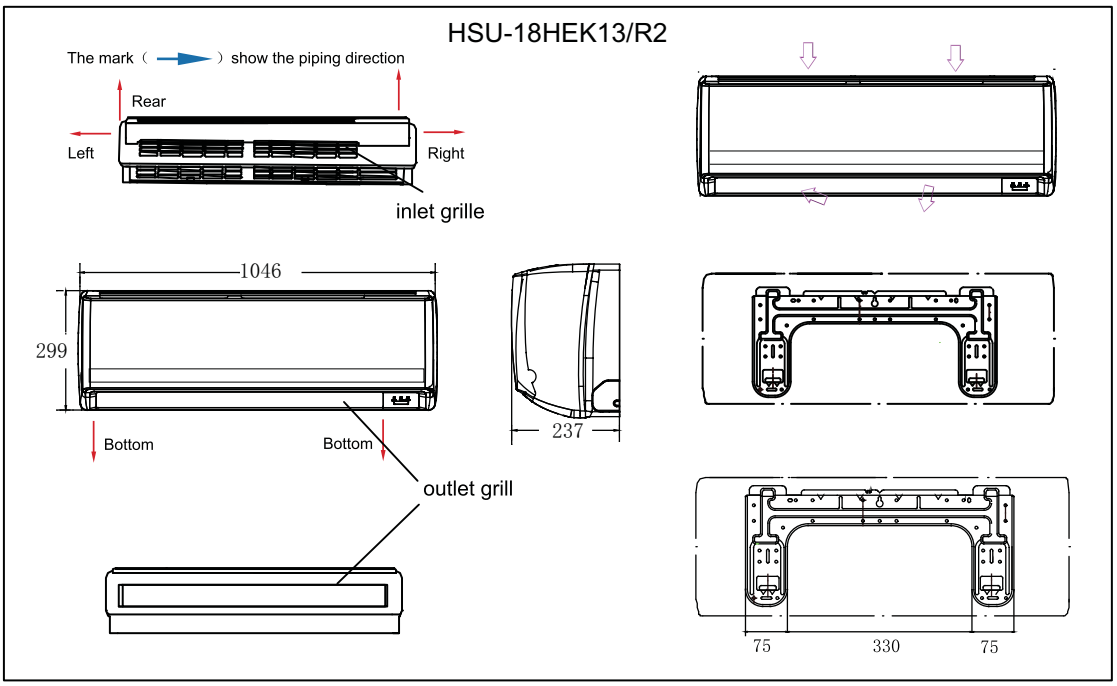
CIRCUIT DIAGRAM

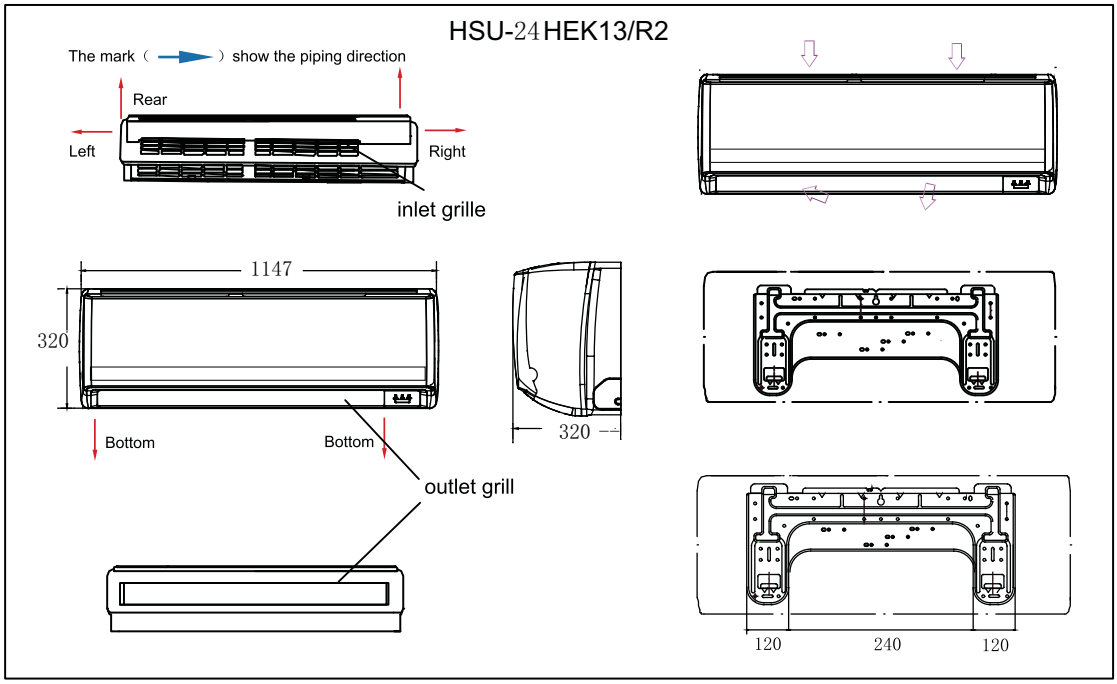




10.4 Dimensional drawings

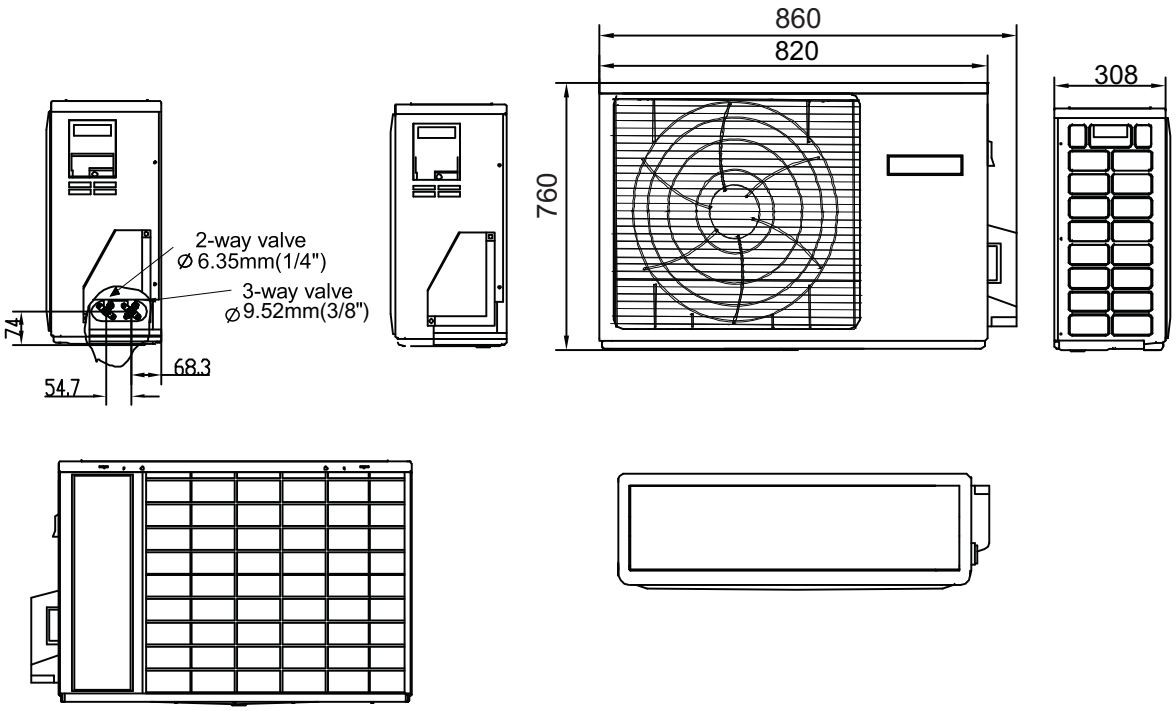
Indoor unit



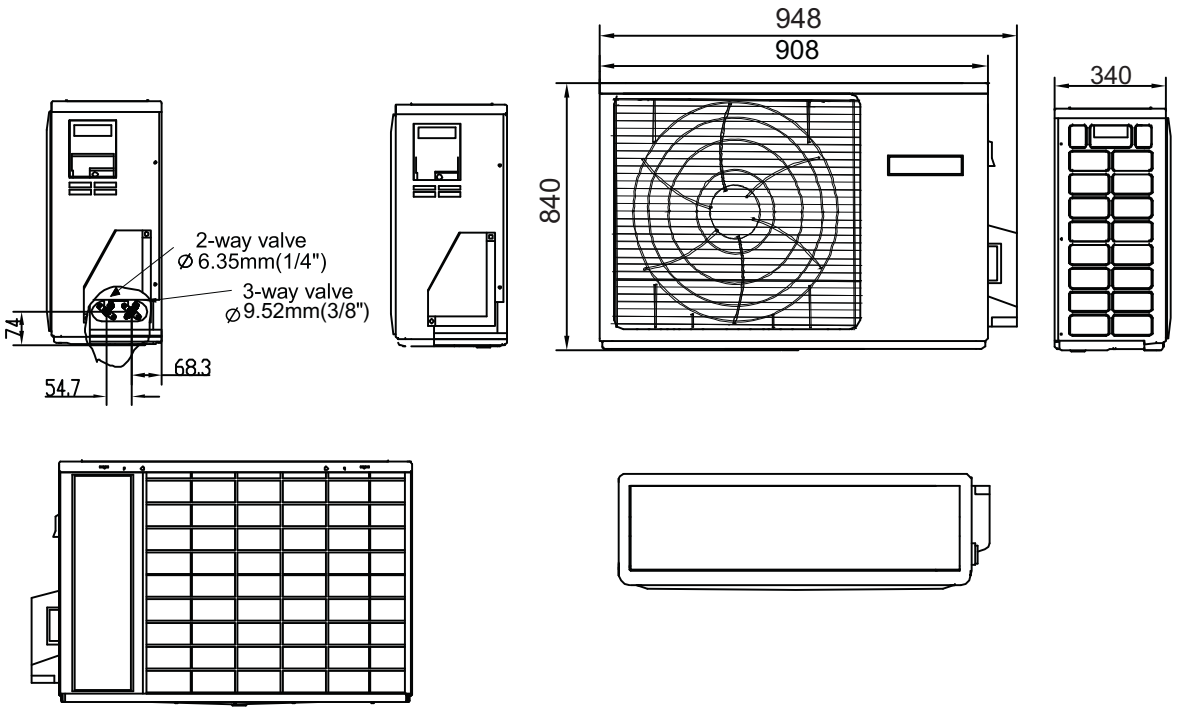


Outdoor unit

HSU-18HEK13/R2



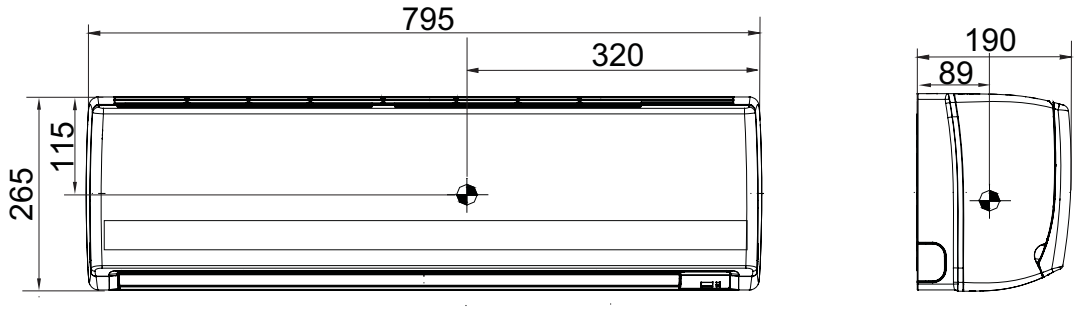
