

SERVICE MANUAL

Manual code: SYJS-010-06REV.1

Edition: 2006-07-21



Model

HCFU-18CF03

HCFU-18HF03

HCFU-28CF03

HCFU-28HF03

● Features

- Long distribution pipe and high drop
- Auto-check function
- Flexible and easy installation
- Fresh air hole, more natural, more healthy
- Infrared remote controller & wired controller
- Optional safety devices and much more precision control device



Большая библиотека технической документации

<https://splitsystema48.ru/instrukcii-po-ekspluatácii-kondicionerov.html>

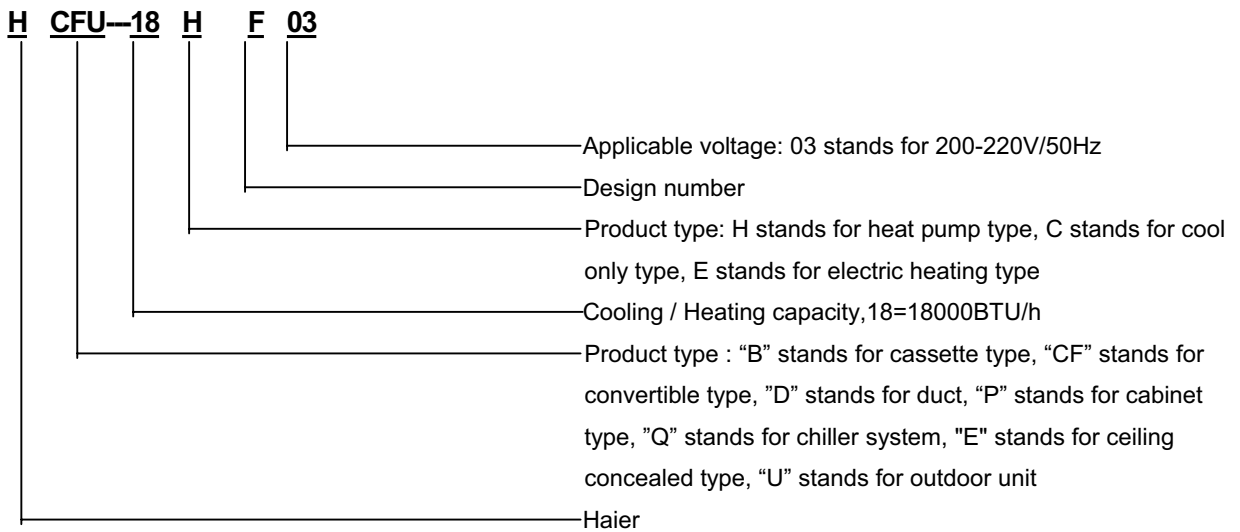
каталоги, инструкции, сервисные мануалы, схемы.

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1. DESCRIPTION OF PRODUCTS & FEATURES

1.1. Products code explanation



1.2 Brief Introduction for T1、T2、T3 working condition

Type of Air Conditioner	Climate type		
	T1	T2	T3
Cooling Only	18 °C~43°C	10°C~35°C	21°C~52°C
Heat pump	-7°C~43°C	-7°C~35°C	-7°C~52°C
Electricity Heating	~43°C	~35°C	~52°C

1.3 Operating Range of Air Conditioners

Temp.	Mode	Rated	Maximum	Minimum	
		DB °C	27	32	18
Cooling	Indoor	WB °C	19	23	14
		Outdoor	DB °C	35	43
	WB °C		24	26	6
	Heating	Indoor	DB °C	20	27
WB °C			14.5	---	--
Outdoor		DB °C	7	24	-7
		WB °C	6	18	---

1.4 Product features

1.4.1 Outdoor unit .

Flexible and easy installation

The outdoor can meet the higher request of installation. From the specifications, you will find for each unit, how long and how high the piping will be, which will be convenient for design and installation.

Optional safety devices and much more precision control device

- a. Ambient **temperature sensor**, coil temperature sensor and compressor temperature sensor make the temperature control and defrosting control more precise.
- b. **High/low pressure switch** can feel the discharging pipe pressure and suction pipe pressure on time and precisely. If the pressure is too low or too high, it will stop the compressor to prevent it being damaged for the sake of pressure.
- c. **3 minutes delay protection** for the compressor, the device can protect the compressor from some damages and make the compressor have a long life.

Silent operation

New design of long piping length and large drop

1.4.2 Decent convertible indoor unit

Optional installation mode

The indoor unit can be installed on the floor or to the ceiling, it is determined by the host favor and the room décor. It is more convenient to service and installation.

Silent operation

The convertible unit is equipped with a high efficient, smooth, multi-blade centrifugal fan, which generates a powerful but gentle airflow to any corner in the room.

Space-saving design

An innovative fan and the ultra thin heat exchanger result in the ultra thin convertible unit. Fully adjustable mounting brackets make it possible to install the unit even in the tightest places. Less than 199mm (for HDU-18) of vertical direction are required for installation.

Large angle air supplying

100° wide angle louvers and 70° wide angle blades design to make a precise control of the airflow, it equably distributes the comfortable air to every corner of the room

Automatically control of airflow direction for fast temperature adjusting

Central control function, if connected with a central controller

2. SPECIFICATION

item	Model			HCFU-18CF03		
Function				cooling	heating	
Capacity			BTU/h	16500	-----	
Capacity			kW	4.83	-----	
Sensible heat ratio				70%		
Total power input			W	2000	-----	
Max. power input			W	2500	-----	
EER or COP			W/W	2.4	-----	
Dehumidifying capacity			10 ⁻³ ×m ³ /h	2.0		
Power cable				section 3G×2.5mm ²		
Signal cable				section 3G×2.0mm ²		
Connecting cable				section		
Wired control cable	for wired control unit			/	/	
Power source			N, V, Hz	1PH, 220-230V, 50HZ		
Running /Max. Running current			A / A	9.5A/12.0A		
Start Current			A	40		
Class of anti electric shock				CLASS I	CLASS I	
Circuit breaker			A	25		
Max. operating pressure of heat side			Mpa	2.8	2.8	
Max. operating pressure of cold side			Mpa	2.8	2.8	
Indoor unit	Unit model (color)			HCFU-18CF03(WHITE)		
	Fan	Type × Number			centrifugal*2	
		Speed(H-M-L)			r/min 1150/1000/820	
		Fan motor output power			kW 0.04	
		Air-flow(H-M-L)			m ³ /h 900	
	Heat exchanger	Type / Diameter			mm inner grooved/φ9.52	
		Total Area			m ²	
		Temp. scope			°C	
	Dimension	External		(L×W×H) mm×mm×mm	1090×655×199	
		Package		(L×W×H) mm×mm×mm	1150×750×300	
	Air sending angle					
	Drainage pipe (material , I.D./O.D.)			mm		
	Control type (Remote /wired /model)			Remote		
	Fresh air hole dimension			mm /		
	Outlet distribution hole dimension			mm		
	Electricity Heater			kW /		
	Noise level (H-M-L)			dB(A) 50/47/42		
	Weight (Net / Shipping)			kg / kg 30/36		
Panel	Dimension		External (L×W×H) mm×mm×mm	/		
	Package		(L×W×H) mm×mm×mm	/		
	Weight (Net / Shipping)			kg / kg /		
Outdoor unit	Unit model (color)			HCFU-18CF03(WHITE)		
	Compressor	Model / Manufacture			PH310X2CS-8/TOSHIBA	
		Oil model				
		Oil type				
		Oil charging				
		Type			ROTARY	
		Protection type				
	Fan	Starting method			hard startup	
		Type × Number			Axial*1	
		Speed			r/min 820	
		Fan motor output power			kW 0.035	
	Heat exchanger	Air-flow(H-M-L)			m ³ /h	
		Type / Diameter			mm inner grooved/φ9.52	
		Row / Fin pitch			2/	
	Dimension	External		(L×W×H) mm×mm×mm	780*245*640	
		Package		(L×W×H) mm×mm×mm	910*340*710	
	Drainage pipe (material , I.D./O.D.)			mm		
	Refrigerant control method			mm/mm		
	Defrosting			Capillary tube		
	Volume of Accumulator			Automatic		
Noise level			L /			
Type of Four way valve			dB(A) 53			
material of reduce noise			/			
crankcase heater power			W /			
Weight (Net / Shipping)			kg / kg 41/44			
PIPING	Refrigerant		Type / Charge	g 1650		
			Recharge quantity	g/m 30		
	Pipe	Liquid		mm φ6.35		
		Gas		mm φ12.7		
	Connecting Method		Flared			
Between I.D & O.D	MAX.Drop		m 5			
	MAX.Piping length		m 15			
Normal condition: indoor temperature (cooling): 27 °C DB/19 °C WB, indoor temperature (heating): 20 °C DB						
Outdoor temperature(cooling): 35 °C DB/24 °C WB, outdoor temperature(heating): 7 °C DB/6 °C WB						
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.						
The detailed method please refer to the following information:						

item		Model		HCFU-18HF03		
Function				cooling	heating	
Capacity			BTU/h	16500	18000	
Capacity			kW	4.83	5.275	
Sensible heat ratio				70%		
Total power input			W	2000	1800	
Max. power input			W	2500	2400	
EER or COP			W/W	2.4	2.93	
Dehumidifying capacity			10 - ³ ×m ³ /h	2.0		
Power cable			section	3G×2.5mm ²		
Signal cable			section	3×2.0mm ² + 2×0.75mm ²		
Connecting cable			section			
Wired control cable	for wired control unit			/	/	
Power source			N, V, Hz	1PH, 220-230V, 50HZ		
Running /Max.Running current			A / A	Cooling 9.5A/12.0A Heating 8.5/11.0		
Start Current			A	40		
Class of anti electric shock				CLASS I	CLASS I	
Circuit breaker			A	25		
Max. operating pressure of heat side			Mpa	2.8	2.8	
Max. operating pressure of cold side			Mpa	2.8	2.8	
Indoor unit	Unit model (color)			HCFU-18HF03(WHITE)		
	Fan	Type × Number			centrifugal*2	
		Speed(H-M-L)		r/min	1150/1000/820	
		Fan motor output power		kW	0.04	
		Air-flow(H-M-L)		m ³ /h	900	
	Heat exchanger	Type / Diameter		mm	inner grooved/φ9.52	
		Total Area		m ²		
		Temp. scope		°C		
	Dimension	External	(L×W×H)	mm×mm×mm	1090×655×199	
		Package	(L×W×H)	mm×mm×mm	1150×750×300	
	Air sending angle					
	Drainage pipe (material , I.D./O.D.)			mm		
	Control type (Remote /wired /model)				Remote	
	Fresh air hole dimension			mm	/	
	Outlet distribution hole dimension			mm	/	
	Electricity Heater			kW	/	
	Noise level (H-M-L)			dB(A)	50/47/42	
Weight (Net / Shipping)			kg / kg	30/36		
Panel	Dimension	External	(L×W×H)	mm×mm×mm	/	
		Package	(L×W×H)	mm×mm×mm	/	
	Weight (Net / Shipping)			kg / kg	/	
Outdoor unit	Unit model (color)			HCFU-18HF03(WHITE)		
	Compressor	Model / Manufacture			SHW33TC4-U	
		Oil model			SUNISO-4GSI	
		Oil type				
		Oil charging			600±20 ml	
		Type			ROTARY	
		Protection type				
	Starting method				hard startup	
	Fan	Type × Number			Axial*1	
		Speed		r/min	820	
		Fan motor output power		kW	0.035	
		Air-flow(H-M-L)		m ³ /h		
	Heat exchanger	Type / Diameter		mm	inner grooved/φ9.52	
		Row / Fin pitch			2/	
		Temp. scope		°C		
	Dimension	External	(L×W×H)	mm×mm×mm	780*245*640	
		Package	(L×W×H)	mm×mm×mm	910*340*710	
Drainage pipe (material , I.D./O.D.)			mm			
Refrigerant control method			mm/mm	Capillary tube		
Defrosting				Automatic		
Volume of Accumulator			L	/		
Noise level			dB(A)	53		
Type of Four way valve				/		
material of reduce noise				/		
crankcase heater power			W	/		
Weight (Net / Shipping)			kg / kg	41/44		
PIPING	Refrigerant	Type / Charge	g	1650		
		Recharge quantity	g/m	30		
	Pipe	Liquid	mm	φ6.35		
		Gas	mm	φ12.7		
	Connecting Method			Flared		
Between I.D & O.D	MAX.Drop		m	5		
	MAX.Piping length		m	15		
Nominal condition: indoor temperature (cooling): 27 °CDB/19 °CWB, indoor temperature (heating): 20 °CDB						
Outdoor temperature(cooling): 35 °CDB/24 °CWB, outdoor temperature(heating): 7 °CDB/6 °CWB						
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level. The detailed method please refer to the following information:						

item		Model		HCFU-28CF03		
Function				cooling	heating	
Capacity			BTU/h	24000	-----	
Capacity			kW	7.1	-----	
Sensible heat ratio				70%		
Total power input			W	2800	-----	
Max. power input			W	3400	-----	
EER or COP			W/W	2.54	-----	
Dehumidifying capacity			10 ⁻³ ×m ³ /h	3.0		
Power cable			section	3G×4.0mm ²		
Signal cable			section			
Connecting cable			section	4G×0.75mm ²		
Wired control cable	for wired control unit		section	/	/	
Power source			N, V, Hz	1PH, 220-230V, 50HZ		
Running /Max.Running current			A / A	13.0A/15.0A		
Start Current			A	40		
Class of anti electric shock				CLASS I	CLASS I	
Circuit breaker			A	35		
Max. operating pressure of heat side			Mpa	2.8	2.8	
Max. operating pressure of cold side			Mpa	2.8	2.8	
Indoor unit	Unit model (color)			HCFU-28CF03(WHITE)		
	Fan	Type × Number		centrifugal*2		
		Speed(H-M-L)		r/min	1300/1200/1000	
		Fan motor output power		kW	0.033	
		Air-flow(H-M-L)		m ³ /h	1300	
	Heat exchanger	Type / Diameter		mm	inner grooved/φ9.52	
		Total Area		m ²		
		Temp. scope		°C		
	Dimension	External	(L×W×H)	mm×mm×mm	1320×715×235	
		Package	(L×W×H)	mm×mm×mm	1380×770×300	
	Air sending angle					
	Drainage pipe (material , I.D./O.D.)			mm		
	Control type (Remote /wired /model)				Remote	
	Fresh air hole dimension			mm	/	
	Outlet distribution hole dimension			mm		
	Electricity Heater			kW	/	
	Noise level (H-M-L)			dB(A)	51/49/47	
Weight (Net / Shipping)			kg / kg	47/52		
Panel	Dimension	External	(L×W×H)	mm×mm×mm	/	
		Package	(L×W×H)	mm×mm×mm	/	
	Weight (Net / Shipping)			kg / kg	/	
Outdoor unit	Unit model (color)			HCFU-28CF03(WHITE)		
	Compressor	Model / Manufacture		THU33WC6-U		
		Oil model		SUNISO-4GSI		
		Oil type				
		Oil charging		1050±20		
		Type		ROTARY		
		Protection type				
		Starting method		hard startup		
	Fan	Type × Number		Axial*1		
		Speed		r/min	1060	
		Fan motor output power		kW	0.08	
	Heat exchanger	Air-flow(H-M-L)		m ³ /h		
		Type / Diameter		mm	inner grooved/φ9.52	
		Row / Fin pitch			2/	
	Dimension	External	(L×W×H)	mm×mm×mm	862*310*730	
		Package	(L×W×H)	mm×mm×mm	1005*425*815	
	Drainage pipe (material , I.D./O.D.)			mm		
	Refrigerant control method			mm/mm	Capillary tube	
	Defrosting				Automatic	
	Volume of Accumulator			L	/	
Noise level			dB(A)	61		
Type of Four way valve				/		
material of reduce noise				/		
crankcase heater power			W	/		
Weight (Net / Shipping)			kg / kg	60/63		
PIPING	Refrigerant	Type / Charge	g	2550		
		Recharge quantity	g/m	65		
	Pipe	Liquid	mm	φ9.52		
		Gas	mm	φ15.88		
	Connecting Method			Flared		
Between I.D &O.D	MAX.Drop		m	20		
	MAX.Piping length		m	30		

Normal condition: indoor temperature (cooling): 27 °CDB/19 °CWB, indoor temperature (heating): 20 °CDB

Outdoor temperature(cooling): 35 °CDB/24 °CWB, outdoor temperature(heating): 7 °CDB/6 °CWB

The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level. The detailed method please refer to the following information:

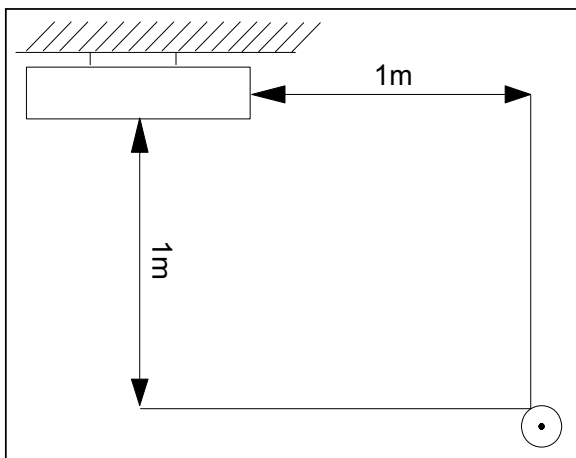
Item	Model			HCFU-28HF03		
Function				cooling	heating	
Capacity				BTU/h 24000	26000	
Capacity				kW 7.1	7.6	
Sensible heat ratio				70%		
Total power input			W	2850	2800	
Max. power input			W	3500	3400	
EER or COP			W/W	2.54	2.7	
Dehumidifying capacity			10 ⁻³ ×m ³ /h	3.0		
Power cable			section	3G×4.0mm ²		
Signal cable			section			
Connecting cable			section	6G×0.75mm ²		
Wired control cable	for wired control unit		section	/	/	
Power source			N, V, Hz	1PH, 220-230V, 50HZ		
Running /Max.Running current			A / A	Cooling 13.5A/16.0A	Heating13.0/15.0	
Start Current			A	40		
Class of anti electric shock				CLASS I	CLASS I	
Circuit breaker			A	35		
Max. operating pressure of heat side			Mpa	2.8	2.8	
Max. operating pressure of cold side			Mpa	2.8	2.8	
Indoor unit	Unit model (color)			HCFU-28HF03(WHITE)		
	Fan	Type × Number			centrifugal*2	
		Speed(H-M-L)		r/min	1300/1200/1000	
		Fan motor output power		kW	0.033	
		Air-flow(H-M-L)		m ³ /h	1300	
	Heat exchanger	Type / Diameter		mm	inner grooved/φ9.52	
		Total Area		m ²		
		Temp. scope		℃		
	Dimension	External	(L×W×H)	mm×mm×mm	1320×715×235	
		Package	(L×W×H)	mm×mm×mm	1380×770×300	
	Air sending angle					
	Drainage pipe (material , I.D./O.D.)			mm		
	Control type (Remote /wired /model)				Remote	
	Fresh air hole dimension			mm	/	
	Outlet distribution hole dimension			mm	/	
	Electricity Heater			kW	/	
	Noise level (H-M-L)			dB(A)	51/49/47	
Weight (Net / Shipping)			kg / kg	47/52		
Panel	Dimension	External	(L×W×H)	mm×mm×mm	/	
		Package	(L×W×H)	mm×mm×mm	/	
	Weight (Net / Shipping)			kg / kg	/	
Outdoor unit	Unit model (color)			HCFU-28HF03(WHITE)		
	Compressor	Model / Manufacture			THU33WC6-U	
		Oil model			SUNISO-4GSI	
		Oil type				
		Oil charging			1050±20	
		Type			ROTARY	
		Protection type				
		Starting method			hard startup	
	Fan	Type × Number			Axial*1	
		Speed		r/min	1060	
		Fan motor output power		kW	0.08	
	Heat exchanger	Air-flow(H-M-L)		m ³ /h		
		Type / Diameter		mm	inner grooved/φ9.52	
		Row / Fin pitch			2/	
	Dimension	External	(L×W×H)	mm×mm×mm	862*310*730	
		Package	(L×W×H)	mm×mm×mm	1005*425*815	
	Drainage pipe (material , I.D./O.D.)			mm		
Refrigerant control method			mm/mm	Capillary tube		
Defrosting				Automatic		
Volume of Accumulator			L	/		
Noise level			dB(A)	61		
Type of Four way valve				/		
material of reduce noise				/		
crankcase heater power			W	/		
Weight (Net / Shipping)			kg / kg	60/63		
PIPING	Refrigerant	Type / Charge	g	2600		
		Recharge quantity	g/m	65		
	Pipe	Liquid	mm	φ9.52		
		Gas	mm	φ15.88		
	Connecting Method			Flared		
Between I.D & O.D	MAX.Drop		m	20		
	MAX.Piping length		m	30		

Normal condition: indoor temperature (cooling): 27 °CDB/19°CWB, indoor temperature (heating): 20 °CDB
 Outdoor temperature(cooling): 35 °CDB/24°CWB, outdoor temperature(heating): 7 °CDB/6°CWB
 The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level. The detailed method please refer to the following information:

Installation state: the unit should be placed on the flat floor or be mounted in horizontal direction.

Testing method:

mounting-on-ceiling unit:



outdoor unit:

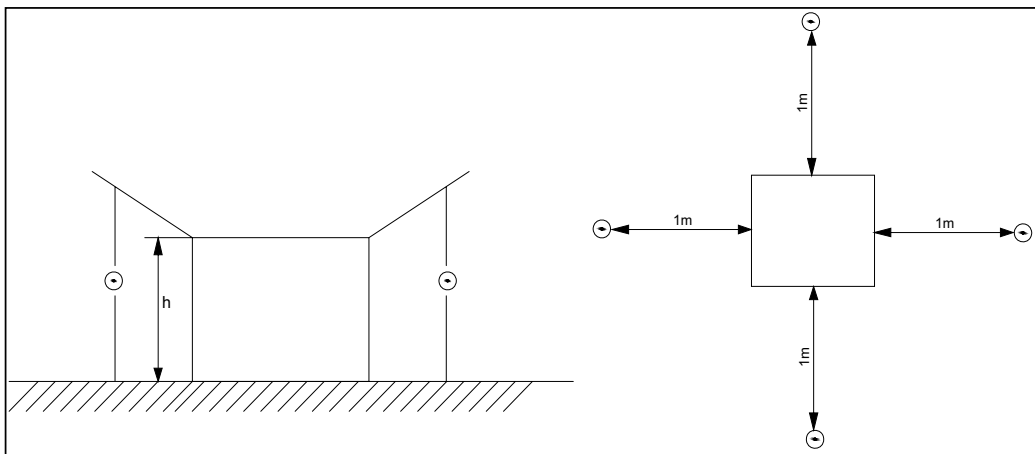
1.air outlet from side: the noise level is the average sound pressure level measured from front, left, right directions.

2.air outlet from top: the noise level is the average sound pressure level measured from front, back, left, right directions.

measured point:

H (height to the ground) = $(h$ (unit height) + 1m) / 2

and, it is 1m to each side.



Note: ⊙ is the real time analyser position

3. Safety precaution of indoor and outdoor

Carefully read the following information in order to operate the airconditioner correctly.

Below are listed three kinds of Safety Cautions and Suggestions.

WARNING! Incorrect operations may result in severe consequences of death or serious injuries.

CAUTION! Incorrect operations may result in injuries or machine damages; in some cases may cause serious consequences.

INSTRUCTIONS: These information can ensure the correct operation of the machine.

Be sure to conform with the following important Safety Cautions.

The Safety Cautions should be at hand so that they can be checked at any time when needed.

If the conditioner is transferred to the new user, this manual should be as well transferred to the new user.

WARNING!

- If any abnormal phenomena is found (e. g. smell of firing), please cut off the power supply immediately, and contact the dealer to find out the handling method.

In such case, to continue using the conditioner will damage the conditioner, and may cause electrical shock or fire hazard.



- After a long time use of air-conditioner the base should be checked for any damages.

If the damaged base is not repaired, the unit may fall down and cause accidents.



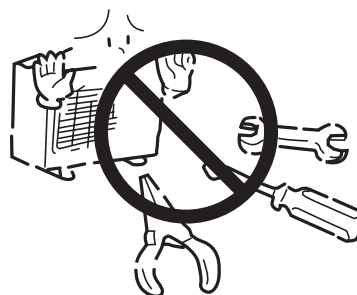
- Don't dismantle the outlet of the outdoor unit.

The exposure of fan is very dangerous which may harm human beings.



- When need maintenance and repairment, call dealer to handle it.

Incorrect maintenance and repairment may cause water leak, electrical shock and fire hazard.



WARNING!

- **Installed electrical-leaking circuit breaker.**

It easily cause electrical shock without circuit breaker.

- **Air-conditioner can't be installed in the environment with inflammable gases because the inflammable gases near to air-conditioner may cause fire hazard.**

- **Please let the dealer be responsible for installing the conditioner.**

Incorrect installation may cause water leak, electrical shock and fire hazard.

- **Call the dealer to take measures to prevent the refrigerant from leaking.**

If conditioner is installed in a small room be sure to take every measure in order to prevent suffocation accident even in case of refrigerant leakage.

- **When conditioner is deinstalled or reinstalled dealer should be responsible for them.**

Incorrect installation may cause water leaking, electrical shock and fire hazard.

- **Connect earthing wire.**

Earthing wire should not be connected to the gas pipe, water pipe, lightning rod or phone line, in-correct earthing may cause shock.



Earthing

- **No goods or nobody is permitted to placed on or stand on outdoor unit.**

The falling of goods and people may cause accidents.



- **Don't operate the air-conditioner with damp hands.**

Otherwise will be shocked.



- **Only use correctly-typed fuse.**

May not use wire or any other materials replacing fuse, other-wise may cause faults or fire accidents.

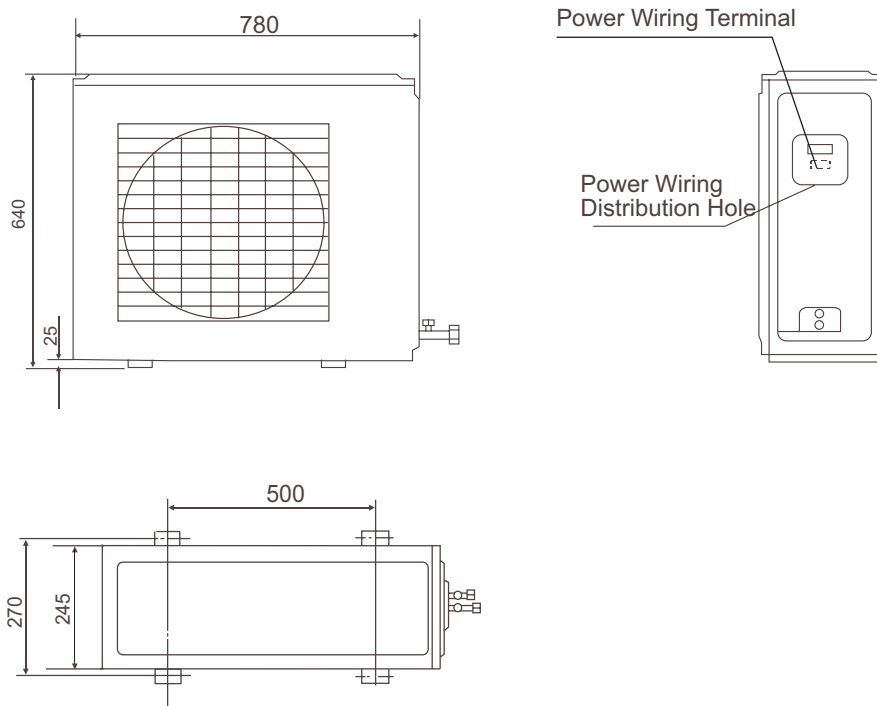
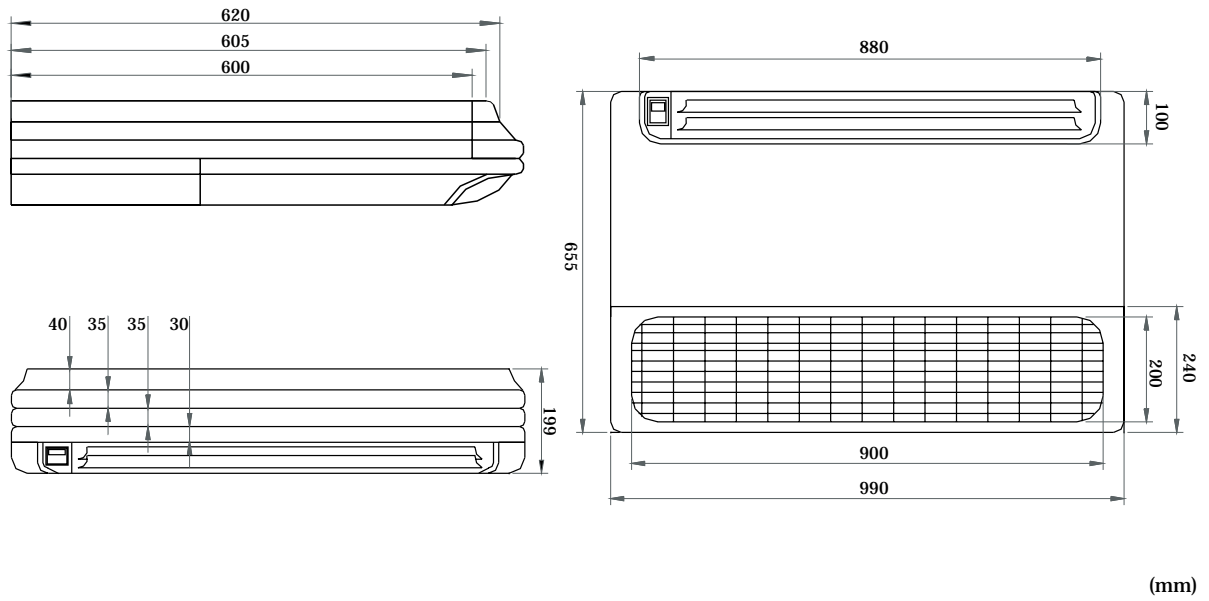


- **Use discharge pipe correctly to ensure efficient discharge.**

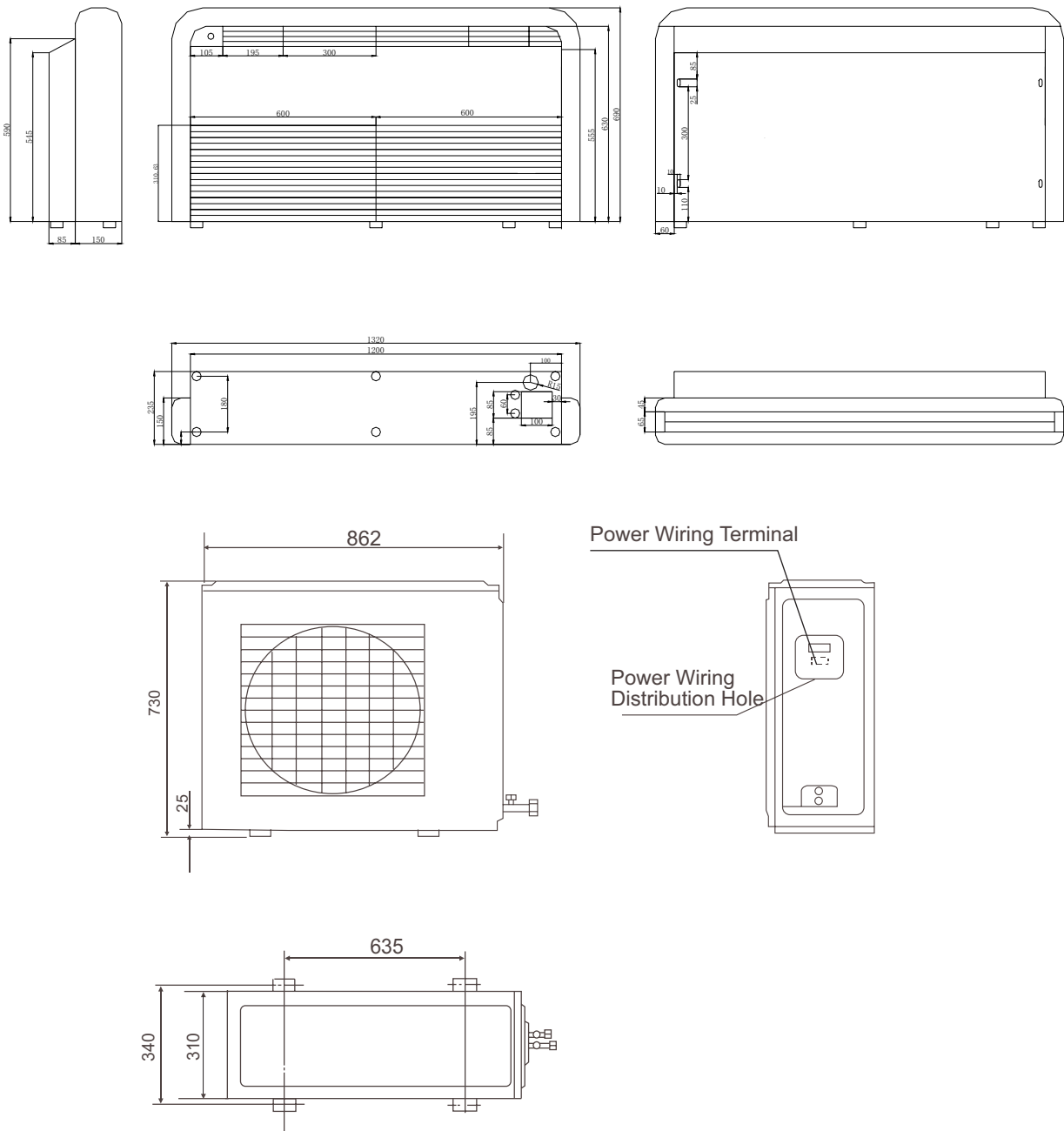
Incorrect pipe use may cause water leaking.

4. Net dimension

4.1 HCFU-18



4.2 HCFU-28


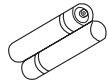



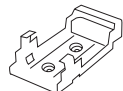


5 Installation Instructions

5.1 Installation of indoor unit

STANDARD PARTS

The following installation parts are furnished.
Use them as required.

No.	Accessory parts	Qty.
①	 Remote controller	1
②	 Battery	2
③	 Wire clamp	4
④	 Heat insulation sheathing	1+1
⑤	 Screw cap	1+1
⑥	 Remote controller bracket	1

Pipe connection requirement

Please refer to the specification to confirm the stop valve diameter and the permitted pipe drop and pipe length.

INSTALLATION PROCEDURE

Install the room air conditioner as follows:

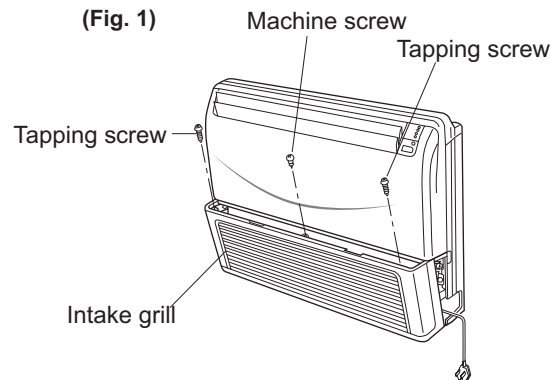
PREPARING INDOOR UNIT INSTALLATION

1. REMOVE THE INTAKE GRILL

Open the intake grill and remove the three or four or six screws.(Fig. 1)

Remark: The main unit can be wired before the indoor unit is installed. Select the most appropriate installation order.

(Fig. 1)



For series 28,36,42,52 have not the power plug.

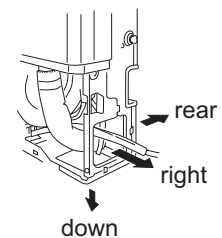
A. FLOOR CONSOLE TYPE

(For series 36,42,52 no this type)

1. DRILLING FOR PIPING

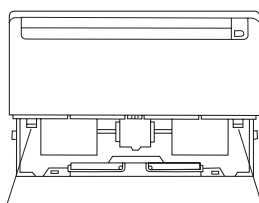
Select piping and drain directions.(Fig.2) (Series14,18,24)
The piping and drain can be made in three directions as shown below.
For series 28,36,42,52 can be made rear and down two directions.

(Fig. 2)



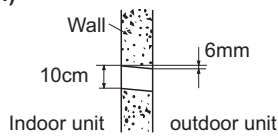
The drain hose can be connected to either the left or right side.(Fig.3) For series 28,36,42,52.only right side.

(Fig.3)



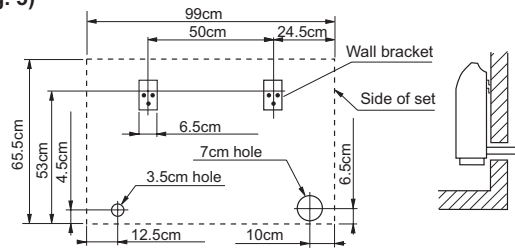
When the directions are selected, drill a 7 cm dia. hole on the wall so that the hole is tilted downward toward the outdoor for smooth water flow. When the pipe is led out from the rear, make a hole in Fig.6, at the position shown.

(Fig. 4)



For series 14,18,24 when installing set to wall, install the accessory wall bracket at the position shown in Fig.5, and mount the set to it.

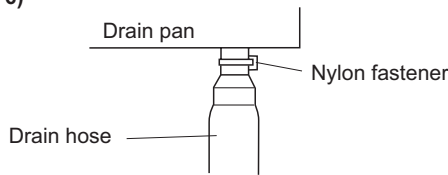
(Fig. 5)



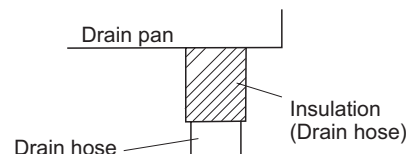
2. INSTALLING DRAIN HOSE

Select whether the drain hose will be connected to the left or right side. (for series 28,36,42,52 only the right side). (Fig.3) Insert the drain hose into the drain pan, then secure the drain hose with a nylon fastener. (Fig.6)

(Fig. 6)



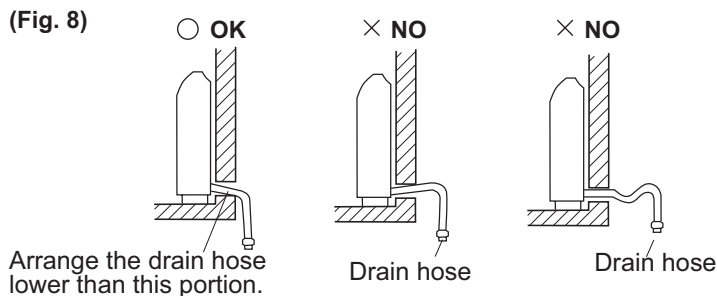
(Fig. 7)



Wrap the insulation (drain hose) around the drain hose connection. (Fig.7)

Be sure to arrange the drain hose correctly so that it is leveled lower than the drain hose connecting port of the indoor unit.

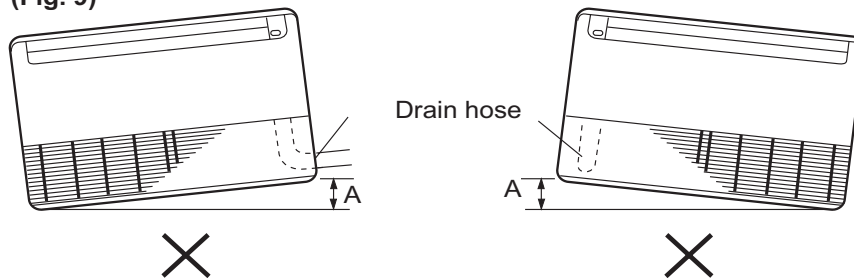
(Fig. 8)



⚠ CAUTION

Do not install the unit drain hose side is too high. Height A should be less than 5 mm. (Fig.9)

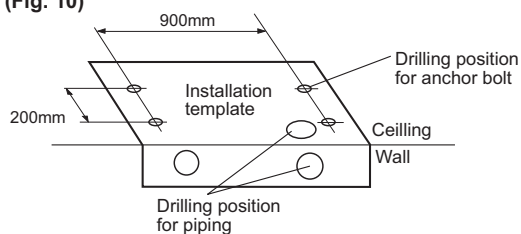
(Fig. 9)



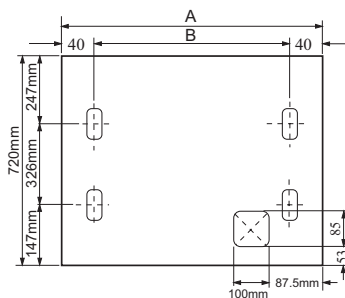
B. UNDER CEILING TYPE

Using the installation template, drill holes for piping and anchor bolts (for holes). (Fig.10)

(Fig. 10)



For series 14,18,24

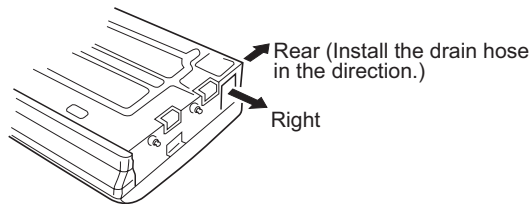


Series	A	B
28	1320	1240
36,42,52	1920	1840

1. DRILLING FOR PIPING

Select piping and drain directions. For series 28,36,42,52,only rear side (Fig.11)

(Fig. 11)



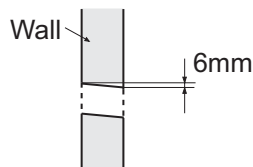
⚠ CAUTION

Install the drain hose at the rear; it should not be installed on the top or right side.

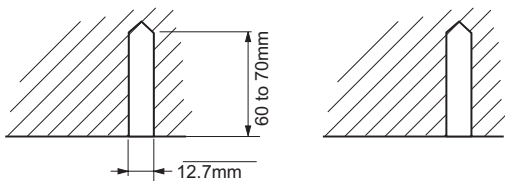
2. DRILLING HOLES FOR ANCHOR BOLTS AND INSTALLING THE ANCHOR BOLTS

When the directions are selected, drill 80mm and 50mm or 150mm dia. hole on the wall so that the hole is tilted downward toward the outdoor for smooth water flow.

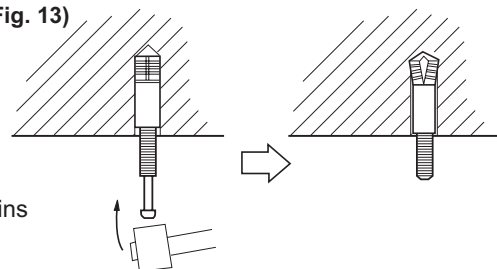
(Fig. 12)



With a concrete drill, drill four 12.7 mm dia. Holes.(Fig.12)



(Fig. 13)

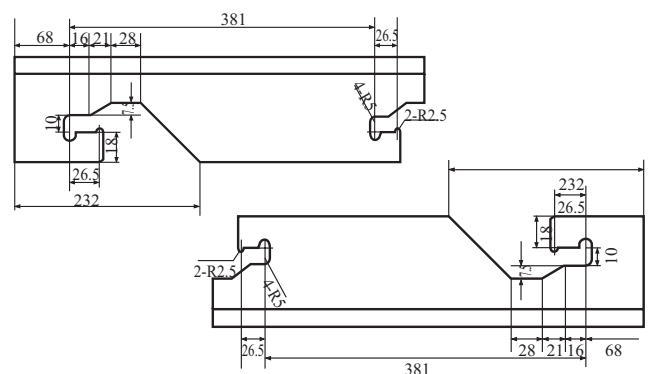
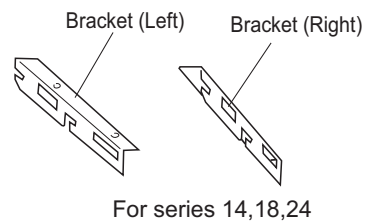
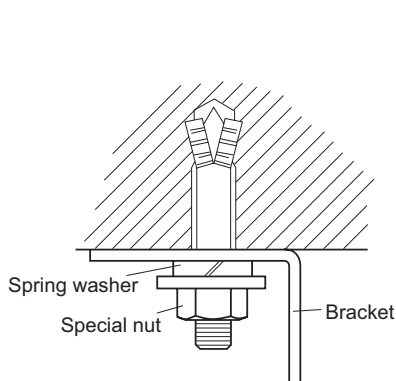


Insert the anchor bolts into the drilled holes, and drive the pins completely into the anchor bolts with a hammer. (Fig. 13)

3. INSTALLING BRACKETS

Install the brackets with nuts, washers and spring washers.(Fig. 14)

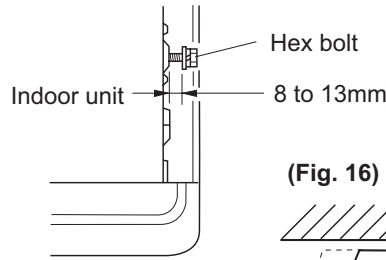
(Fig. 14)



4. INSTALLING INDOOR UNIT

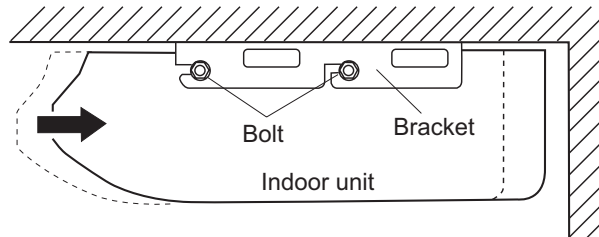
Reset the hex bolts as shown in Fig.15.

(Fig. 15)



Apply the indoor unit to the brackets.(Fig.16)

(Fig. 16)



Now, securely tighten the hex bolts in both sides.

5. INSTALL THE DRAIN HOSE

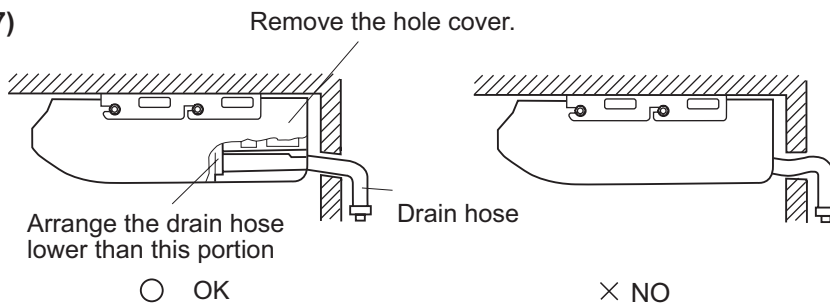
Select whether the drain hose will be connected to the left or right side.(Fig.3)

Insert the drain hose into the drain pan, then secure the drain hose with a nylon fastener.(Fig.6)

Wrap the insulation (drain hose)around the drain hose connection.(Fig.7)

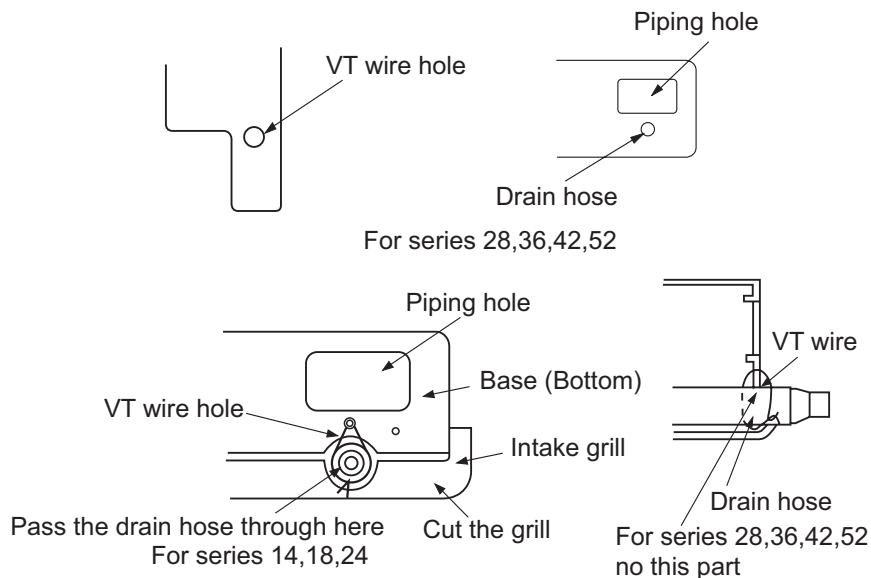
Be sure to arrange the drain hose correctly so that it is leveled lower than the drain hose connecting port of the indoor unit.(Fig.8)

(Fig. 17)



When drain hose is arranged backward. Secure the drain hose with the VT wire. (Fig. 18)

(Fig. 18)



GAS LEAKAGE INSPECTION

CAUTION

After connecting the piping, check the joints for gas leakage with leakage detector.