HSU-24HEK13/R2



10.5 Center of gravity

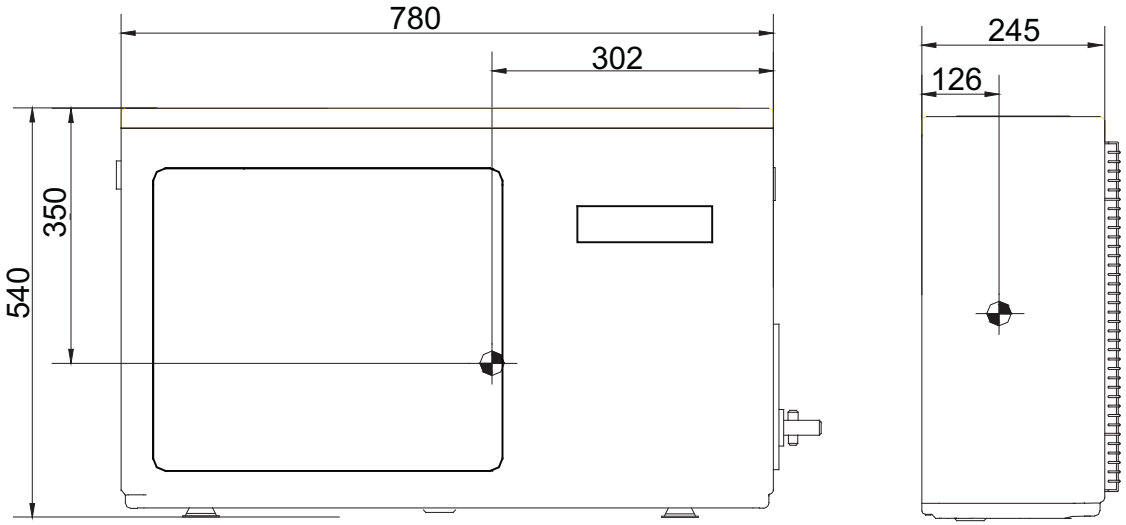
Indoor unit

HSU-18HEK13/R2



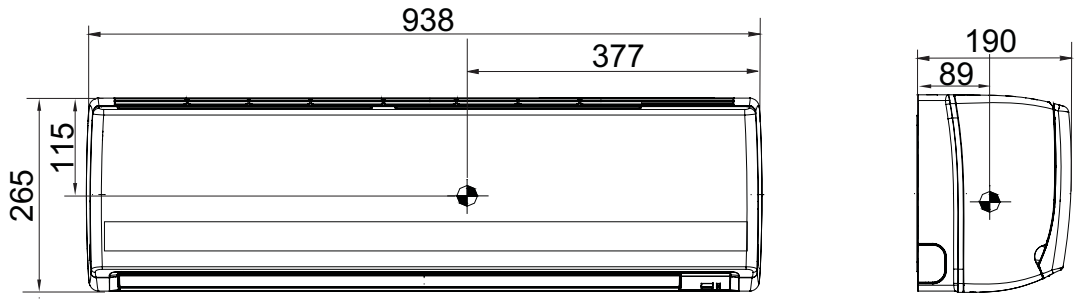
Outdoor unit

HSU-07/09/12HEK13/R2

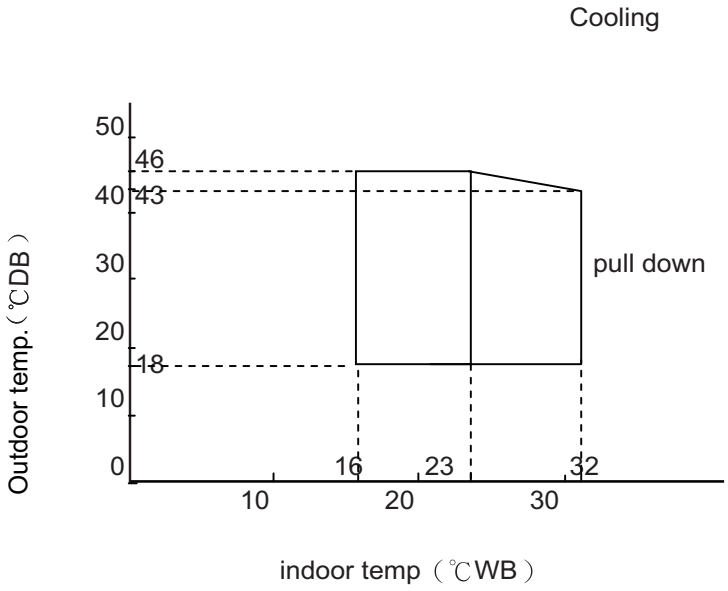


Indoor unit

HSU-24HEK13/R2



10.6 Operation range