HOW TO CONNECT WIRING TO THE TERMINALS

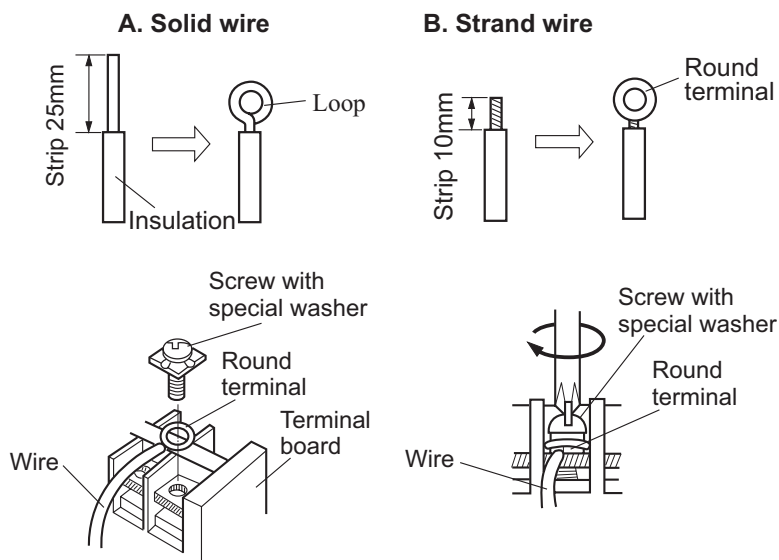
A. For solid core wiring (or F-cable)(Fig.19A)

- (1) Cut the wire with a wire cutter or wire-cutting pliers, then strip the insulation to about 25mm of the exposed solid wire.
- (2) Using a screwdriver, remove the terminal screw(s) on the terminal board.
- (3) Using pliers, bend the solid wire to form a loop suitable for the terminal screw.
- (4) Shape the loop wire properly, place it on the terminal board and tighten securely with the terminal screw using a screw driver.

B. For strand wiring(Fig.19B)

- (1) Cut the wire with a wire cutter or wire-cutting pliers, then strip the insulation to about 10mm of the exposed strand wiring.
- (2) Using a screwdriver, remove the terminal screw(s) on the terminal board.
- (3) Using a round terminal fastener or pliers, securely clamp a round terminal to each stripped wire end.
- (4) Position the round terminal wire, and replace and tighten the terminal screw using a screw driver.

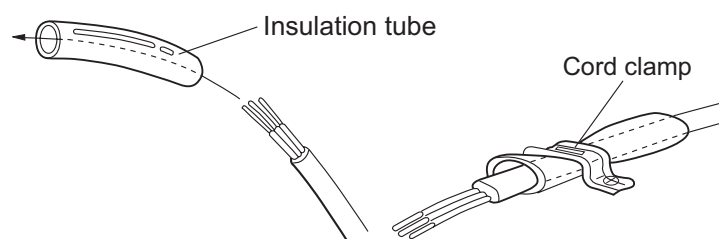
(Fig. 19)



HOW TO FIXED CONNECTION CORD AND POWER CABLE AT THE CORD CLAMP

After passing the connection cord and power cable through the insulation tube, fasten it with the cord clamp, as shown in Fig.20

(Fig. 20)



Use VW-1, 0.5 to 1.0 mm thick, PVC tube as the insulation tube.

ELECTRICAL WIRING

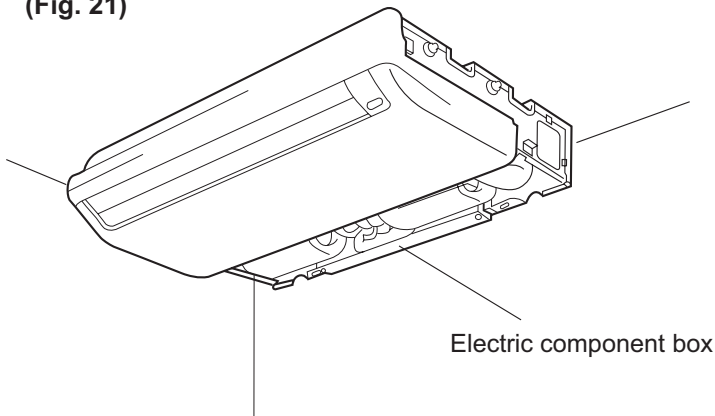
⚠ CAUTION

- (1) Match the terminal block numbers and connection cord colors with those of the outdoor unit.
Erroneous wiring may cause burning of the electric parts.
- (2) Connect the connection cords firmly to the terminal block. Imperfect installation may cause a fire.
- (3) Always fasten the outside covering of the connection cord with the cord clamp.
(If the insulator is chafed, electric leakage may occur.)
- (4) Always connect the ground wire.

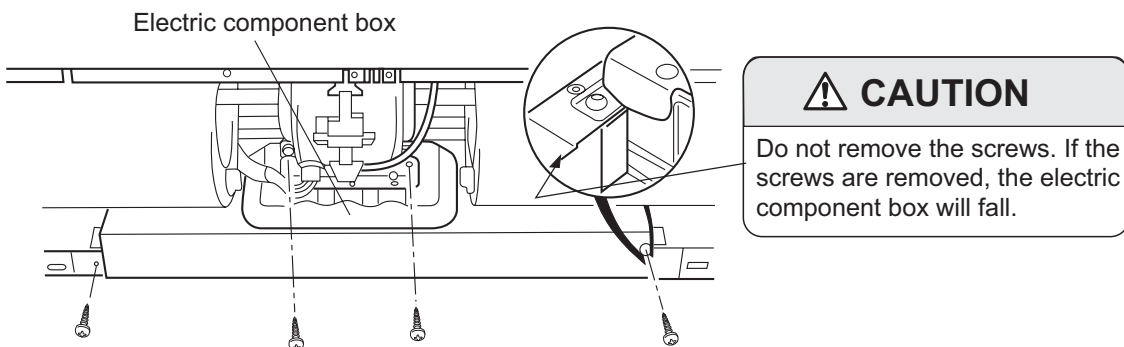
1. INDOOR UNIT SIDE

(1) Remove the electric component box.

(Fig. 21)



(Fig. 22)

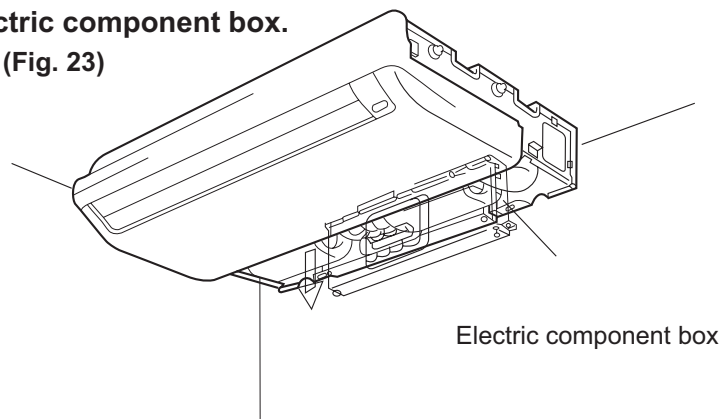


⚠ CAUTION
Do not remove the screws. If the screws are removed, the electric component box will fall.

Remove the four tapping screws.

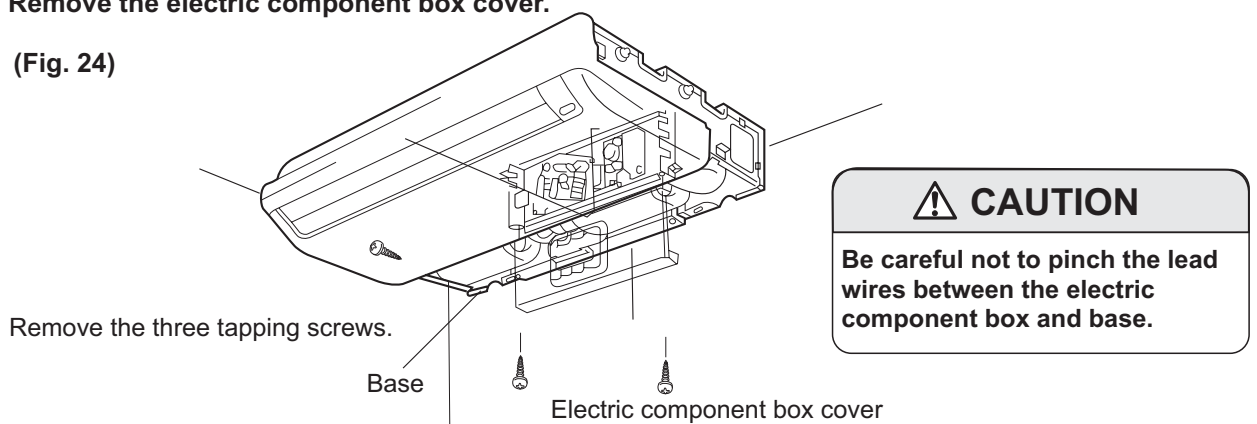
(2) Pull out the electric component box.

(Fig. 23)



(3) Remove the electric component box cover.

(Fig. 24)



⚠ CAUTION
Be careful not to pinch the lead wires between the electric component box and base.

(4) Wiring

- (1) Remove the cord clamp.
- (2) Process the end of the connection cords to the dimensions.
- (3) Connect the end of the connection cord fully into the terminal block.
- (4) Fasten the connection cord with a cord clamp.
- (5) Fasten the end of the connection cord with the screw.
- (6) For series 24,28,36,42, 52, the power cable and connecting cable are self-provided.

ELECTRICAL WIRING**⚠ WARNING**

- (1) Always use a special branch circuit and install a special receptacle to supply power to the room air conditioner.
- (2) Use a circuit breaker and receptacle matched to the capacity of the room air conditioner.
- (3) The circuit breaker is installed in the permanent wiring. Always use a circuit that can trip all the poles of the wiring and has an isolation distance of at least 3mm between each pole.
- (4) Perform wiring work in accordance with standards so that the room air conditioner can be operated safely and positively.
- (5) Install a leakage circuit breaker in accordance with the related laws and regulations and electric company standards.

⚠ CAUTION

- (1) The power source capacity must be the sum of the room air conditioner current and the current of other electrical appliances. When the current contracted capacity is insufficient, change the contracted capacity.
- (2) When the voltage is low and the air conditioner is difficult to start, contact the power company the voltage raised.

TEST RUNNING**1. CHECK ITEMS****(1) INDOOR UNIT**

- (1) Is operation of each button on the remote control unit normal?
- (2) Does each lamp light normally?
- (3) Do not air flow direction louvers operate normally?
- (4) Is the drain normal?

(2) OUTDOOR UNIT

- (1) Is there any abnormal noise and vibration during operation?
- (2) Will noise, wind, or drain water from the unit disturb the neighbors?
- (3) Is there any gas leakage?

CUSTOMER GUIDANCE

Explain the following to the customer in accordance with the operating manual:

- (1) Starting and stopping method, operation switching, temperature adjustment, timer, air flow switching, and other remote control unit operations.
- (2) Air filter removal and cleaning, and how to use air louvers.
- (3) Give the operating and installation manuals to the customer.

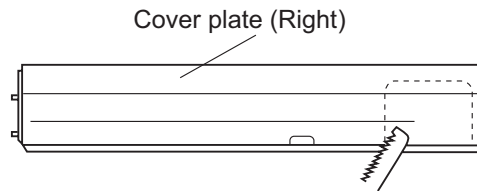
MOUNT THE COVER PLATE AND THE INTAKE GRILL

Note: The following installing procedure only for series 14,18,24

1. Mount the cover plate. (Right)

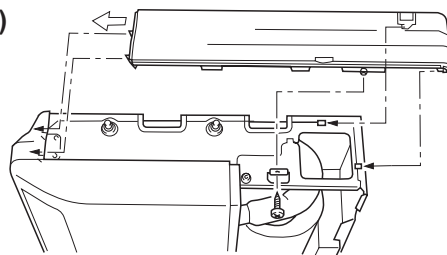
(1) Cut a pipe exit hole in the right plate. This is only when the pipe exits from the right side. (This operation is not required when the protrusion is on the top or rear.)

(Fig. 26)



(2) Join the cover plates (right) and mount with screws.

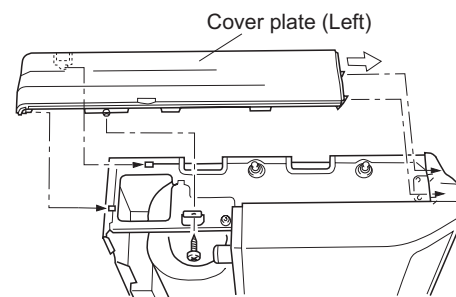
(Fig. 27)



2. Mount the cover plate.(Left)

(1) Join the cover plate (left) and mount with screws.

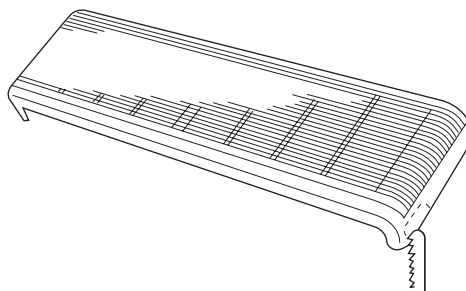
(Fig. 28)



3. Mount the intake grill.

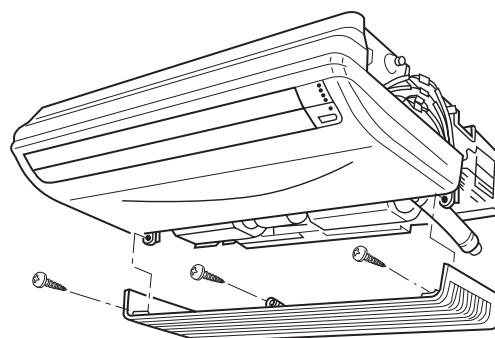
(1) Cut the right side of the intake grill. This is only when the pipe exits from the right side

(Fig. 29)



(2) Insert the hinges on the bottom of the intake grill into the holes in the base assembly. Then mount the arms to the three areas on the top of the intake grill.

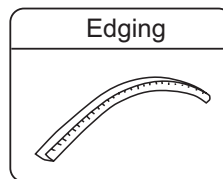
(Fig.30)



5.2 Installation of outdoor unit

1. Accessories

"Edging" for protection of electric wires from an opening edge.

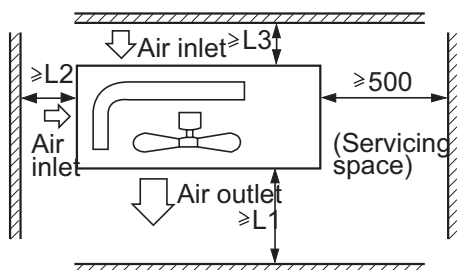


2. Selection of the place of installation

Select the place of installation satisfying the following conditions and, at the same time, obtain a consent from the client or user.

- Place where air circulates.
- Place free from heat radiation from other heat sources.
- Place where drain water may be discharged.
- Place where noise and hot air may not disturb the neighborhood.
- Place where there is not heavy snowfall in the winter time.
- Place where obstacles do not exist near the air inlet and air outlet .
- Place where the air outlet may not be exposed to a strong wind.
- Place surrounded at four sides are not suitable for installation. A 1m or more of overhead space is needed for the unit.
- Mount guide-louvers to place where short-circuit is a possibility.
- When installing several units, secure sufficient suction space to avoid short circuiting.

(1) Open space requirement around the unit

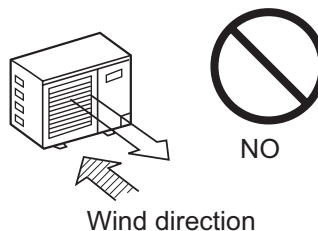


Note :

- (1). Fix the parts with screws
- (2). Don't intake the strong wind directly to the outlet air-flow hole.
- (3). A one meter distance should be kept from the unit top
- (4). Don't block the surroundings of the unit with sundries

Unit: mm

Case Distance	I	II	III
L1	open	open	500
L2	300	0	open
L3	150	300	150



(2) Installation where the area with strong winds.

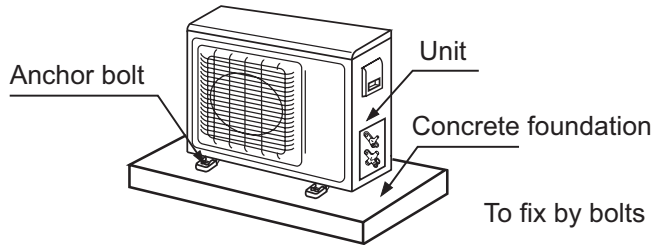
Install the unit so that the air outlet section of the unit must NOT be faced toward wind direction.

3. Installation of outdoor unit

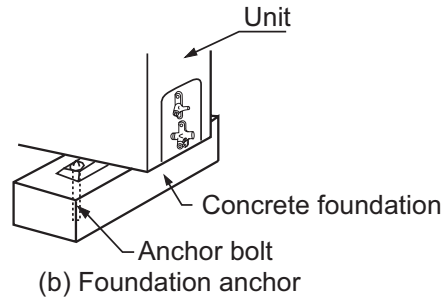
(1) Installation

Fix the unit in a proper way according to the condition of a place where it is installed by referring to the following .

(a) Concrete foundation



(b) Foundation anchor



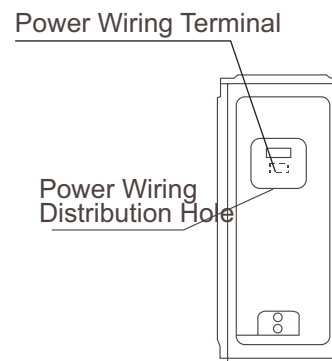
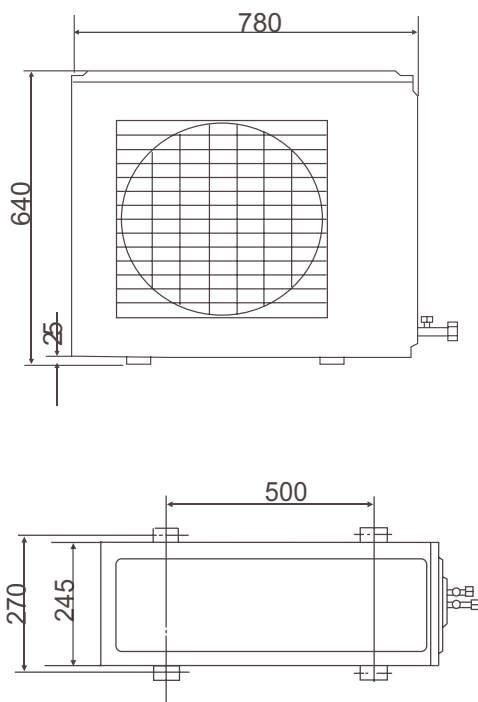
Note: (1) Give enough room for the concrete foundation to fix by anchor bolts.

Note: (1) Place the concrete foundation deep enough.

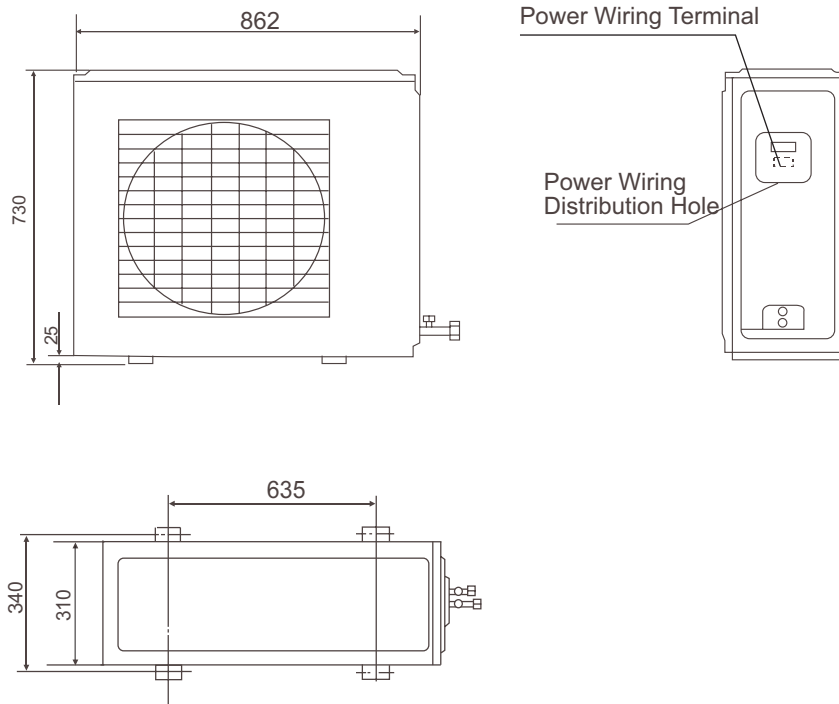
- Install the unit so that the angle of inclination must be less than 3 degrees.

(2) Installation sketch of outdoor unit

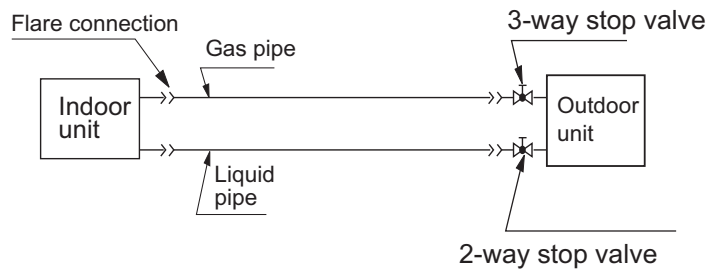
HCFU-18CF03 HCFU-18HF03



HCFU-28CF03 HCFU-28HF03

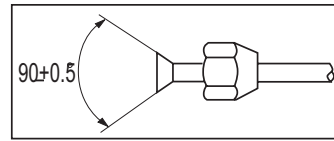


4. Refrigerant piping



(2) Piping size

HCFU-18CF03	Liquid pipe	Φ 6.35x0.7mm
HCFU-18HF03	Gas pipe	Φ 12.7x0.8mm
HCFU-28CF03	Liquid pipe	Φ 9.52x0.8mm
HCFU-28HF03	Gas pipe	Φ 15.88x1.0mm



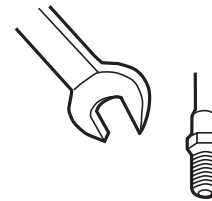
- Install the removed flare nuts to the pipes to be connected, then flare the pipes.

(3) Limitations for one way piping length and vertical height difference.

Model	One way piping length	Vertical height difference (between indoor and outdoor)
HCFU-18CF03 HCFU-18HF03	less than 15 m	less than 5 m
HCFU-28CF03 HCFU-28HF03	less than 30 m	less than 20 m

Precautions for refrigerant piping

- Do not twist or crush piping.
- Be sure that no dust is mixed in piping.
- Bend piping with as wide angle as possible.
- Keep insulating both gas and liquid piping.
- Check flare-connected area for gas leakage.



(4) Piping connection

- Connecting method (indoor unit)
Apply refrigerant oil at half union as large and flare nut.
To bend a pipe, give the roundness as possible not to crush the pipe.
When connecting pipe, hold the pipe centre to centre then screw nut on by hand, refer to Fig.
Be careful not to let foreign matters, such as sands enter the pipe.



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

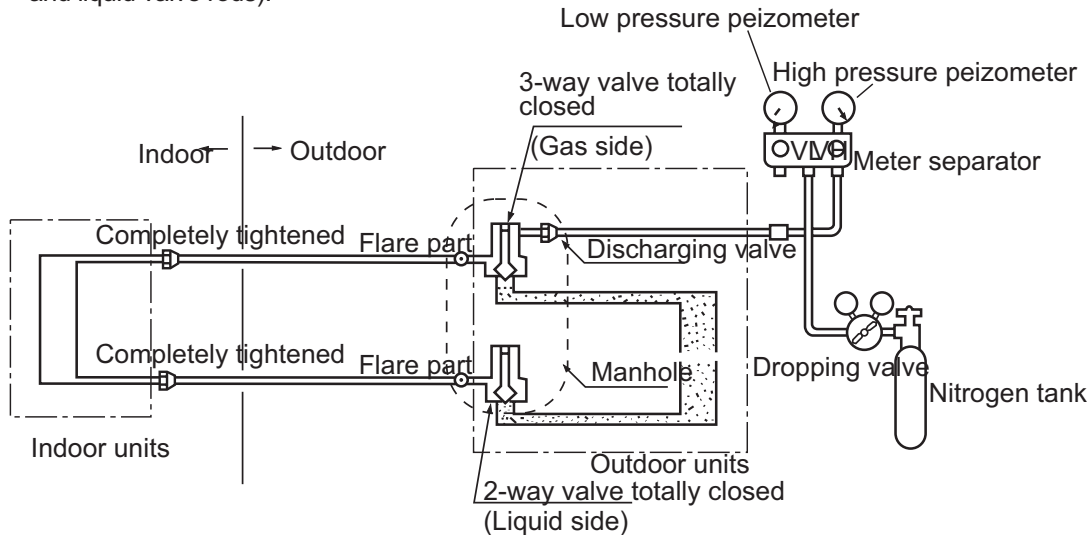
Pipe dia	Fastening torque
Liquid pipe 6.35mm	14.2-17.2N·m
Liquid pipe 9.52mm	32.7-39.9N·m
Gas pipe 12.7mm	49.5-60.3N·m
Gas pipe 15.88mm	61.8-75.4N·m
Gas pipe 19.05mm	97.2-118.6N·m

5. Air discharging method

After finishing connection of refrigerant pipe, it shall perform air tightness test.

- The air tightness test adopts nitrogen tank to give pressure according to the pipe connection mode as the following figure shown.

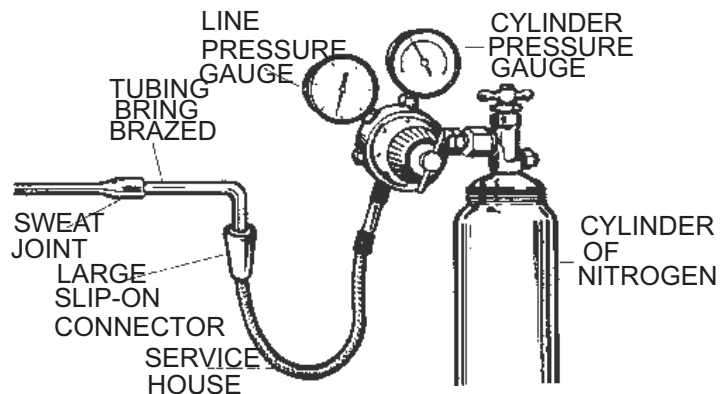
The gas and liquid valve are all in close state. In order to prevent the nitrogen entering the circulation system of outdoor unit, tighten the valve rod before giving pressure (both gas and liquid valve rods).



First step: 0.3MPa (3.0kg/cm²g) pressurize over 3 minutes.

Second step: 1.5Mpa (15kg/cm²g) pressurize over 3 minutes. Large leakage will be found.

Third step: 3.0 MPa (30kg/cm²g) pressurize about 24 hours. Little leakage will be found.



- Check if the pressure drops

The pressure does not drop-passed

The pressure drops-check the leaking point.

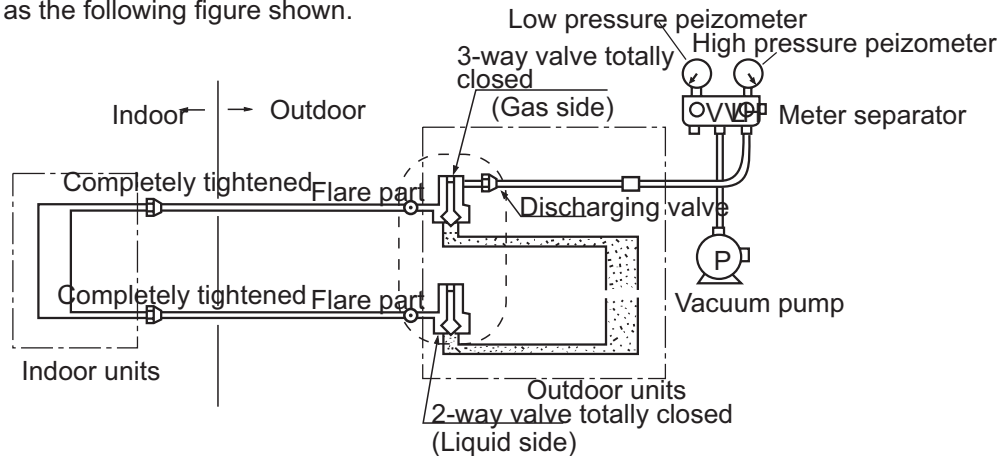
From pressurizing to 24 hours later, each 1* difference of ambient temperature will make 0.01MPa(0.1kg/cm²g) pressure change. It shall be corrected during test.

Checking the leaking point

- In the first to third test steps, if the pressure drops, check the leakage in each joint use sense of hearing, feeling and soap water, etc. methods to find the leaking point. After confirming the leaking point, welding it again or tighten the nut tightly again.

6. Piping and indoor unit vacuumizing

- Use vacuum pump to perform vacuumizing. It is strictly forbidden to use the refrigerant to remove the air inside the system.
- After air tightness test and discharging all the nitrogen, connect the vacuum pump as the following figure shown.



- It shall use the vacuum pump of (lower than -755mmHg)high vacuum degree and large air discharging (over 40l/min).
- The vacuumizing time depends on the length of the connecting pipe, generally is 1~2 hours. When vacuumizing, it shall be confirmed both gas and liquid side valves are closed.
- If after 2 hours vacuumizing, it cannot reach the vacuum degree below -755mmHg, it can be vacuumized for other 1 hour.
If after 3 hours vacuumizing, it still cannot reach the vacuum degree below -755mmHg, check if there is any leaking point and repair the them.
- If after over 2 hours vacuumizing, the vacuum degree is below -755mmHg, close the VL and VH on the meter separator and stop vacuumizing. 1 hour later to confirm if the vacuum degree changes. If changes, it indicates there is leaking point in the system. Check the leaking point and repair.
- After finishing the above vacuumizing, change the vacuum pump into refrigerant pump to charge the refrigerant.

7. Charging amount of refrigerant

When the total length (L) of the two units' connecting pipe is less than 5m, it is unnecessary to charge additional refrigerant.

If the connecting pipe (L) exceeds 5m, it shall charge Mg additional refrigerant per meter.

That is: Refrigerant charging amount = (L-5) x M (g)

For HCFU-18CF03 HCFU-18HF03 M=30,

For HCFU-28CF03 HCFU-28HF03 M=65

Only in COOLING operation can charge the additional refrigerant.

When charging, the refrigerant shall be charged from the charging nozzle of low pressure vavle.

- Be carefull when charging refrigerant, do not let the air mix into the system,and must charge the
- additional refrigerant in liquid condition.
-

5. Electric wiring

⚠ WARNING

DANGER OF BODILY INJURY OR DEATH

TURN OFF ELECTRIC POWER AT CIRCUIT BREAKER OR POWER SOURCE BEFORE MAKING ANY ELECTRIC CONNECTIONS. GROUND CONNECTIONS MUST BE COMPLETED BEFORE MAKING LINE VOLTAGE CONNECTIONS.

(1) Selection of size of power supply and interconnecting wires.

Precautions for Electric wiring

- Electric wiring work should be conducted only by authorized personnel.
- Do not connect more than three wires to the terminal block. Always use round type crimped terminal lugs with insulated grip on the ends of the wires.
- Use copper conductor only.

Select wire sizes and circuit protection from table below. (This table shows 20 m length wires with less than 2% voltage drop.)

Item Model	Phase	Circuit breaker		Power source wire size (minimum)	Earth leakage breaker	
		Switch breaker (A)	Overcurrent protector rated capacity (A)		Switch breaker	Leak current
HCFU-18CF03 HCFU-18HF03	1	30	20	2.5mm ²	30	30mA
HCFU-28CF03 HCFU-28HF03	1	40	36	4.0mm ²	40	30mA

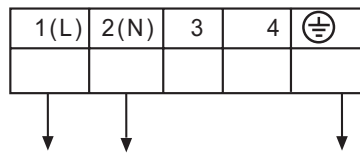
(2) Wiring connection

For HCFU-28CF03 HCFU-28HF03, make wiring to supply power to the outdoor unit, so that the power for the indoor unit is supplied by terminals.

For HCFU-18CF03 HCFU-18HF03, make wiring to supply to the indoor unit, so that power for the outdoor unit is supplied by terminals.

For the detailed wiring connection with the indoor units, see the corresponding indoor operation and instruction manual.

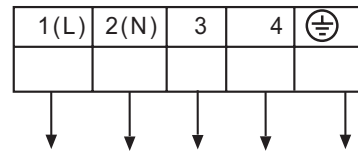
HCFU-18CF03



To Indoor Unit

FIG.1

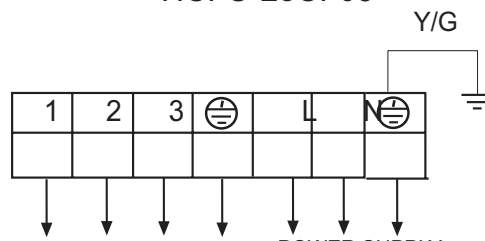
HCFU-18HF03



To Indoor Unit

FIG.2

HCFU-28CF03

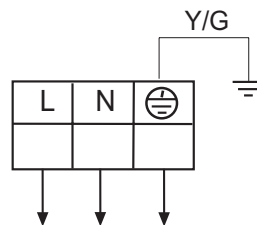


To Indoor Unit

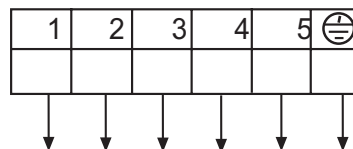
POWER SUPPLY:
1PH,220-230V~,50Hz

FIG.3

HCFU-28HF03



POWER SUPPLY:
1PH,220-230V~,50Hz



To Indoor Unit

FIG.4

⚠ WARNING

DO NOT CONNECT THE NEUTRAL WIRE (N) TO (R), (S) OR (T) PHASE.
INTERCONNECTING WIRES MUST BE WIRED ACCORDING TO FIG.1
FIG.2 FIG.3.FIG.4.INCORRECT WIRING CAUSE EQUIPMENT DAMAGE.

(3) Wiring procedure

- 1) Remove set screws on the side before taking off the front panel toward the direction shown in figure.
- 2) Connect wires to the terminal block correctly and fix the wires with a wire clamp equipped nearby the terminal block.
- 3) Route the wires in a proper way and penetrate the wires through the opening for electric wiring on the side panel.

6. Test run**⚠ CAUTION**

THIS UNIT WILL BE STARTED INSTANTLY WITHOUT "ON" OPERATION WHEN ELECTRIC POWER IS SUPPLIED.BE SURE TO EXECUTE "OFF" OPERATION BEFORE ELECTRIC POWER IS DISCONNECTED FOR SERVICING.

- This unit has a function of automatic restart system after recovering power stoppage.

(1) Test run

Run the unit continuously for about 30 minutes, and check the following.

- Suction pressure at check joint of service valve for gas pipe.
- Discharge pressure at check joint on the compressor discharge pipe.
- Temperature difference between return air and supply air for indoor unit.

6. Parts and Functions

6.1 HCFU-18

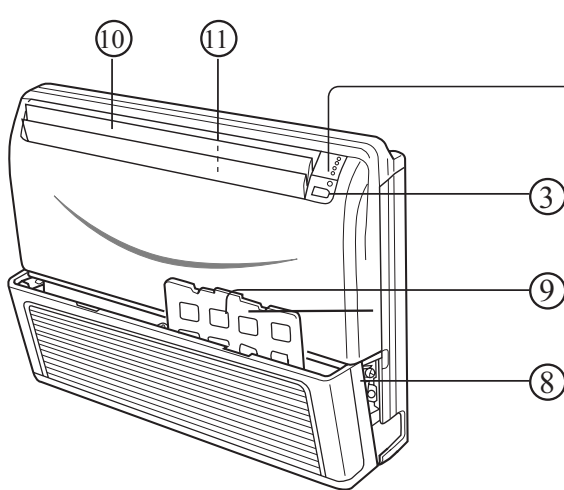


Fig.1

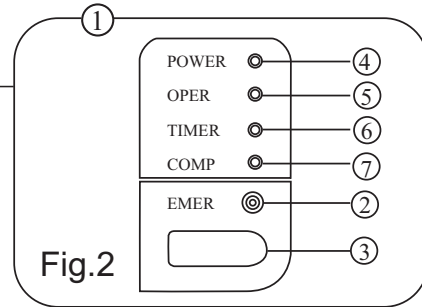
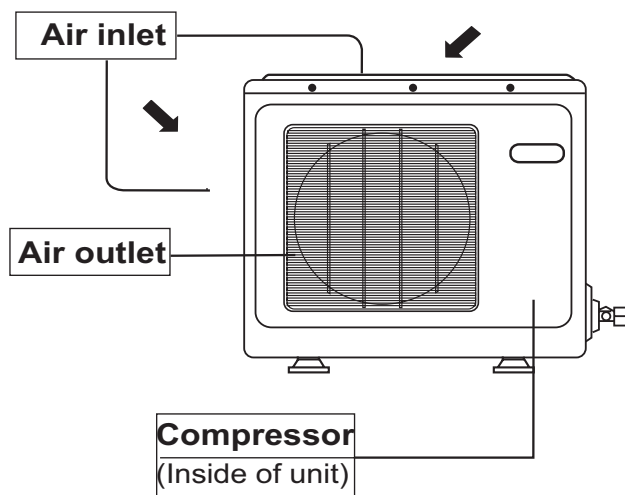


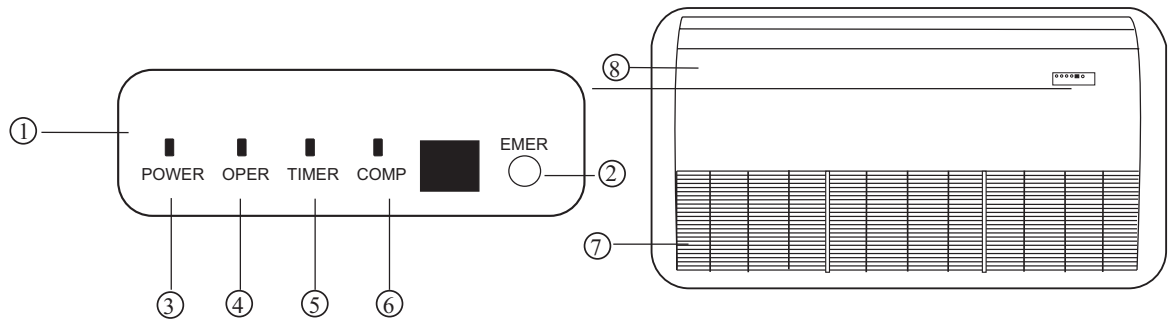
Fig.2

Fig.1 Indoor Unit

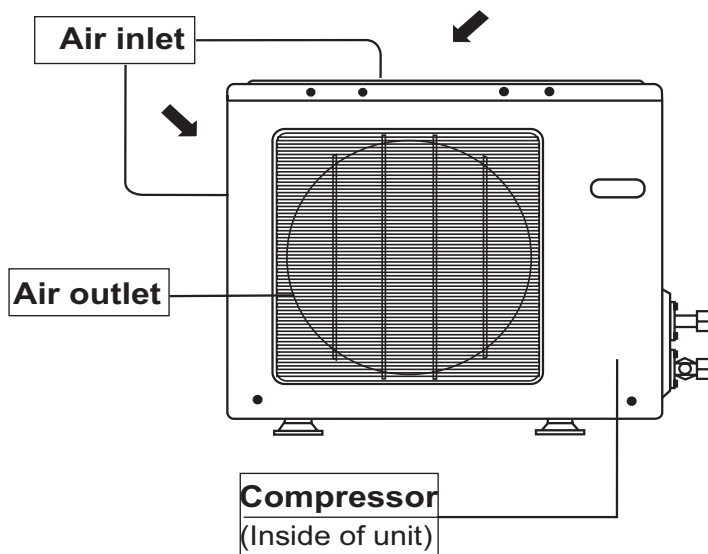
- ① Operating Control Panel (Fig.2)
- ② Emergency switch
- ③ Remote Control Signal Receiver
- ④ Power Indicator Lamp (Red)
- ⑤ OPERATION Indicator Lamp (Green)
- ⑥ TIMER Indicator Lamp (Yellow)
- ⑦ Compressor Run Lamp (Green)
- ⑧ Intake Grill (Fig.1)
- ⑨ Air Filter
- ⑩ UP/DOWN Air Direction Flaps
- ⑪ RIGHT/LEFT Air Direction Louvers (behind UP/DOWN Air Direction Flaps)



6.2 HCFU-28

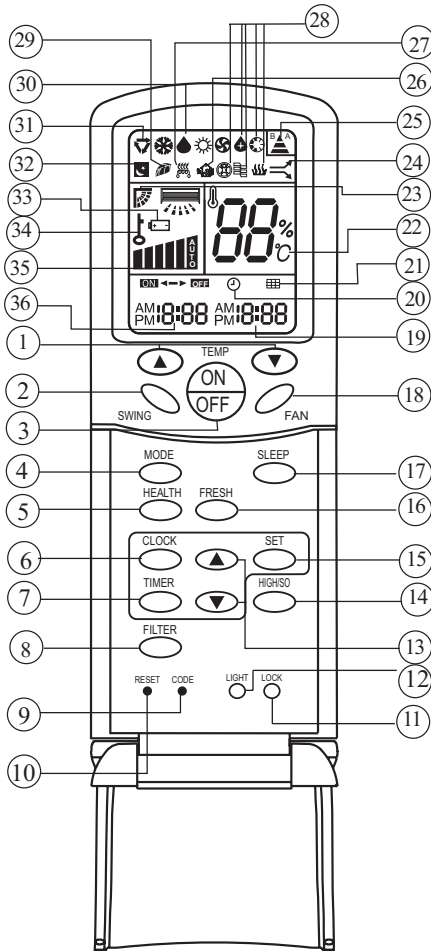


- ① Operating Control Panel
- ② Emergency switch
- ③ Power Indicator Lamp
- ④ OPERATION Indicator Lamp
- ⑤ TIMER Indicator Lamp
- ⑥ Compressor Lamp
- ⑦ Filter
- ⑧ Front panel



7.Remote controller functions

Infrared controller YR-H71



1.TEMP Setting Button

(Used to set temperature. Setting ranges: 16°C to 30°C)

In Up/Down function, for controlling up and down filter.

2.SWING Button

If you press this button once, auto swing will be activated.

If you press this button again, the louver will fix in the present position.

3.Power ON/OFF Button

Used for unit start and stop

After power on, the LCD of remote controller will display the previous operation state (except for TIMER,SLEEP and SWING state).

NOTE: 1.Cooling only air conditioner does not have the displays and functions related to heating.

2.HIGH/SO button

This button is activated in Cooling/Heating mode, the fan speed is in AUTO mode after pressing it and "high function" will be cancelled automatically after 15 minutes running

4.Operation MODE

Used to select operation mode.

Every time you press MODE button, operation mode changes according to following sequence:



5.HEALTH Button

Used to set health mode, if the unit has the negative ion function and oxygen bar function.

6.CLOCK Button

Used to set correct time.

7.CLOCK Button

Used to select TIMER ON, TIMER OFF.

(Note: if time of TIMER ON is the same as TIMER OFF,TIMER ON/OFF cannot be set)

8. FILTER Button

Used to set up/down function of filter.

9. CODE Button

Used to select code A or B, for the units except that we recommend especially, the code is A.

10.RESET Button

Press this button by using a sharp article to resume the correct operation of the remote controller in case of need, i.e. for example in case of malfunctions due to electromagnetic noise.

11.LOCK Button

Used to lock operation button and LCD display contents: by pressing this button, other buttons comes out of function and lock state display appears; if you press it again, lock state will be no more active and lock state display will disappear.

12.LIGHT Button

Used to light the control panel (only for cabinet unit)

13.Up and down Button

Used to set TIMER and CLOCK up or down.

14.HIGH/SO Button

Used to select HIGH or SOFT operation.

15.SET Button

Used to confirm TIMER and CLOCK settings.

16.FRESH Button

Used to set fresh mode, the unit will draw in fresh air.

17.SLEEP Button

(The clock must be corrected before setting sleep function) Used to set sleep mode.

18.FAN Button

Used to select fan speed:LOW,MID,HIGH,AUTO.

19.TIMER OFF Display

20.CLOCK Display

21.FILTER Display

22.TEMPERATURE Display

23.AUTO SWING Display

24.HIGH/SO Display

25.SIGNAL SENDING Display

26.FRESH AIR Display

27.ELECTRICAL HEATING Display

28.Some other buttons

All these functions are not available now.

29.HEALTH Display

Displays when healthy run function is set.

30.DEHUMIDIFICATION Display

31.Operation MODE Display

AUTO RUN	COOL RUN	DRY RUN	HEAT RUN	FAN RUN
				

32.SLEEP State Display

33.BATTERY Energy Display

Notify the user when it is time to change the batteries.

34.LOCK State Display

35.FAN SPEED Display

36.TIMER ON Display

Remote Controller' Operation

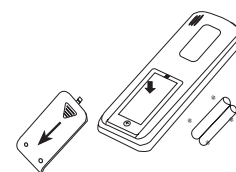
- When in use, direct signal transmission head to the receiver placed on the indoor unit

- The distance between the remote controller and the receiver should be max 7m and there should be no obstacle between them.
- Do not throw the remote controller; prevent it from being damaged.
- When operating the remote controller in an area where electronically controlled lights are installed or wireless handsets are used, please move closer to the indoor unit as the function of the remote controller might be affected by signals emitted by the above mentioned equipments.

Battery loading

Battery loading

Batteries are fitted as follows:



Remove the battery compartment lid

Slightly press and disengage the battery compartment lid marked with "▽" and then hold the remote controller by the upper section and then remove the battery compartment lid by pressing in the direction of the arrow as shown in the figure above.

Remove the battery compartment lid Slightly press and disengage the battery compartment lid marked with "▽" and then hold the remote controller by the upper section and then remove the battery compartment lid by pressing in the direction of the arrow as shown in the figure above.

Loading the battery

Ensure that batteries are correctly placed in the compartment as required for positive and negative terminals.

Replacing the battery compartment lid

The battery compartment lid is reinstalled in the reverse sequence.

Display review

Press the button to see if batteries are properly fitted. If no display appears, refit the batteries.

Confirmation indicator

If no indication is displayed after press ON/OFF button, reload the batteries.

Caution:

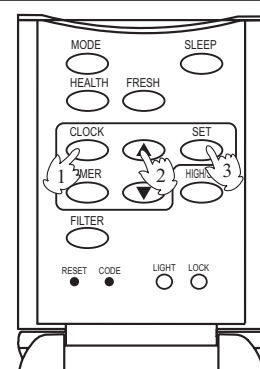
If the remote controller does not operate as designed after fitting new batteries of the same type, press the Reset button (marked ↓) with a pointed article.

Clock Set

When unit is started for the first time and after replacing batteries in remote controller, clock should be adjusted as follows:

- 1.Press CLOCK button, clock indication of " AM " or " PM " flashes.
- 2.Press ▲ or ▼ to set correct time. Each press will increase or decrease 1 min. If the button is kept pressed, time will increase or decrease quickly.
- 3.After time setting is confirmed, press "SET" : AM or PM stop flashing, while clock starts working.

Note:AM means morning and PM means afternoon.