Notes：

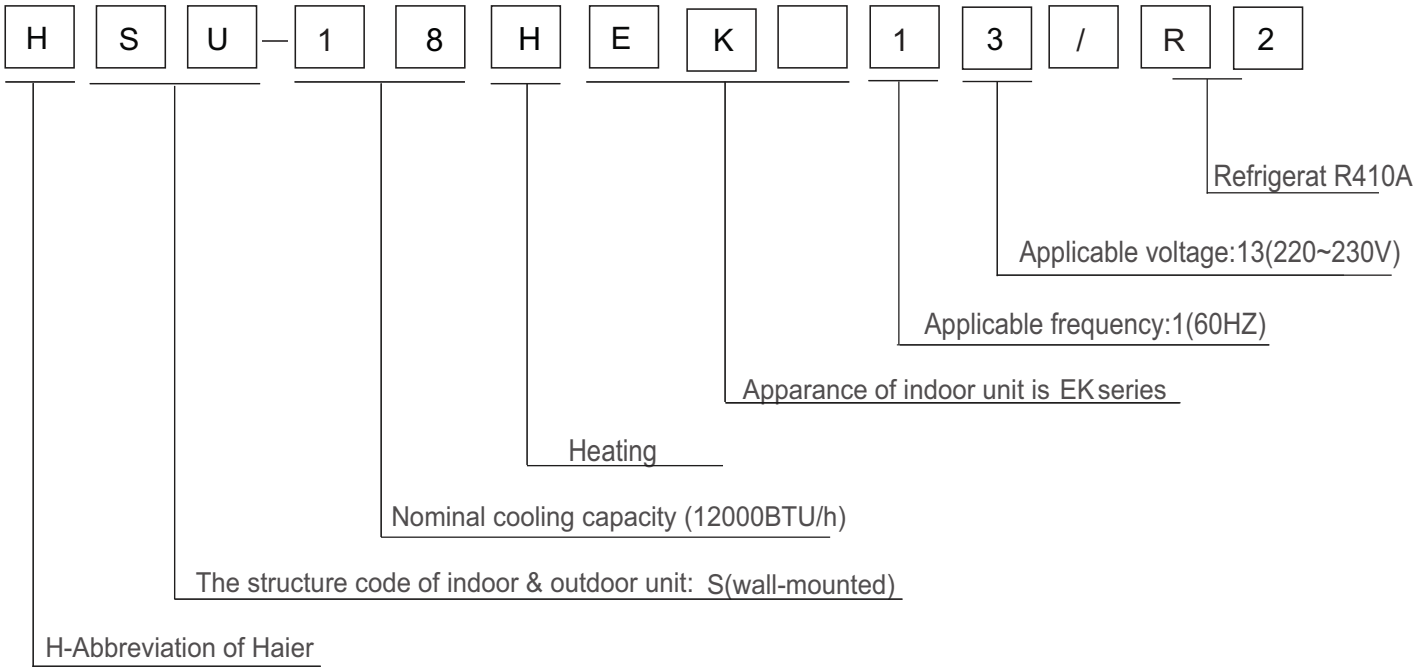
The graphs are based on the following condition：

Equivalent piping length	7.5m
Level difference	0m
Air flow rate	high

10.7 Accessories

Standard name	HSU-18/24HEK13/R2
Drain hose	1
Plastic bag	1
screw assembly	1
Air purifier	2
Change forfresh airtube(suit)	1
Mounting plate	1
Remote controller	1
Installation manual	1
Operation manual	1
R-03 dry battery	2
Steel nail	6
Plastic cap	4
Cover	1
Cushion	4
Pipe supporting plate	1
Drain-elbow	0

10.8 Description of the unit model's coding rules



Examples:

HSU-07RD03/R1,It represents wall-mounted split type heat pump air conditioner.The cooling capacity is 7000BTU/h,and the power supply is 220-230V/50Hz,"D" means the developing sequence,and"R1" means the refrigerant is R407C.

notes:12k means 12000BTU/h.

Sincere Forever

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