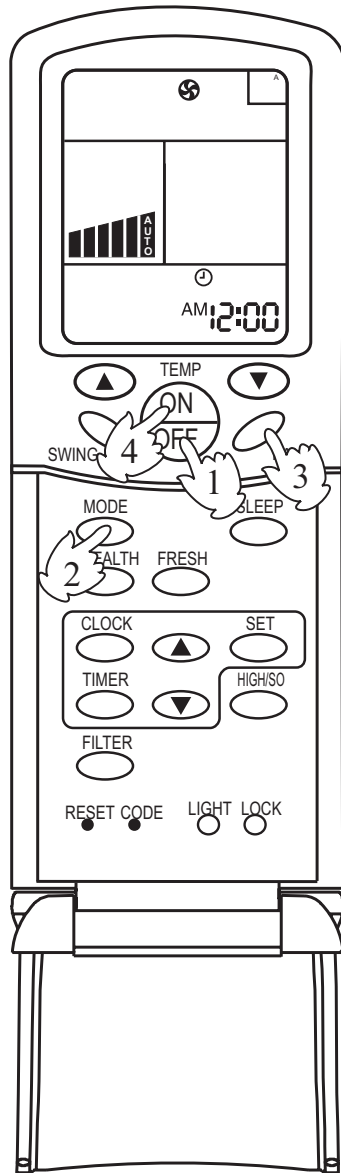


Note:

It is recommended that the batteries be removed from the compartment if the remote controller is not used for an extended period.

The remote controller is programmed for automatic test of operation mode after the batteries are replaced. When the test is conducted, all icons will appear on the screen and then disappear if the batteries are properly fitted.

Fan Operation



1. Unit start

Press ON/OFF button to start your air conditioner.

Previous operation status appears on LCD (except for TIMER, SLEEP, and SWING setting).

2. Select operating mode

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



Then **select FAN**

3. Adjust fan speed

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



Air conditioner will run at the selected fan speed.

When in AUTO mode, unit will adjust fan speed according to room temperature automatically.

4. Unit stop

Press ON/OFF button to stop unit.

About FAN mode

When the air conditioner runs in FAN mode, it is not possible to select AUTO FAN or to set temperature.

AUTO, COOL, HEAT and DRY Operation

1. Unit start

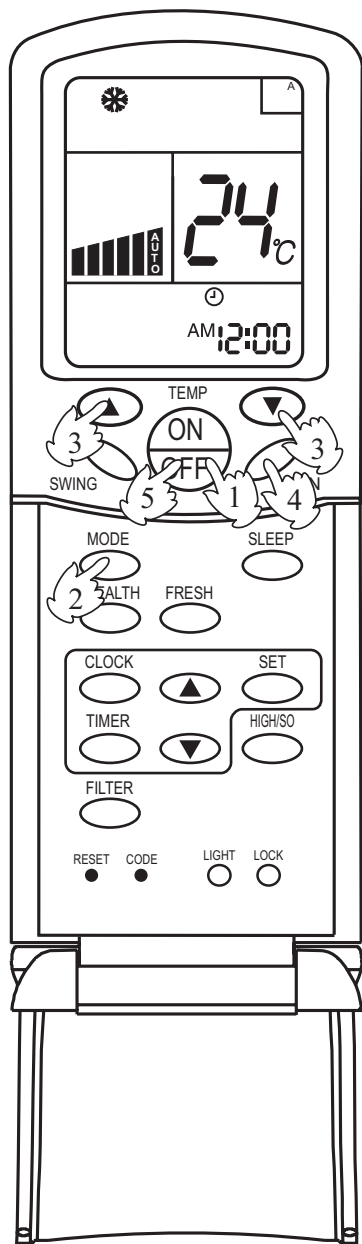
Press ON/OFF button, unit starts.

Previous operation status appears on LCD (except for TIMER, SLEEP and SWING setting)

2. Select operation mode

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





Then or or or

3. Temperature setting
Press TEMP button.

▲ Every time the button is pressed, temp. setting increases 1°C; if the button is kept pressed, temp. setting will increase quickly.

▼ Every time the button is pressed, temp. setting decreases 1°C, if the button is kept pressed, temp. setting will decrease quickly.

Set proper temperature

4. Adjust FAN button

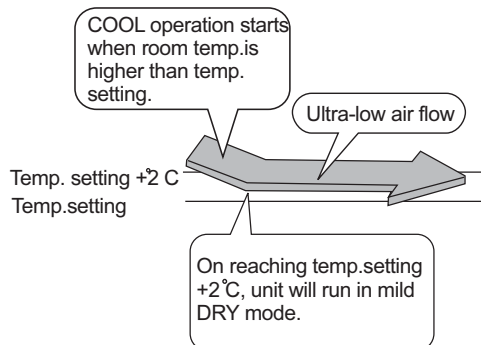
Press FAN button. At each press, fan speed changes as follows:



Air conditioner will run at the selected fan speed.

5. Unit stop

Press ON/OFF button, unit stops.



In ATUO mode, the temperature setting is not displayed on LCD. In this mode, during running air conditioner will select COOL, HEAT or FAN mode automatically according to the room temperature.

In DRY mode, when room temperature becomes 2°C higher than temperature setting, unit will run intermittently at LOW speed regardless of FAN setting. When room temperature is lower than temperature setting, unit will only run FAN operation.

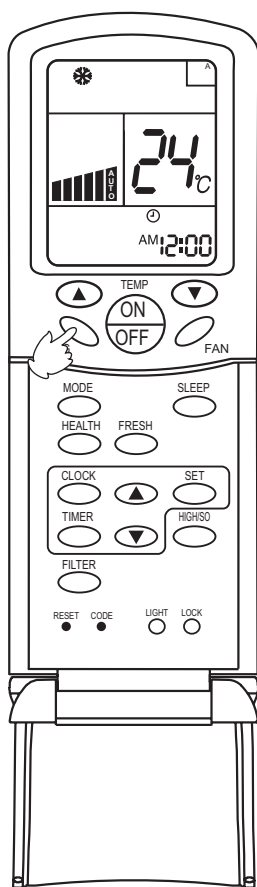
In HEAT mode, warm air will blow out after a short period of time due to cold-draft prevention function.

Adjusting air flow direction

AUTO SWING

Press SWING button. Up and down airflow varies upwards and downwards. Left and right airflow varies left and right sides. When the automatic swing louver moves to the proper angle, press SWING button can fix the airflow direction.

- Always use SWING button on the remote controller to adjust flaps. Adjusting them by hand may result in air conditioner's abnormally running.



- In COOL or DRY mode, do not leave the louver in downward position for a long time, as the water vapor close to the grille may condense and water may drop from the air conditioner.
- Please carefully set temperature when children, old or weak people use the air conditioner.
- In case of great humidity, If the vertical flaps are completely turned towards left or right, the louver will drop water.
- Never adjust the louver directly by hand, as this could make it work abnormally. If the louver work abnormally, stop unit, restart and adjust the louver by remote controller.

After unit stops:

Displays on the LCD disappear.

All indicators on the indoor unit go out.

Swing louver automatically close the air outlet.

Hints:

As in COOL mode air flows downwards, adjusting airflow horizontally will be much more helpful for a better air circulation. As in HEAT mode air flows upwards, adjusting airflow downward will be much more helpful for a better air circulation. Be careful not to catch a cold when cold air blows downward directly.

Sleep Function

Before going to bed you can press down the SLEEP button and the air conditioner will run so as to make you sleep more comfortably. Before using this function, the clock must be set.

Use of SLEEP function

After the unit's start, set running mode and then press SLEEP button once to make the air conditioner have the previous-set sleep time (first power-on is "1h"). The sleep symbol will appear.

▲/▼: Press time button, you can choose the time in 1~8 hours. Each time the button is pressed, the time increases/decreases 1 hour: "xh" and "OFF" indications appear on the display.

Operation Mode

1. In COOL, DRY mode

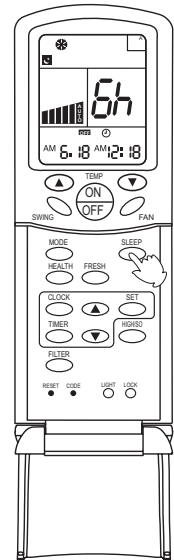
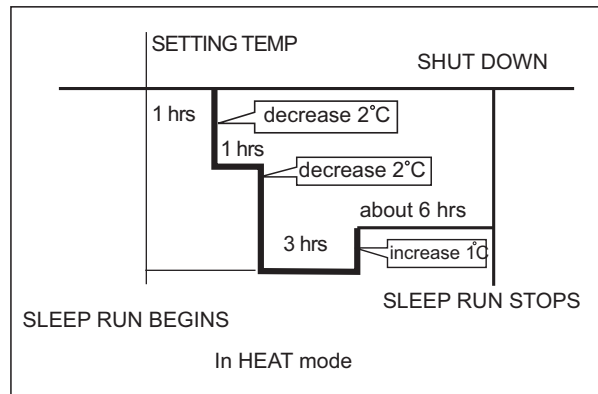
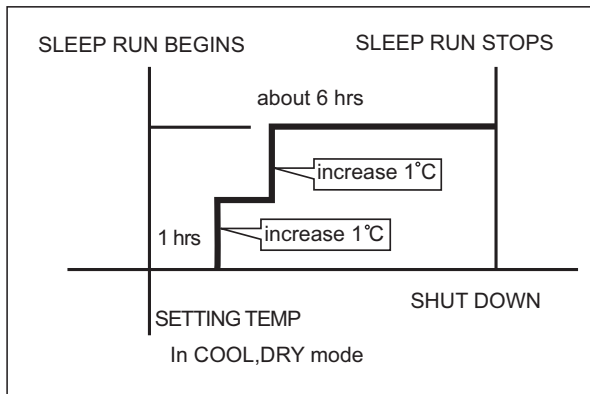
One hour after sleeping operation start, the temperature is 1°C higher than the setting one. After another hour, temperature rises 1°C: sleep run continuously for another 6 hours and then stops. The actual temperature is higher than the setting one which is to prevent from being too cold to your sleep.

2. In HEAT mode

One hour after sleeping operation start, the temperature is 2°C lower than the setting one. After another hour, temperature decreases by 2°C more. Temperature will automatically rise by 1°C after another 3 hours' continuous operation. The actual temperature is lower than the setting one which is to prevent from being too hot to your sleep.

3. In AUTO mode.

The air conditioner will run in corresponding sleep operation according to the automatically selected operation mode.



Notes:

- After setting SLEEP function, it is not possible to set clock.
- If set-sleep time does not reach 8 hours, unit will automatically stop operation after set time is reached.
- Set "TIMER ON" or "TIMER OFF" in COOL, DRY mode function first, then set SLEEP. After set SLEEP function, the TIMER function cannot be set.

Timer ON/OFF Function

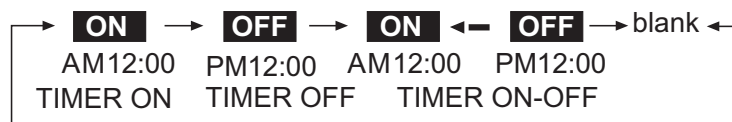
Set clock correctly before starting TIMER operation

1. Unit start

After unit start, select your desired operation mode (operation mode will be displayed on LCD)

2. TIMER mode selection

Press TIMER button on the remote controller to change TIMER mode. Every time the button is pressed, display of TIMER mode changes as follows:



Then select TIMER mode as needed (TIMER ON or TIMER OFF).

Now **ON** or **OFF** will flash.

3. TIMER setting (press time adjust buttons \blacktriangle \blacktriangledown)

▲ Every time the button is pressed, time increases 10 minutes. If the button is kept pressed, time changes quickly.

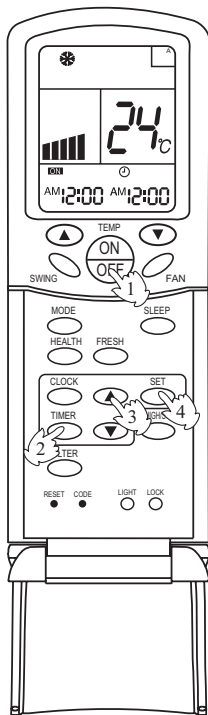
▼ Every time the button is pressed, time decreases 10 minutes. If the button is kept pressed, time changes quickly. It can be adjusted within 24 hours at will.

4. Confirm setting

After setting correct time, press SET button to confirm time. Now **ON** or **OFF** stop flashing.

Time displayed: unit starts or stops at X hour X min (TIMER ON or TIMER OFF)

5. Cancel TIMER mode



Hints:

After replacing batteries or if a power failure occurs, TIMER setting must be reset. Remote controller has memory function. When you use TIMER mode next time, just press SET button after mode selection if timer setting is the same as the previous one.

Note:

After setting TIMER function, the remote controller displays TIMER time. If you want to see clock time, just press CLOCK button once: clock time will be displayed (if you press the button again continuously, you can adjust clock). 5 seconds later, the display will show TIMER time again.

Timer ON-OFF Function

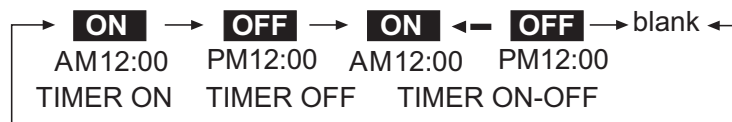
Set clock correctly before starting TIMER operation

1. Unit start

After unit start, select your desired operation mode (operation mode will be displayed on LCD)

2. TIMER mode selection

Press TIMER button on the remote controller to change TIMER mode. Every time the button is pressed, display of TIMER mode changes as follows:



Then select TIMER ON-OFF mode. **ON** will flash.

3. Time setting for TIMER ON

Press time button \blacktriangle

\blacktriangle Every time the button is pressed, time increases 10 minutes. If the button is kept pressed, time will change quickly.

\blacktriangledown Every time the button is pressed, time decreases 10 minutes. If the button is kept pressed, time will change quickly.

It can be adjusted within 24 hours at will.

AM refers to morning and PM refers to afternoon.

4. Timer confirming for TIMER ON

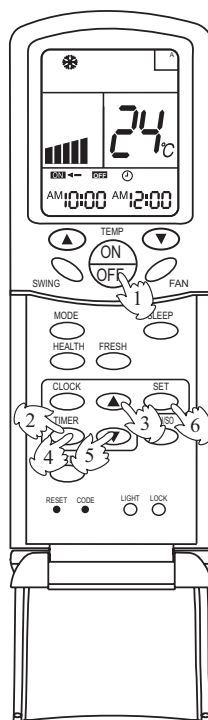
After setting correct time, press TIMER button to confirm time. Now **ON** stops to flash, while **OFF** starts flashing. Time displayed: unit starts at X hour X min.

5. Timer setting for TIMER OFF

Press time buttons \blacktriangle and follow the same procedures in "Time setting for TIMER ON"

6. Time confirming for TIMER OFF

After time setting, press SET button to confirm time. **OFF** stops to flash.



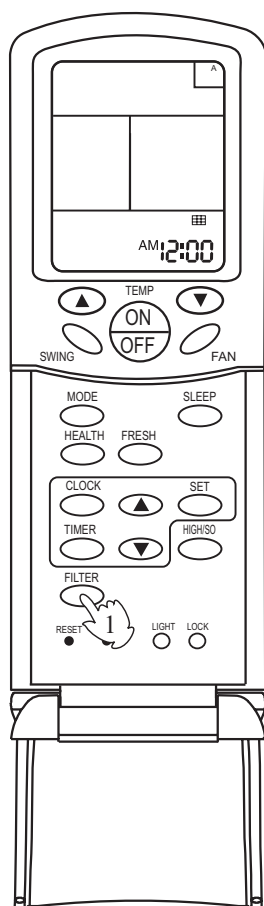
7. Canel TIMER mode

Just press TIMER button several times until TIMER mode disappears. According to the time setting sequence of TIMER ON and TIMER OFF, either start-stops or stops-start can be realized.

If the time setting of TIMER ON is the same as TIMER OFF, TIMER ON-OFF function cannot be set.

Filter Up/Down

(Only for 600*600 panel of single unit)



After the air conditioner has operated for a certain period, dust has accumulated on the filter, and the filter up/down function can be used to clean it.

1. Whether unit starts or stops, continuously press FILTER button for 3 seconds, and enter the filter up/down waiting status (when unit stops, the yellow TIMER indicator flashes, and filter and clock indication are displayed on the remote controller. Only the FILTER button, the temperature buttons "▲" "▼" and time buttons ◆ are active).

2. Press temperature "▼" button or time "▼" button in filter up/down waiting status: the up/down mechanism makes the filter moving downward and does not stop until it has reached the maximum limit.

3. Press temperature "▲" button or time "▲" button in filter up/down waiting status: the up/down mechanism makes the filter to moving upward till near the surface board and then automatically adjusts it to reset (when adjusting to reset, it will not be controlled by the remote controller till the adjustment is finished).

4. During moving downward, press temperature "▲" button or time "▲" button: moving stops.

5. During moving downward, press temperature "▼" button or time "▼" button: moving stops.

6. Continuously press FILTER button 3 seconds again to cancel the filter up/down waiting mode (unit stops, the yellow timer indicator stops flashing, the filter goes back to the original position, the remote controller goes back to off status and only clock is displayed).

Note:

If the filter does not thoroughly go back to the original position, only needs to operate several times repeatedly.

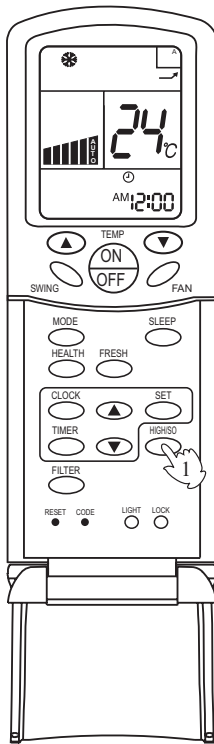
" High mode " Operation

Outline of operation in "High Mode"

This function is suitable when the set temperature must be reached in the shortest delay. The button "HIGH/SO", referred to this function, is effective in Cooling/Heating mode (not in Auto/Dry/Fan modes).


NOTICE:

- When the air conditioner is operating in " High Mode ", unevenness of room air temperature may occur due to the intensive operation in a short time.
- Anyway, operation in "High Mode", does not last for more than 15 minutes, then regular operation is automatically restored.



ON


Press the HIGH/SO button once

The indication  appears on the display of the remote controller and operation in "High Mode" starts.

The AUTO fan speed is automatically set and the corresponding indication is also displayed.

OFF

Press the HIGH/SO button twice

If the button is pressed once, the indication  is displayed on the remote controller. If you press the button once again, the indication disappears, regular operation is restored and fan speed goes back to the mode set before "High Mode" operation.


" Soft mode " Operation

Outline of operation in "Soft Mode"

Operation in "Soft Mode", more silent, is suitable when noises should be reduced, e.g.. for reading or sleeping. The button "HIGH/SO", referred to this operation, is effective in Cooling/Heating mode (not in Auto/Dry/Fan modes).


ON

Press the HIGH/SO button twice

The indication  appears on the display of the remote controller and operation in "Soft Mode" starts. The AUTO fan speed is automatically set and the corresponding indication is also displayed.

OFF

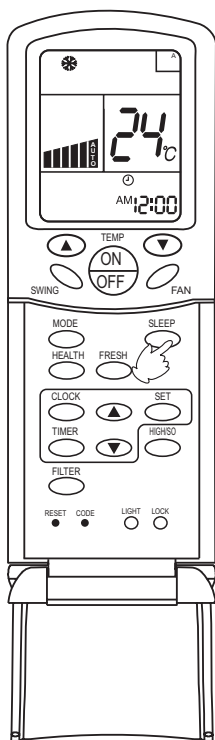
Press the HIGH/SO button twice

If the button is pressed once, the indication  is disappears from the remote controller's display. If you press the button once again, regular operation is restored and fan speed goes back to the mode set before "Soft Mode" operation.

NOTICE:

- When the air conditioner is operating in " High Mode " , unevenness of room air temperature may occur due to the intensive operation in a short time.
- Anyway, operation in "High Mode", does not last for more than 15 minutes, then regular operation is automatically restored.

Auto restart function setting



After the power failure compensation is set, if power failure suddenly occurs while the air conditioner is working, it will resume the previous working state when the power is supplied again.

Setting Method: When the remote controller is on (excluding timer mode and fan mode), press the "Sleep" button on the remote controller 10 times within 5 seconds, and after the buzzer rings 4 times, the air conditioner will enter the state of auto restart.

Cancel Method: Press the "Sleeping" button on the remote controller 10 times within 5 seconds, and after the buzzer rings 2 times, the auto restart mode will be cancelled.

Notes: When a power failure suddenly occurs during the air conditioner is working after the power failure compensation is set, if the air conditioner will not be used for a long time, please cut off the power supply to prevent its operation from being resumed after the power is supplied again, or press the "Switch On/Off" button after the power comes again.

If the unit has not the "sleep" button or function, please realize the function by pressing "swing" with the same method.

Infrared controller YR-H71 and remote receiver RE-01:

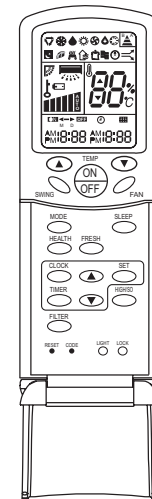
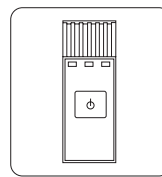
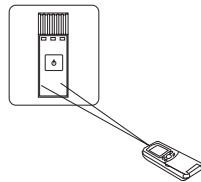
If the unit is wired type and it is without the remote receiver, you can use the remote receiver RE-01 and the remote controller YR-H71 to realize the remote function. The installation of remote receiver and usage function are as follows:

The right figure is a remote controller, which can be used on series remote control units and the matching remote control receiver

1. Remote control receiver using method :

Use remote controller control the remote control window of the remote control receiver.

2. For Unitary Free units, the controller CODE please select code "A"; for H-MRV and AS**X ABAA unit, please select code "B".



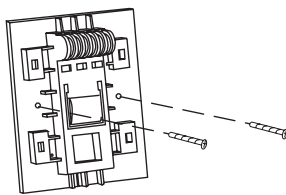
Remote receiver Remote controller

Installation of receive display

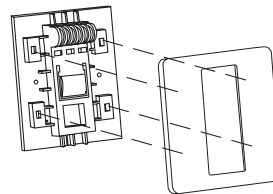
Because of the temperature sensitive device, do not install the receive display at straight sunlight place, either in front of air outlet grill, for it is effected greatly from cool air and heat air, the receive display is at least 20mm distance to the air outlet grill.

Since there is light sensitive device which receives wireless remote signal, so do not installed behind the window curtain or other obstacles, in order not to obstruct the signal.

Must fix the remote control wire far from strong electricity (such as the wiring of electric light, air conditioner, etc.) and weak electricity (such as the wiring of telephone, interphone, etc.).



1. Fix the receive display with screws on the selected place

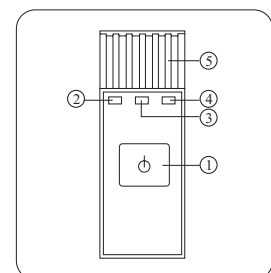


2. Place the panel onto the fixed frame, pay attention that the four claws must be placed into the corresponding four poles on the frame

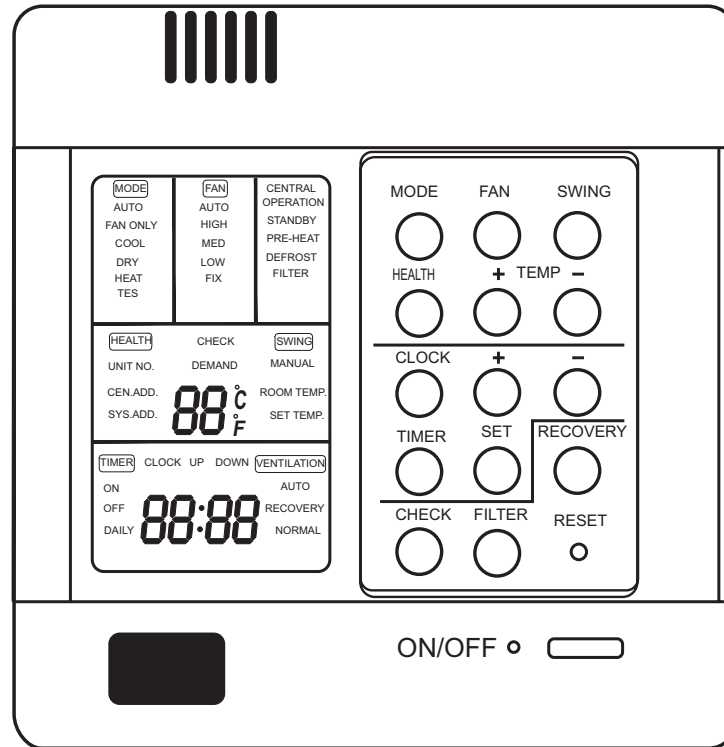
Connecting wiring method of receiver :

- Refer the indoor unit wiring diagram .
- Safety cautions see the electrical wiring part .

- ①. Emergency switch
- ②. Running lamp: When the compressor working, this lamp bright.
- ③. Timing lamp: When the unit been setting Timing running, this lamp bright.
- ④. Power lamp: After open the unit, this lamp bright when the unite enter health running, the lamp change from orange to blue lamp.
- ⑤. Indoor temp. sensor: Test the room temperature.



Wired controller YR-E12



Buttons function:

- MODE: used for select indoor operation mode.
- FAN: used for select indoor air flow.
- SWING: used for setting indoor swing mode.
- HEALTH: used for setting indoor health function.
- TEMP + -: used for changing set temperature.
- CLOCK: used to adjust time.
- +、 -: stands for time plus/minus, used to adjust time.
- TIMER: used to set timer mode.
- RECOVERY: used to switch over air-exchanging mode.
- CHECK: auto-diagnostic button.
- FILTER: filter-cleaned button.
- RESET: reset correct mode button.

Display description:

- [MODE] [AUTO]: auto operation mode
- [MODE] [FAN ONLY]: air-throwing mode
- [MODE] [COOL]: Cooling operation mode
- [MODE] [DRY]: Dehumidification mode
- [MODE] [HEAT]: Heating operation mode
- [MODE] [HEAT] [TES]: In heating mode, auxiliary electric heater is running. Only when the unit with auxiliary electric heater is in auxiliary electric heating mode, it will display.
- [FAN] [AUTO]: auto fan running

[FAN] [HIGH]: high fan speed
[FAN] [MED]: medium fan speed
[FAN] [LOW]: low fan speed
[FAN] [FIX]: fixed fan speed, it will display only when fixed fan speed is requested to main indoor unit.
[CENTRAL]: central control mode
[OPERATION] : running mode
[STAND BY] : waiting mode
[PRE-HEAT] : pre-heating mode
[DEFROST]: defrosting mode
[FILTER] : request of filter to be cleaned
[HEALTH]: health function
[UNIT NO.]
[CEN.ADD]: central control address, the address number will display on “88”
[SYS.ADD.]: system address, the address number will display on “88”
[CHECK]: auto-diagnostic, trouble shooting
[DEMAND]: compulsory operation function, when it works, [CENTRAL] will flash
[SWING]: swing mode
[ROOM TEMP.]: indoor ambient temperature
[SET TEMP.]: set admired temperature
[TIMER][ON] : timer function is on, it will switch over in the sequence below:
[ON][OFF] → [ON][OFF][DAILY] → []
[TIMER][OFF] : timer function is off
[TIMER][ON][OFF] : timer function ON-OFF
[TIMER][ON][OFF][DAILY]: timer ON-OFF will switch over in turn daily
[CLOCK]: clock display, the displaying time is the current time of the clock.
[UP]、[DOWN]: indicator of filter elevating
[VENTILATION][AUTO]: auto ventilation mode
[VENTILATION][RECOVERY]: fully heat exchanging ventilation mode
[VENTILATION][NORMAL]: normal ventilation mode

FAN ONLY OPERATION:

- 1) Start up operation: press the button of ON/OFF, the system will start up, and will display [MODE][AUTO]; [FAN][AUTO]; [ROOM TEMP.] + “24°C”; [CLOCK] + “12: 00”.
- 2) Select MODE: press the MODE button, then you will see in the display section [MODE] switch over in below sequence: [FAN ONLY] → [COOL] → [DRY] → [HEAT] → [AUTO] → [FAN ONLY]. Select [FAN ONLY].
- 3) Select fan speed: press FAN button, then you see in the display section [FAN] switch over in below sequence: [HIGH] → [MED] → [LOW] → [HIGH]. Select proper fan speed.
- 4) Power off: press ON/OFF button, indoor unit will be powered off, there are only time and the ambient temperature in the screen.

AUTO operation, COOLING, HEATING and DEHUMIDIFICATION operation

- 1) Start up operation: press the button of ON/OFF, the system will start up, and will display [MODE][AUTO]; [FAN][AUTO]; [ROOM TEMP.] + “24°C”; [CLOCK] + “12: 00”.
- 2) Select MODE: press the MODE button, then you will see in the display section [MODE] switch over in below sequence: [FAN ONLY] → [COOL] → [DRY] → [HEAT] → [AUTO] → [FAN ONLY]. Select [FAN ONLY].
- 3) Change set temperature: press TEMP + or – every time, [SET] will display, and set temperature will increase/reduce 1°C (F) .
- 4) Select fan speed: press FAN button, then you see in the display section [FAN] switch over in below sequence: [AUTO] → [HIGH] → [MED] → [LOW] → [AUTO]. Select proper fan speed.
- 5) Select [SWING]: press [SWING] button, swing function is valid. Press again, swing function is invalid.
- 6) Set [HEALTH]: used to set the indoor health function. Press it once, [HEALTH] will display in the display section, then indoor health function is valid. Press it again, [HEALTH] will disappear, then the health function is invalid.
This function is valid only for the unit with health function.
- 7) Power off: press ON/OFF button, indoor unit is powered off. There are only time and the ambient temperature in the screen.

Set TIMER operation:

Adjust clock: when powered on, for the first time to set timer function, the clock will be adjusted.

Press “CLOCK” button, and set the current clock. Now, “CLOCK” will flash at the frequency of 2Hz. Press the clock +/- button; the current clock can be adjusted. Until the proper time comes, press [SET].

TIMER ON operation:

Press TIMER button, and keep pressing it, in the display section [TIMER] will switch over in below sequence: [ON] → [OFF] → [ON][OFF] → [ON][OFF][DAILY] → []. Select [TIMER] [ON], then [TIMER] [ON] flashes, press the clock +/- button to adjust the time of TIMER ON, press [SET] button.

TIMER OFF operation:

Press TIMER button, and keep pressing it, in the display section [TIMER] will switch over in below sequence: [ON] → [OFF] → [ON][OFF] → [ON][OFF][DAILY] → []. Select [TIMER] [OFF], then [TIMER] [OFF] flashes, press the clock +/- button to adjust the time of TIMER OFF, press [SET] button.

TIMER ON-OFF operation:

Press TIMER button, and keep pressing it, in the display section [TIMER] will switch over in below sequence: [ON] → [OFF] → [ON][OFF] → [ON][OFF][DAILY] → []. Select [TIMER] [ON] [OFF]. Firstly, [TIMER][ON] flashes, press the clock +/- button to adjust the time of

TIMER ON, press [TIMER]. [TIMER][ON] will be constant on. Then [TIMER] [OFF] flashes, press the clock +/- button to adjust the time of TIMER OFF, press [SET]. The time sequence of timer on and timer off will determine the mode is [TIMER] [ON] → [OFF] or [TIMER] [OFF] → [ON]. If you want the current time, press [CLOCK] once, current time will display; press again, [CLOCK] will flash, and press [+][-] to adjust the time.

Note: 1. If the two times are same, the timer state which is set later will flash, in this case, timer can not be set.

2. When entering TIMER setting state, if you do not input any button in continuous 10 seconds, the unit will quit from the TIMER mode.

Cancel TIMER operation:

In the timer operation state, press [TIMER] button, the unit will quit from the current timer operation state, and the set data will be memorized, then enter the next timer mode.

[FILTER] function

When the wired controller receives the filter-cleaned signal from indoor unit, [FILTER] will display. After finishing clean, press [FILTER], the sign [FILTER] disappears, and the controller will send the filter reset signal to indoor unit.

When the sign [FILTER] not display, it is invalid to press [FILTER] in short time.

FILTER ELEVATING function: (only for the unit with elevating function)

When the filter needs to be cleaned, the panel can be lowered to the admired height by the [FILTER][UP][DOWN] function. Method is below: In power off state, press [HEALTH] for 10 seconds to enter filter elevating set state. In this state, the sign [FILTER] will flash and [UP] [DOWN] will display simultaneously, Press TEMP [+], in timer section [UP] will display, while press TEMP [-], in timer section [DOWN] will display. When it arrives the appropriate position, press [UP], [UP][DOWN] will display simultaneously, filter will stop going down. Press [UP] again, filter will go up. Press [FILTER] button to quit the mode.

DEMAND operation function:

By this function, all the indoor units can be made in nominal mode. Set the operation mode in cooling and then shut off the unit. In the stop state, press [ON/OFF] button for 5 seconds to enter cooling trial operation state. If it is in heating mode before shut off the unit, then press [ON/OFF] button for 5 minutes, it will enter heating trial operation state.

In cooling, there will be "LL" in the position where the set temperature displays. In heating, there will be "HH" in the position where the set temperature displays. The wired controller will send the [DEMAND] signal to indoor unit. In the [DEMAND] operation, "COOL" or "HEAT" will display at 1Hz frequency. Indoor fan motor will be fixed at "AUTO" mode. The indoor units in the same group will quit the [DEMAND] in turn.

At this time, only the buttons of [ON/OFF] and temperature [+][-] are valid. Press [ON/OFF] to quit [DEMAND] mode.

CENTRAL control function

When the central controller selects [CENTRAL] mode, the buttons in the wired controller except for [CHECK] will be invalid.

VENTILATION mode (only for the unit with fresh air function or heat recovery function)

Press [RECOVERY] button, then the unit will switch over the ventilation mode:

[] → [VENTILATION][AUTO] → [VENTILATION][RECOVERY] → [VENTILATION][NORMAL] → [], please select appropriate ventilation mode.

Query indoor malfunction history:

In the state of power on or power off, press [CHECK] button, enter the malfunction-querying mode of all indoor units in the group. Then [CHECK] and [UNIT NO.] will display, and the actual indoor numbers will be displayed in some sequence (unit number is in decimals). At the same time, in the time region, there will be the current malfunction and the latest time malfunction, the displaying format is [XX: YY], in which XX stands for the current malfunction, if normal, it will display “— —”; YY stands for the latest time malfunction. The failure code of every unit will display for 3 seconds. After the failure codes of all indoor units in the whole group are displayed, the mode will quit automatically.

Clear abnormal state and malfunction history:

In normal state, press [CHECK] button for 5 seconds to clear abnormal states, at the same time, wired controller will send the data of “clear abnormal state”, but the malfunction history still retains.

In normal state, press [CHECK] button for 15 seconds, except for malfunction states, the malfunction history in wired controller will be cleared.

Query indoor performance state:

In normal state, press both buttons of [CHECK] and [FILTER] for 5 seconds, in the set temperature region in the screen, [XX] will display, XX is indoor number, which can be selected by pressing [TEMP] [+] [-]. In the timer region in the screen, [YZZZ] will display, in which Y stands for data type, ZZZ stands for the corresponding data. which can be selected by pressing [CLOCK] [+] [-].

Y	ZZZ	Type
A	Indoor capacity (W)	Nominal cooling capacity/10, decimal
B	Request of indoor capacity (Hz)	Actual value, decimal
C	Temperature of indoor ambient temp. sensor TA	Actual value, decimal
d	Temperature of indoor gas pipe sensor TC1	Actual value, decimal
E	Temperature of indoor liquid pipe sensor TC2	Actual value, decimal
F	Open degree of indoor PMV	Actual value, decimal

g	Preset	---
H	Outdoor total capacity	Actual value, decimal

In check mode, press [CHECK] to quit the check mode, and go into normal running mode.

How to change the function switches?

No.	Type	State of switch	Function description
J01	Changeover of Wired controller and central controller	Connected	Central controller
		Cut off	Wired controller
J02	Changeover of type of wired controller	Connected	Set as simple controller
		Cut off	Set as standard controller
J06	Selection of room temp. sensor	Connected	Use the sensor in the wired controller
		Cut off	Use the sensor in the indoor unit
J07	Auto restart after power failure	Connected	Common control
		Cut off	Auto restart after power failure
J03	Display of room temperature	Connected	Yes
		Cut off	No
SW01 ①	Changeover of master or slave controller	ON	Set as slave controller
		OFF	Set as master controller
SW01 ②	°C or °F	ON	°F
		OFF	°C
D1	Shorten time function	Connected	Indoor unit in shorted time function
		Cut off	Common control
D2	Compulsorily defrost	Connected	Send compulsorily defrost signal to indoor unit
		Cut off	Common control

Note: 1. The switches in grey can be operated after opening the cover of wired controller.

2. Switches or jumper wire must be adjusted when the wired controller is powered off. If the wired controller is powered on, the above operations will be invalid.

3. Shorten time function

In normal operation, D1 is in short circuit, it will enter shorten time mode, and the time will be shortened in the proportion of 60:1. In shorten time mode, LED will flash at the frequency of 0.5 second. Cut off D1, it will quit the shorten time mode and return to the normal operation mode.

4. Compulsorily defrost

In heating mode 30°C and in High fan speed, D2 is in short circuit, it will enter compulsorily defrost mode; cut off D2, it will quit. It is always be used when in testing to see if the defrost function is good.

5. Lock function

There is no lock function only in the wired controller. But when it is connected with a central controller, if the central controller is set to “central”, the buttons in the wired controller will be invalid, or the buttons will be valid.

Setting address method:

The address setting can be realized by setting indoor PCB.

If you use the group control function, there should be a master unit and 15 sets of slave units. For the master unit, the SW5-3 should be at “ON”. For the slave units, the SW5-3 should be at “OFF”.

Please refer the below table,

Indoor unit address	SW1-4	SW1-3	SW1-2	SW1-1
1	OFF	OFF	OFF	OFF
2	OFF	OFF	OFF	ON
3	OFF	OFF	ON	OFF
4	OFF	OFF	ON	ON
5	OFF	ON	OFF	OFF
6	OFF	ON	OFF	ON
7	OFF	ON	ON	OFF
8	OFF	ON	ON	ON
9	ON	OFF	OFF	OFF
10	ON	OFF	OFF	ON
11	ON	OFF	ON	OFF
12	ON	OFF	ON	ON
13	ON	ON	OFF	OFF
14	ON	ON	OFF	ON
15	ON	ON	ON	OFF
16	ON	ON	ON	ON

If you use central control type, SW1, SW2 will be used simultaneously.

Wiring request in central control type: port A-B is connected with indoor port CN16 (A-B) through 2-core shield wire. Requirements:

1. Port A connects with port CN16 (A) of all indoor units.
2. Port B connects with port CN16 (B) of all indoor units.

Address on central controller	Indoor unit address	SW2-3	SW2-2	SW2-1	SW1-4	SW1-3	SW1-2	SW1-1
1	1	OFF	OFF	OFF	OFF	OFF	OFF	OFF
2	2	OFF	OFF	OFF	OFF	OFF	OFF	ON
3	3	OFF	OFF	OFF	OFF	OFF	ON	OFF
4	4	OFF	OFF	OFF	OFF	OFF	ON	ON
5	5	OFF	OFF	OFF	OFF	ON	OFF	OFF
6	6	OFF	OFF	OFF	OFF	ON	OFF	ON
7	7	OFF	OFF	OFF	OFF	ON	ON	OFF
8	8	OFF	OFF	OFF	OFF	ON	ON	ON
9	9	OFF	OFF	OFF	ON	OFF	OFF	OFF
10	10	OFF	OFF	OFF	ON	OFF	OFF	ON
11	11	OFF	OFF	OFF	ON	OFF	ON	OFF
12	12	OFF	OFF	OFF	ON	OFF	ON	ON
13	13	OFF	OFF	OFF	ON	ON	OFF	OFF
14	14	OFF	OFF	OFF	ON	ON	OFF	ON
15	15	OFF	OFF	OFF	ON	ON	ON	OFF
16	16	OFF	OFF	OFF	ON	ON	ON	ON
17	17	OFF	OFF	ON	OFF	OFF	OFF	OFF
18	18	OFF	OFF	ON	OFF	OFF	OFF	ON
19	19	OFF	OFF	ON	OFF	OFF	ON	OFF
20	20	OFF	OFF	ON	OFF	OFF	ON	ON

21	21	OFF	OFF	ON	OFF	ON	OFF	OFF
22	22	OFF	OFF	ON	OFF	ON	OFF	ON
23	23	OFF	OFF	ON	OFF	ON	ON	OFF
24	24	OFF	OFF	ON	OFF	ON	ON	ON
25	25	OFF	OFF	ON	ON	OFF	OFF	OFF
26	26	OFF	OFF	ON	ON	OFF	OFF	ON
27	27	OFF	OFF	ON	ON	OFF	ON	OFF
28	28	OFF	OFF	ON	ON	OFF	ON	ON
29	29	OFF	OFF	ON	ON	ON	OFF	OFF
30	30	OFF	OFF	ON	ON	ON	OFF	ON
31	31	OFF	OFF	ON	ON	ON	ON	OFF
32	32	OFF	OFF	ON	ON	ON	ON	ON
33	33	OFF	ON	OFF	OFF	OFF	OFF	OFF
34	34	OFF	ON	OFF	OFF	OFF	OFF	ON
35	35	OFF	ON	OFF	OFF	OFF	ON	OFF
36	36	OFF	ON	OFF	OFF	OFF	ON	ON
37	37	OFF	ON	OFF	OFF	ON	OFF	OFF
38	38	OFF	ON	OFF	OFF	ON	OFF	ON
39	39	OFF	ON	OFF	OFF	ON	ON	OFF
40	40	OFF	ON	OFF	OFF	ON	ON	ON
41	41	OFF	ON	OFF	ON	OFF	OFF	OFF
42	42	OFF	ON	OFF	ON	OFF	OFF	ON
43	43	OFF	ON	OFF	ON	OFF	ON	OFF
44	44	OFF	ON	OFF	ON	OFF	ON	ON
45	45	OFF	ON	OFF	ON	ON	OFF	OFF
46	46	OFF	ON	OFF	ON	ON	OFF	ON
47	47	OFF	ON	OFF	ON	ON	ON	OFF
48	48	OFF	ON	OFF	ON	ON	ON	ON
49	49	OFF	ON	ON	OFF	OFF	OFF	OFF
50	50	OFF	ON	ON	OFF	OFF	OFF	ON
51	51	OFF	ON	ON	OFF	OFF	ON	OFF
52	52	OFF	ON	ON	OFF	OFF	ON	ON
53	53	OFF	ON	ON	OFF	ON	OFF	OFF
54	54	OFF	ON	ON	OFF	ON	OFF	ON
55	55	OFF	ON	ON	OFF	ON	ON	OFF
56	56	OFF	ON	ON	OFF	ON	ON	ON
57	57	OFF	ON	ON	ON	OFF	OFF	OFF
58	58	OFF	ON	ON	ON	OFF	OFF	ON
59	59	OFF	ON	ON	ON	OFF	ON	OFF
60	60	OFF	ON	ON	ON	OFF	ON	ON
61	61	OFF	ON	ON	ON	ON	OFF	OFF
62	62	OFF	ON	ON	ON	ON	OFF	ON
63	63	OFF	ON	ON	ON	ON	ON	OFF

64	64	OFF	ON	ON	ON	ON	ON	ON
65	65	ON	OFF	OFF	OFF	OFF	OFF	OFF
66	66	ON	OFF	OFF	OFF	OFF	OFF	ON
67	67	ON	OFF	OFF	OFF	OFF	ON	OFF
68	68	ON	OFF	OFF	OFF	OFF	ON	ON
69	69	ON	OFF	OFF	OFF	ON	OFF	OFF
70	70	ON	OFF	OFF	OFF	ON	OFF	ON
71	71	ON	OFF	OFF	OFF	ON	ON	OFF
72	72	ON	OFF	OFF	OFF	ON	ON	ON
73	73	ON	OFF	OFF	ON	OFF	OFF	OFF
74	74	ON	OFF	OFF	ON	OFF	OFF	ON
75	75	ON	OFF	OFF	ON	OFF	ON	OFF
76	76	ON	OFF	OFF	ON	OFF	ON	ON
77	77	ON	OFF	OFF	ON	ON	OFF	OFF
78	78	ON	OFF	OFF	ON	ON	OFF	ON
79	79	ON	OFF	OFF	ON	ON	ON	OFF
80	80	ON	OFF	OFF	ON	ON	ON	ON
81	81	ON	OFF	ON	OFF	OFF	OFF	OFF
82	82	ON	OFF	ON	OFF	OFF	OFF	ON
83	83	ON	OFF	ON	OFF	OFF	ON	OFF
84	84	ON	OFF	ON	OFF	OFF	ON	ON
85	85	ON	OFF	ON	OFF	ON	OFF	OFF
86	86	ON	OFF	ON	OFF	ON	OFF	ON
87	87	ON	OFF	ON	OFF	ON	ON	OFF
88	88	ON	OFF	ON	OFF	ON	ON	ON
89	89	ON	OFF	ON	ON	OFF	OFF	OFF
90	90	ON	OFF	ON	ON	OFF	OFF	ON
91	91	ON	OFF	ON	ON	OFF	ON	OFF
92	92	ON	OFF	ON	ON	OFF	ON	ON
93	93	ON	OFF	ON	ON	ON	OFF	OFF
94	94	ON	OFF	ON	ON	ON	OFF	ON
95	95	ON	OFF	ON	ON	ON	ON	OFF
96	96	ON	OFF	ON	ON	ON	ON	ON
97	97	ON	ON	OFF	OFF	OFF	OFF	OFF
98	98	ON	ON	OFF	OFF	OFF	OFF	ON
99	99	ON	ON	OFF	OFF	OFF	ON	OFF
100	100	ON	ON	OFF	OFF	OFF	ON	ON
101	101	ON	ON	OFF	OFF	ON	OFF	OFF
102	102	ON	ON	OFF	OFF	ON	OFF	ON
103	103	ON	ON	OFF	OFF	ON	ON	OFF
104	104	ON	ON	OFF	OFF	ON	ON	ON
105	105	ON	ON	OFF	ON	OFF	OFF	OFF
106	106	ON	ON	OFF	ON	OFF	OFF	ON

107	107	ON	ON	OFF	ON	OFF	ON	OFF
108	108	ON	ON	OFF	ON	OFF	ON	ON
109	109	ON	ON	OFF	ON	ON	OFF	OFF
110	110	ON	ON	OFF	ON	ON	OFF	ON
111	111	ON	ON	OFF	ON	ON	ON	OFF
112	112	ON	ON	OFF	ON	ON	ON	ON
113	113	ON	ON	ON	OFF	OFF	OFF	OFF
114	114	ON	ON	ON	OFF	OFF	OFF	ON
115	115	ON	ON	ON	OFF	OFF	ON	OFF
116	116	ON	ON	ON	OFF	OFF	ON	ON
117	117	ON	ON	ON	OFF	ON	OFF	OFF
118	118	ON	ON	ON	OFF	ON	OFF	ON
119	119	ON	ON	ON	OFF	ON	ON	OFF
120	120	ON	ON	ON	OFF	ON	ON	ON
121	121	ON	ON	ON	ON	OFF	OFF	OFF
122	122	ON	ON	ON	ON	OFF	OFF	ON
123	123	ON	ON	ON	ON	OFF	ON	OFF
124	124	ON	ON	ON	ON	OFF	ON	ON
125	125	ON	ON	ON	ON	ON	OFF	OFF
126	126	ON	ON	ON	ON	ON	OFF	ON
127	127	ON	ON	ON	ON	ON	ON	OFF
128	128	ON	ON	ON	ON	ON	ON	ON

Electrical functions of wired controller:

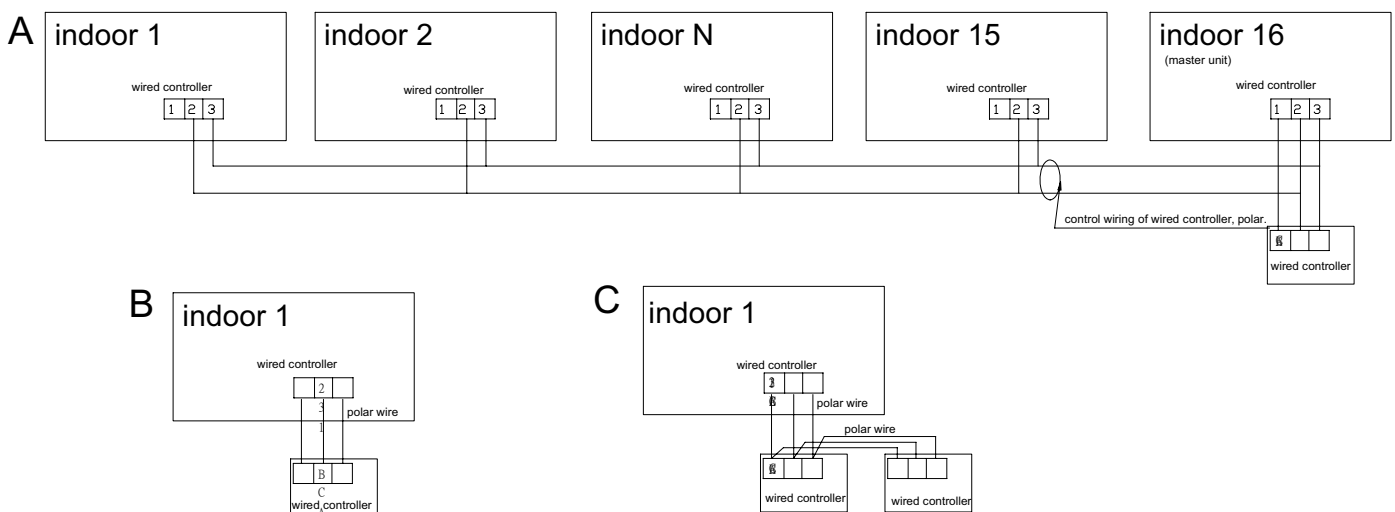
1. Function difference between master wired controller and slave one:

Contrastive items	Master wired controller	Slave wired controller
Function	All of functions	Only with below functions: ON/OFF, MODE, FAN SPEED, SET TEMP., SWING

2. Function difference between simple wired controller and the standard one:

Contrastive item	Standard wired controller	Simple wired controller
Function	With all functions	Only can control ON/OFF, MODE, FAN, TEMP., SWING.
Master/Slave selection	Can be either of Master and Slave controller	Only can be Master controller

3. Wiring connections of wired controller:



There are three methods to connection wired controller and the indoor units:

- A. One wired controller can control max. up to 16 sets of indoor units, and 3 pieces of polar wire must connect the wired controller and the master unit (the indoor unit connected with wired controller directly), the others connect with the master unit through 2 pieces of polar wire.
- B. One wired controller controls one indoor unit, and the indoor unit connects with the wired controller through 3 pieces of polar wire.
- C. Two wired controllers control one indoor unit. The wired controller

connected with indoor unit is called master one, the other is called slave one. Master wired controller and indoor unit; master and slave wired controllers are all connected through 3 pieces of polar wire.

3. Communication wiring:

The wired controller is equipped with special communication wiring in the accessories. 3-core terminal (1-white 2-yellow 3-red) is connected with the terminal A、B、C of wired controller respectively.

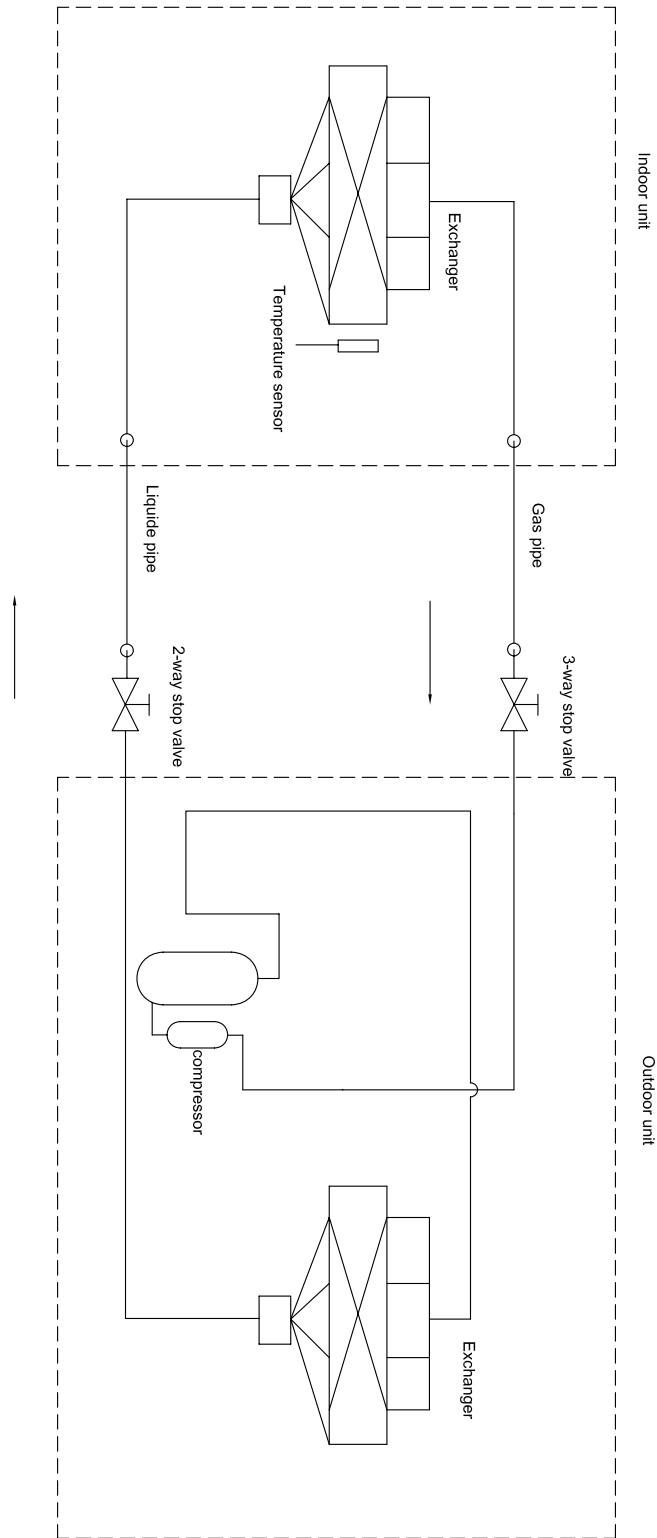
The communication wiring is 4 meter long; if the actual length is more than it, please distribute wiring according to below table:

Communication wiring length (m)	Dimensions of wiring
<100	0.3mm ² X3-core shielded wire
≥100 and <200	0.5mm ² X3-core shielded wire
≥200 and <300	0.75mm ² X3-core shielded wire
≥300 and <400	1.25mm ² X3-core shielded wire
≥400 and <600	2mm ² X3-core shielded wire

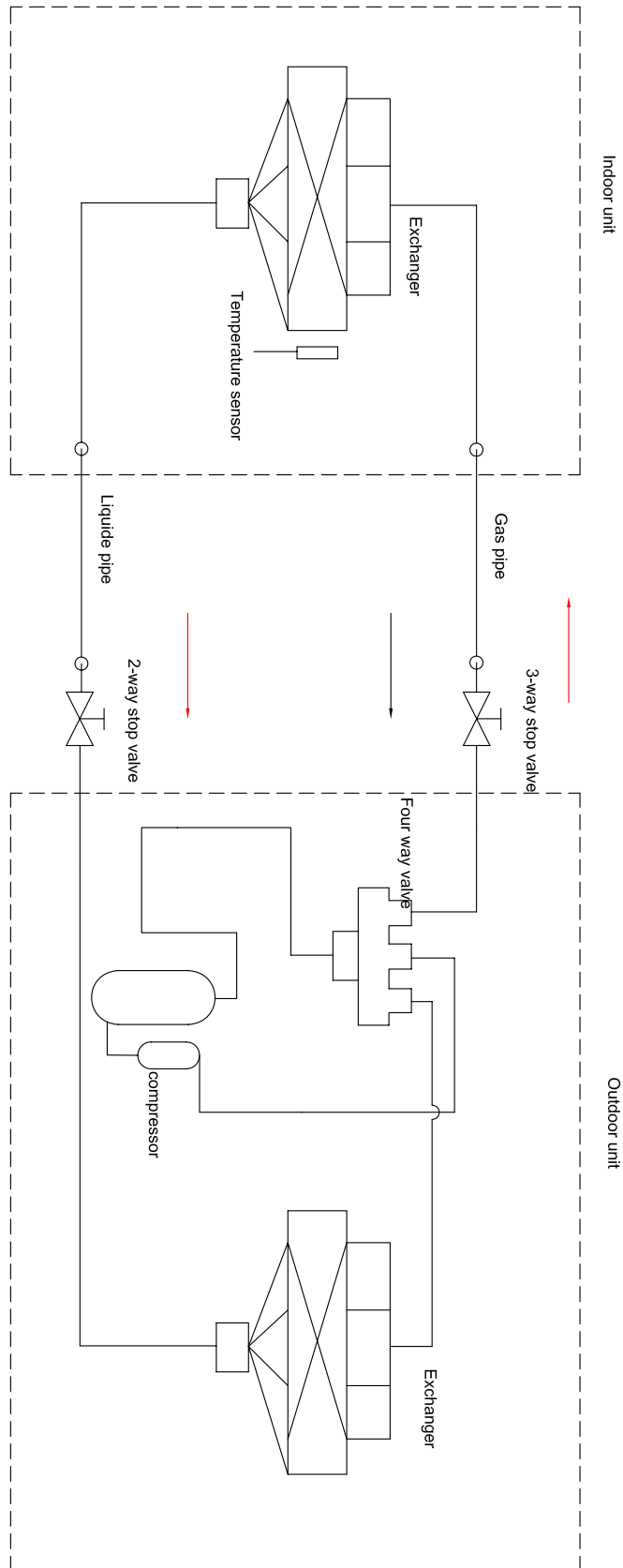
※ One side of the shielded sheet of communication wire must be earthed.

8. Refrigerant Diagram

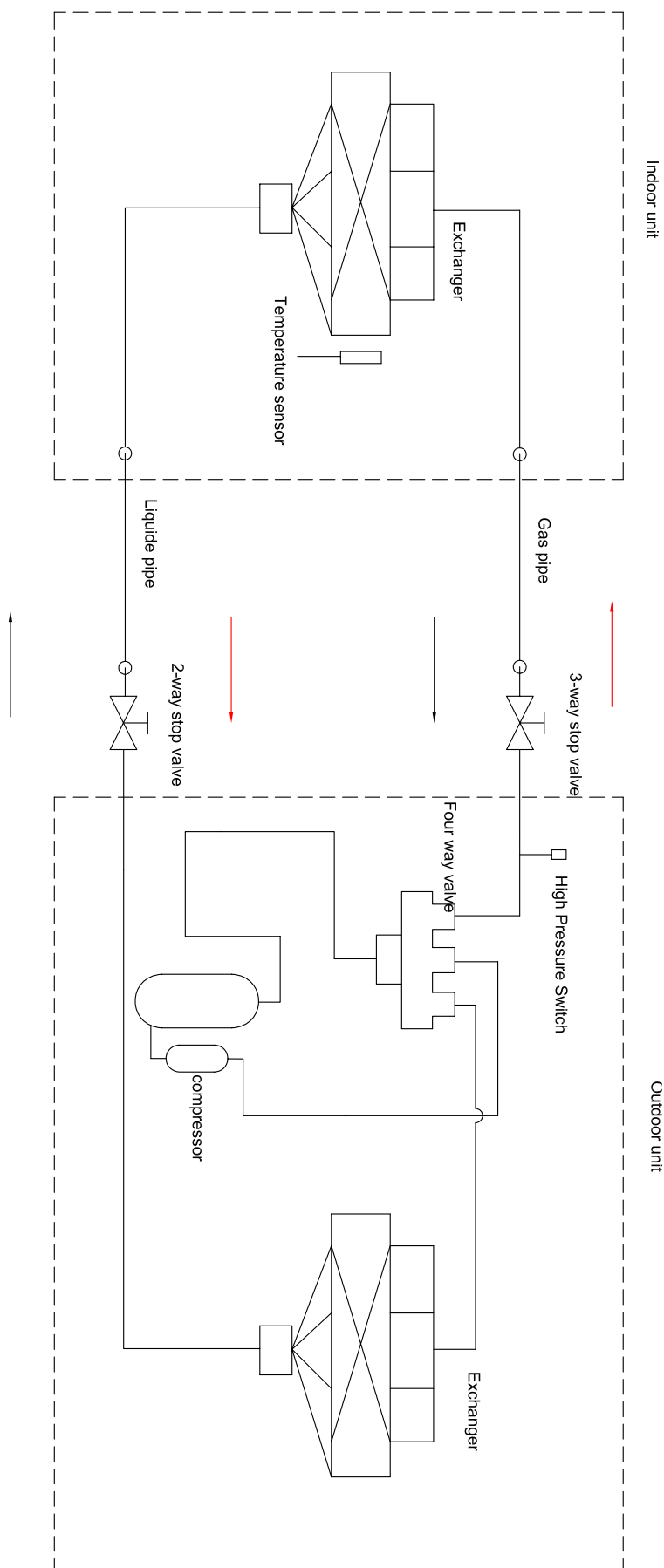
HCFU-18/28CF03



HCFU-18HF03



HCFU-28HF03



9 ELECTRICAL CONTROL FUNCTIONS

9.1 Control Features

The brief introduction includes those for each item of various types of air conditioners and their electric control functions.

7.1 Brief introduction of electric control

(1) Automatic run

a. Cooling-heating type

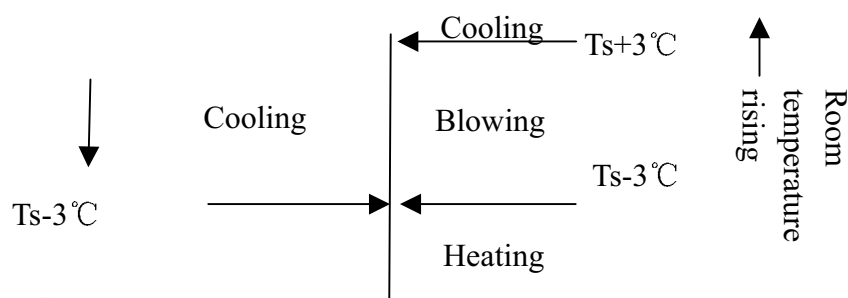
After the machine being started and running mode changes to AUTO, the system will decide running mode according to difference between the present room temperature and setting temperature, then runs as the decided mode. In the following selections, T_r means room temperature and T_s means setting temperature.

Select running mode according to the following conditions at the first time to enter Auto mode:

- $T_r \geq T_s - 3^\circ\text{C}$ to select cooling mode (with setting temperature being $T_s + 3$)
- $T_r < T_s - 3^\circ\text{C}$ to select heating mode (with setting temperature being T_s)

After the system entering auto run mode, the running mode can convert automatically according to variation of room temperature between cooling, blowing and heating in the way shown as the chart below:

Room temperature



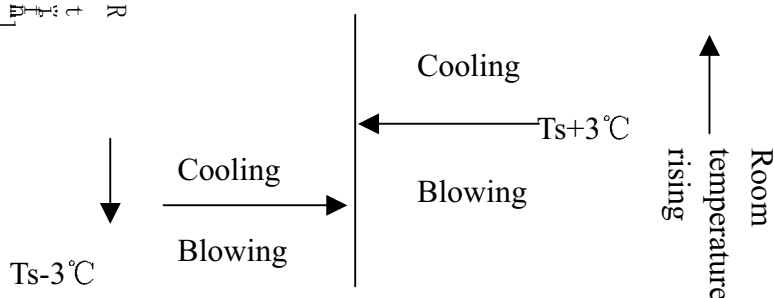
b. Single Cooling Type

Select running mode according to the following conditions at the first time to enter Auto mode:

- $T_r \geq T_s + 3^\circ\text{C}$ to select cooling mode
- $T_r < T_s + 3^\circ\text{C}$ to select blowing mode

After the system entering auto run, the running mode can convert automatically according to variation of room temperature between cooling and blowing functions in the way shown as the chart below:

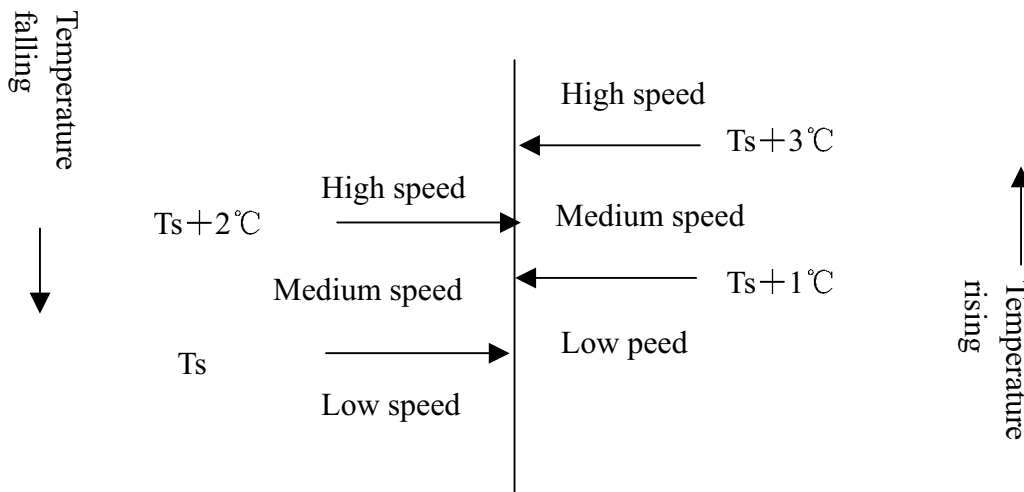
Room temperature



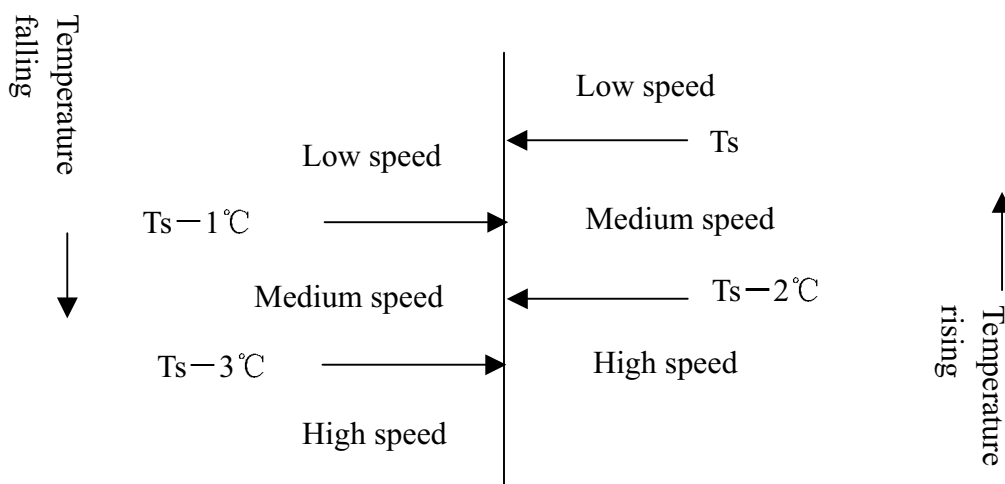
(2) Auto Selection of Wind Speed

In the following, T_r means room temperature while T_s means setting temperature.

a. During cooling program, conversion of wind speed from the low to high won't work until the present speed has continued for 3 minutes while conversion from the high to low needs no time delay. The chart below is the sketch map of conversion:



b. During heating program (applicable for cooling-heating type), conversion of wind speed from the low to high won't work until the present speed has continued for 3 minutes while conversion from the high to low needs no time delay. The chart below is the sketch map of conversion:



(3) Dehumidifying program

In the following, T_r means room temperature while T_s means setting temperature.

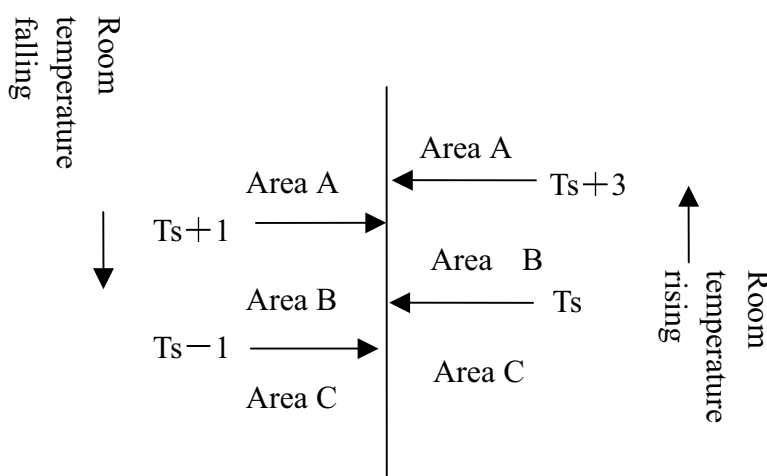
a. After the system entering dehumidifying program, the compressor, outdoor and indoor blowing fans run according to the following rules:

(1) $T_r > T_s + 2^\circ\text{C}$, the compressor and outdoor blowing fan run continuously while indoor

blowing fan runs at setting wind speed. This working area is defined as area A.

- (2) $T_s \leq T_r \leq T_s + 2^\circ\text{C}$, the compressor and outdoor blowing fan run for 10 minutes then pause for 6 minutes, while indoor blowing fan runs at low wind speed. This working area is defined as area B.
- (3) $T_r < T_s$, the compressor and outdoor blowing fan stop working while outdoor blowing fan runs at low wind speed. This working area is defined as area C.

a. After dehumidifying program starting, the system converts between A, B and C areas according to variations of room temperature with running mode being shown as the chart below:



(4) Cutoff protection against overload and overheat

During heating program, if the indoor blowing fan has been started and the compressor has been running more than 2 minutes, and the **temperature of indoor coil pipe (Ticp)** $> 64^\circ\text{C}$, the outdoor blowing fan will stop running; If $Ticp \leq 50^\circ\text{C}$ and the outdoor blowing fan has kept stop state for 45 seconds, then it will restore rotation; If $Ticp > 67^\circ\text{C}$ and such temperature has last for 10 seconds, the compressor will stop running and indoor blowing fan run according to conditions as it reaches setting temperature. When $Ticp < 58^\circ\text{C}$, and the compressor has kept stop state over 3 minutes, then the compressor and outdoor blowing fan will restore normal running.

Cutoff protection for heating current

After 60 seconds from the compressor being started, if CT current exceeds I1 (9.2A) and such case has kept 5 seconds, the outdoor blowing fan will stop. If 45 seconds has passed after the outdoor blowing stops and the current of the compressor is less than I2 (7.5A), the blowing fan will restore running. If CT current exceeds I3 (14.3A) and such case lasts for 3 seconds, the compressor and outdoor blowing fan will stop. The compressor will not restore running until 3 minutes passes with CT current less than 12A.

(5) Cool wind prevention during heating program

At the first time entering heating program or after ending the latest frost removal, if the **temperature of indoor coil pipe (Ticp)** $< 28^\circ\text{C}$, the indoor blowing fan will stop running; If $28^\circ\text{C} \leq Ticp < 38^\circ\text{C}$, the indoor blowing fan will run at low speed; If $Ticp > 38^\circ\text{C}$ or the compressor has been running for more than 4 minutes, the indoor blowing fan will run at

setting wind speed.

(6) Afterheat blowing during heating program

During heating program, the compressor will stop running (except overheat protection or frost removal) while the indoor blowing fan will firstly run for 50 seconds at low speed then stop.

(7) Frost removal control (applicable for cooling-heating type)

(1) Starting conditions for frost removal:

- A. The indoor unit is in overload protection and outdoor blowing fan stops. The outdoor blowing fan does not enter overheat mode in 10 minutes after it is restarted, the compressor has run over 45 minutes totally while 20 minutes continuously, and the temperature of indoor coil pipe is lower than 43°C;
- B. After the compressor continuously running for 20 minutes, the temperature of indoor coil pipe falls 1°C every 6 minutes and such case continuously appears three times, and the temperature of indoor coil pipe is less than 40°C, and 5 minutes have passed after the compressor is restarted;
- C. The compressor has run totally over 3 hours while 20 minutes continuously, and the temperature of indoor coil pipe is less than 40°C;
- D. The difference between room temperature and the one of indoor coil pipe is less than 16°C and the compressor has totally run over 45 minutes while 20 minutes continuously;

Frost removal will start if any one of the above conditions is satisfied.

(2) Ending conditions for frost removal:

- 1) Time of frost removal has exceeded 9 minutes;
- 2) CT current exceeds I4(8.2A);

(3) Actions of each load after the frost removal starts:

The compressor and outdoor blowing fan stop, and indoor blowing fan also stops. 55 seconds later the reversal valve is closed and next 5 seconds later the compressor is started.

(4) Actions of each load after the frost removal ends:

The compressor stops running while outdoor blowing fan immediately runs at high speed, 55 seconds later the reversal valve is opened and next 5 seconds later the compressor restores running and indoor blowing fan runs as conditions for cool wind prevention.

(8) Freeze protection

After the compressor has run for 9 minutes, the system will check **temperature of indoor coil pipe (Ticp)**. If Ticp is less than -1°C, the compressor and outdoor blowing fan will stop. They will run again after the compressor stops if both the following conditions are satisfied:

- 1) 3 minutes have passed since compressor stops.
- 2) Ticp exceeds 7°C.

(9) 3 minutes protection for compressor

After compressor stops, it cannot be started until 3 minutes later. During the machine's running, if time after losing power not exceeds 3 minutes, the compressor cannot be

restarted until 3 minutes later after it is reenergized.

(10) Power breakdown memory

If the machine suddenly loses power while running, or stops for maintenance or trouble shooting, it will restart running as the status when it stops after the power is restored.

Note: 1. Function setting: Continuously press sleep button on the remote controller 10 times in 5 seconds and buzzer on control panel shall beep 4 times.

2. Memory content: Running mode, wind speed setting, temperature setting, swing status.

3. Cancel: Press sleep button on the remote controller 10 times and buzzer on control panel beeps 2 times.

(11) Control of water pump

a. In cooling (including automatic cooling mode) and dehumidifying modes, the water pump works if the compressor runs while stops 5 minutes later after the compressor stops.

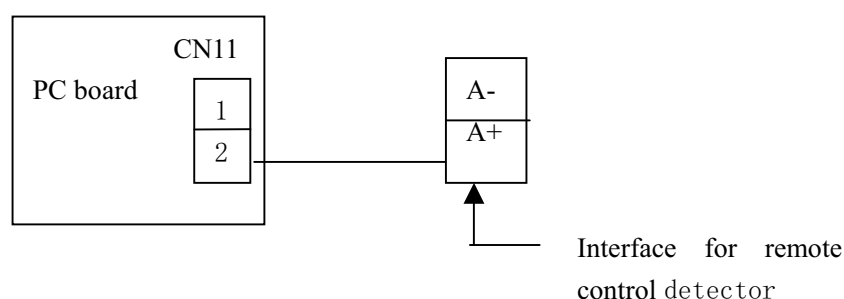
b. When water tank is fully filled, the float switch will be off. The water pump will start to work after a controller has detected this signal and it will continue working for 5 minutes after the float restores to normal state.

c. If the full water signal is detected continuously over 5 minutes, the water pump indicator lamp will flash to alarm and compressor stops running. The water pump will run 5 minutes, then pause for 5 seconds before next 5 minutes' running, ... until the float restores to normal state, after which the pump will run for 5 minutes then stop.

(12) Monitoring of remote network

Through preset interface, the air conditioner is connected to remote control detector (made by Haier) with 2-core cables for wire communication, to execute instructions sent from computer or centralized controller via remote control detector and meanwhile send present running status and trouble information of the machine to remote control detector.

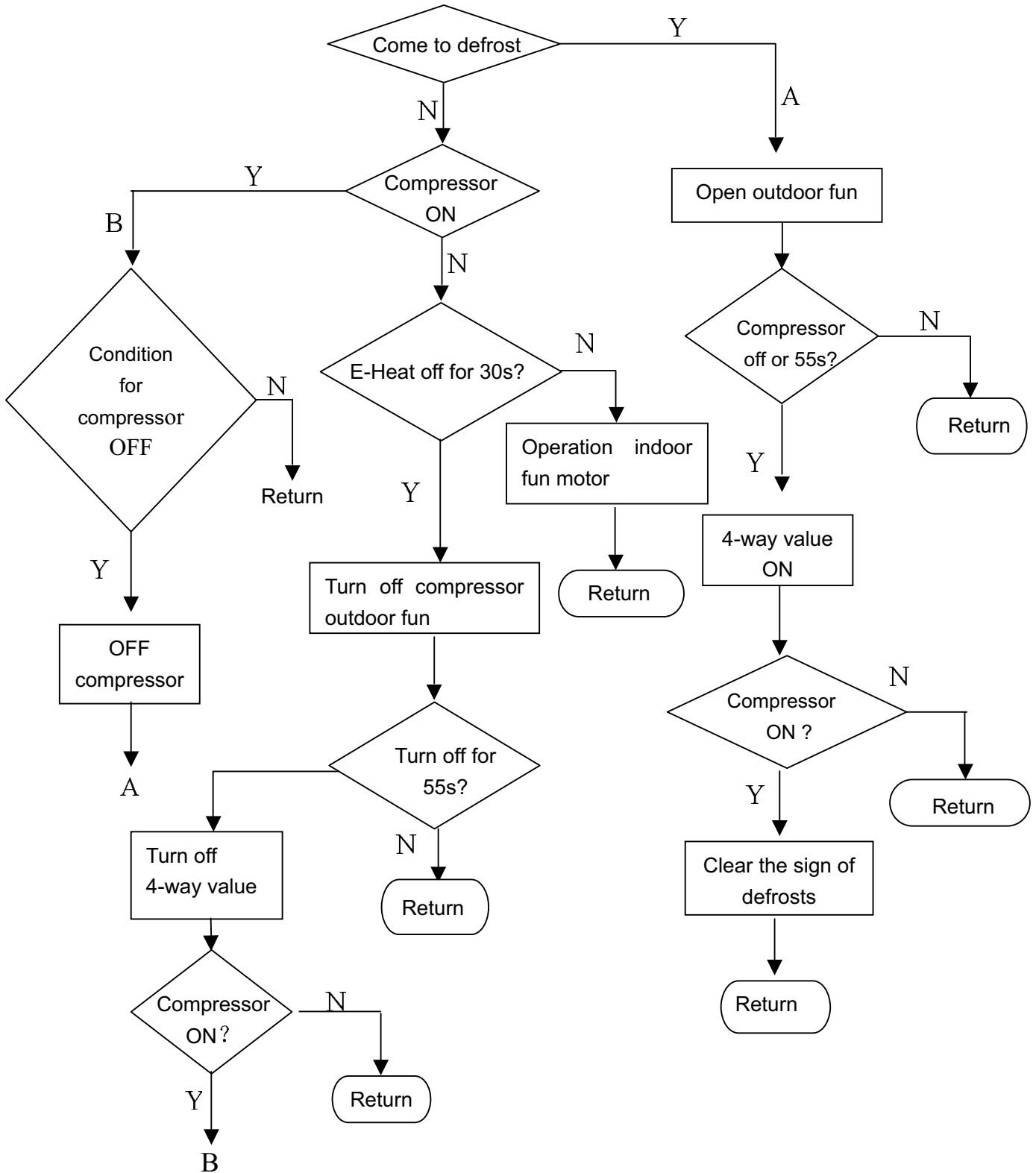
Connection between air conditioner and remote control detector:



(13) Trial run

Under shut-down state, hold pressing mandatory button. The buzzer will beep once, then twice after 5 seconds. Release the button to enter mandatory cooling mode, under which the indoor blowing fan runs at high speed with both the compressor and outdoor blowing fan working. Press the mandatory button again can end the mandatory mode.

9.2 Defrost operation flow chart



10. Diagnostic information (troubleshooting)

10.1 System failure

If the refrigerant in the system cannot flow fluently or the airflow circles more slowly, please check due to the following procedures.

Cooling:

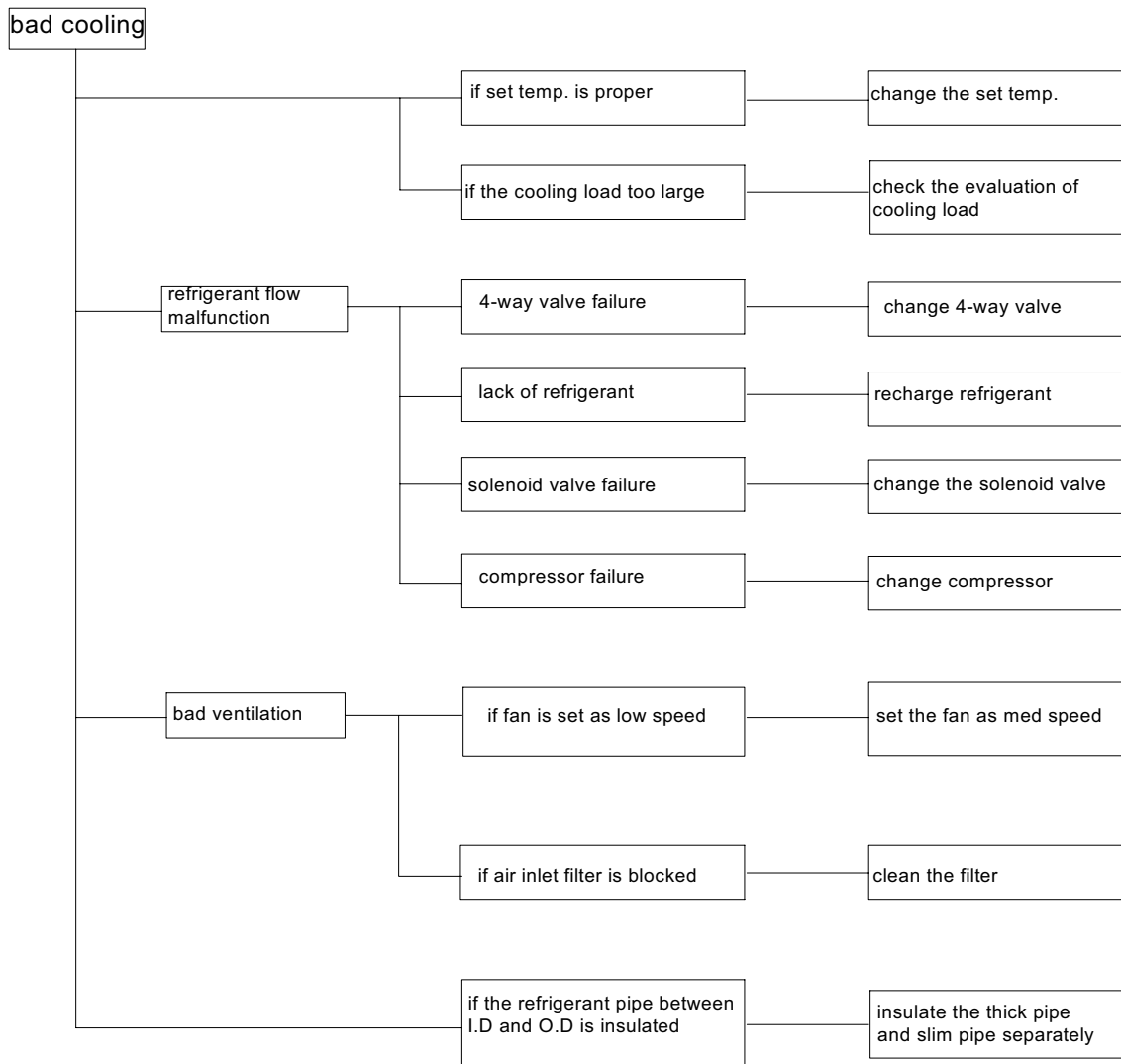


Figure 1

10.2 Failure code

The remote receiver, wired controller and indoor PCB indicator all can indicate the failure code.

Failure code with wired controller YR-E12:

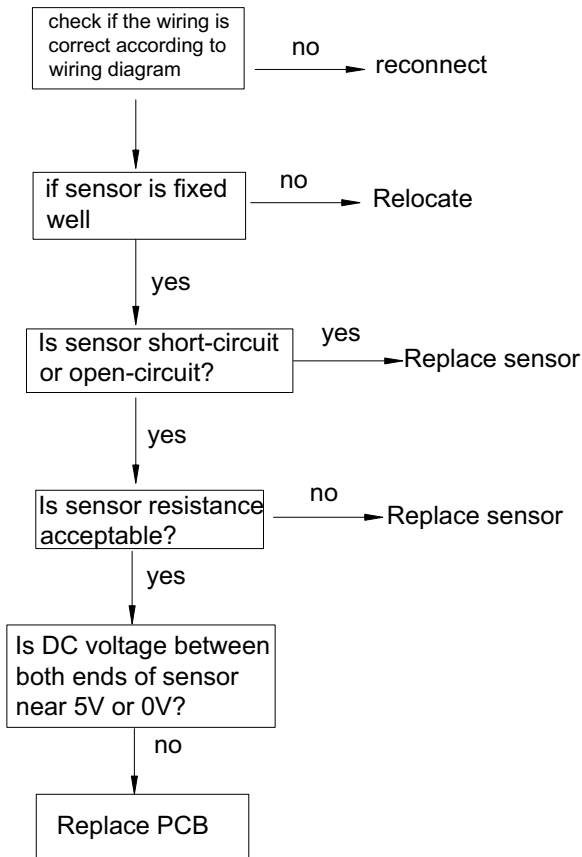
For remote type, flash times	Failure code on wired controller	For central control, failure code	Failure description	Reason
10	08	21	Drainage system failure	Float switch broken down for more than 25m continuously
1	01	01	Indoor ambient temp. sensor failure	sensor broken down or short circuit for more than 2m continuously
2	02	02	Indoor coil temp. sensor failure	sensor broken down or short circuit for more than 2m continuously
3	4A	11	Outdoor ambient temp. sensor failure	sensor broken down or short circuit for more than 2m continuously
4	49	12	Outdoor coil temp. sensor failure (compressor discharging temp. sensor)	Sensor broken down or short circuit for more than 2m continuously
5	48	10	Over-current protection	CT check abnormal 3 times in 30m
6	53	14	High pressure abnormal	High pressure switch acts 3 times in 30m
8	07	06	Communication between wired controller and indoor abnormal	Communication abnormal for more than 4m continuously
9	06	05	Communication between indoor and outdoor abnormal	Communication abnormal for more than 4m continuously
11	0B	30	Outside alarm signal input	Outside signal broken down for more than 10s
12	03	20	Gas pipe temp. sensor abnormal	Sensor broken down or short circuit for more than 2m continuously
13	0D	31	Solenoid valve abnormal	Solenoid valve act incorrectly 3 times continuously
15	05	17	EEPROM abnormal	EEPROM data missing
16	54	26D	Outdoor pressure switch or discharging protector abnormal	Pressure switch or discharging protector disconnected; or CN11 on indoor PCB disconnected. The failure occurs only when there is no outdoor PCB.

For HCFU-18

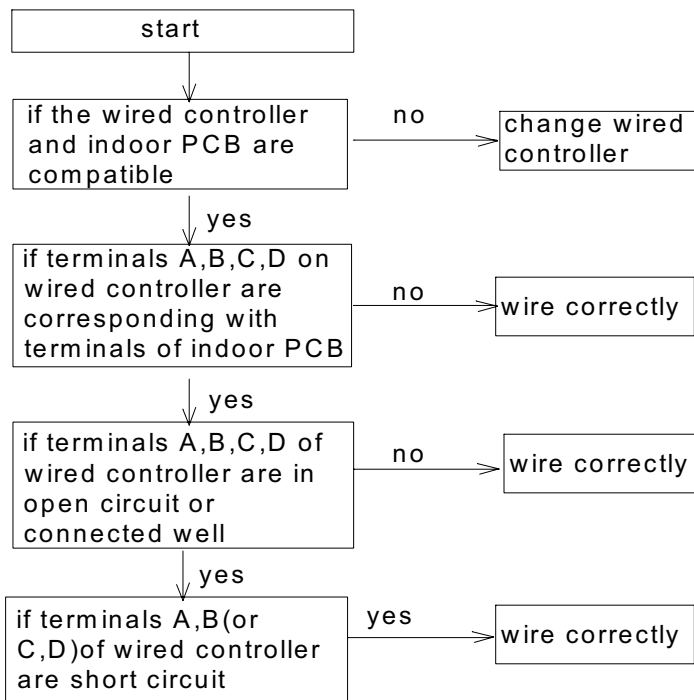
No.	Failure description	flash times
1	Indoor ambient temp. sensor failure	1
2	Indoor coil temp. sensor failure	2
3	Over-current protection	5

10.3 Diagnose and troubleshooting:

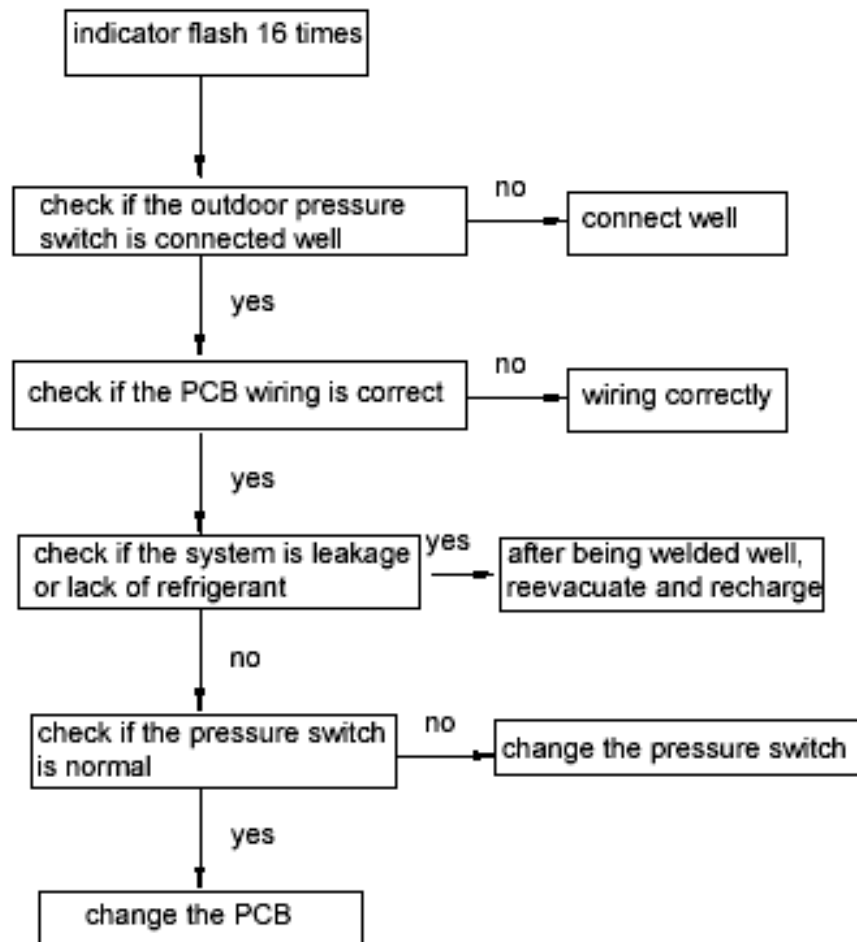
1) Sensor failure



2) Communication failure between operation panel and indoor unit



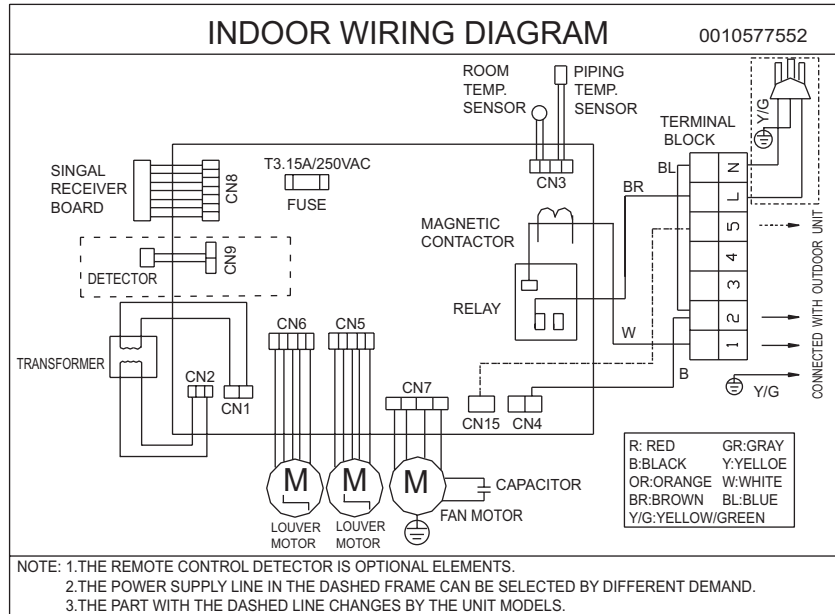
3) Low pressure abnormal



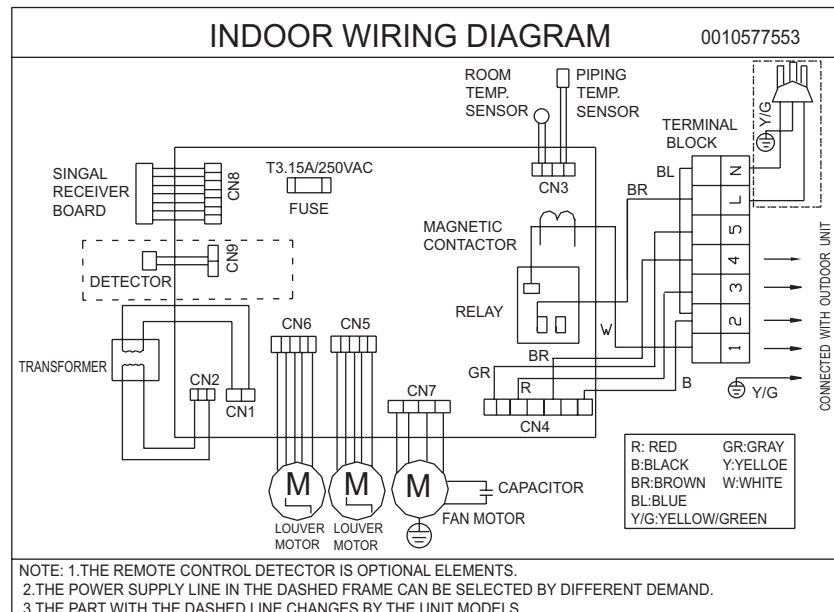
11. Electric data

11.1 Wiring diagram

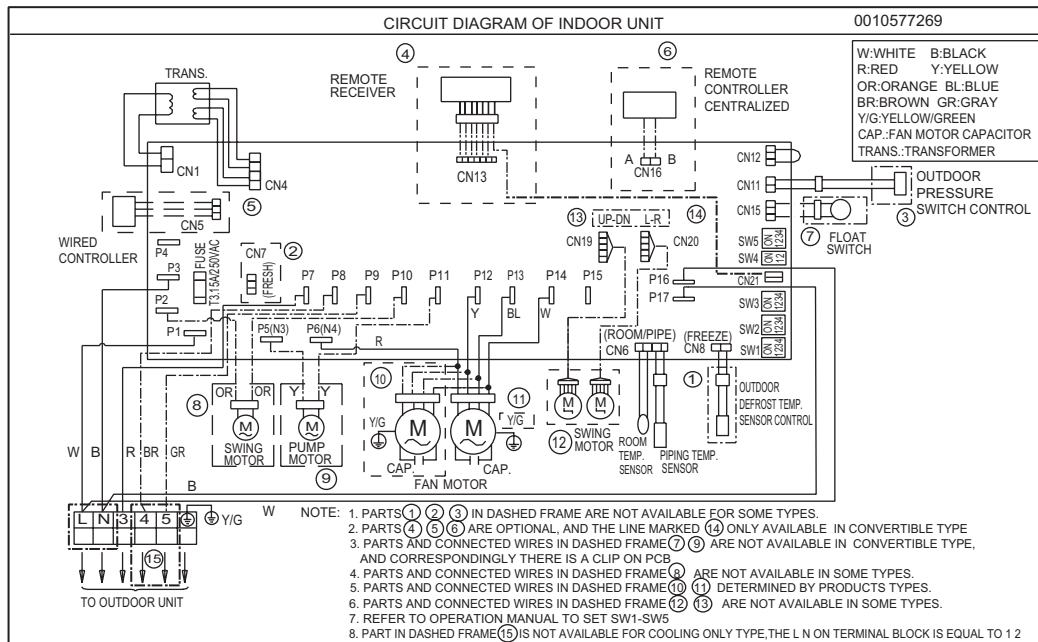
HCFU-18CF03



HCFU-18HF03

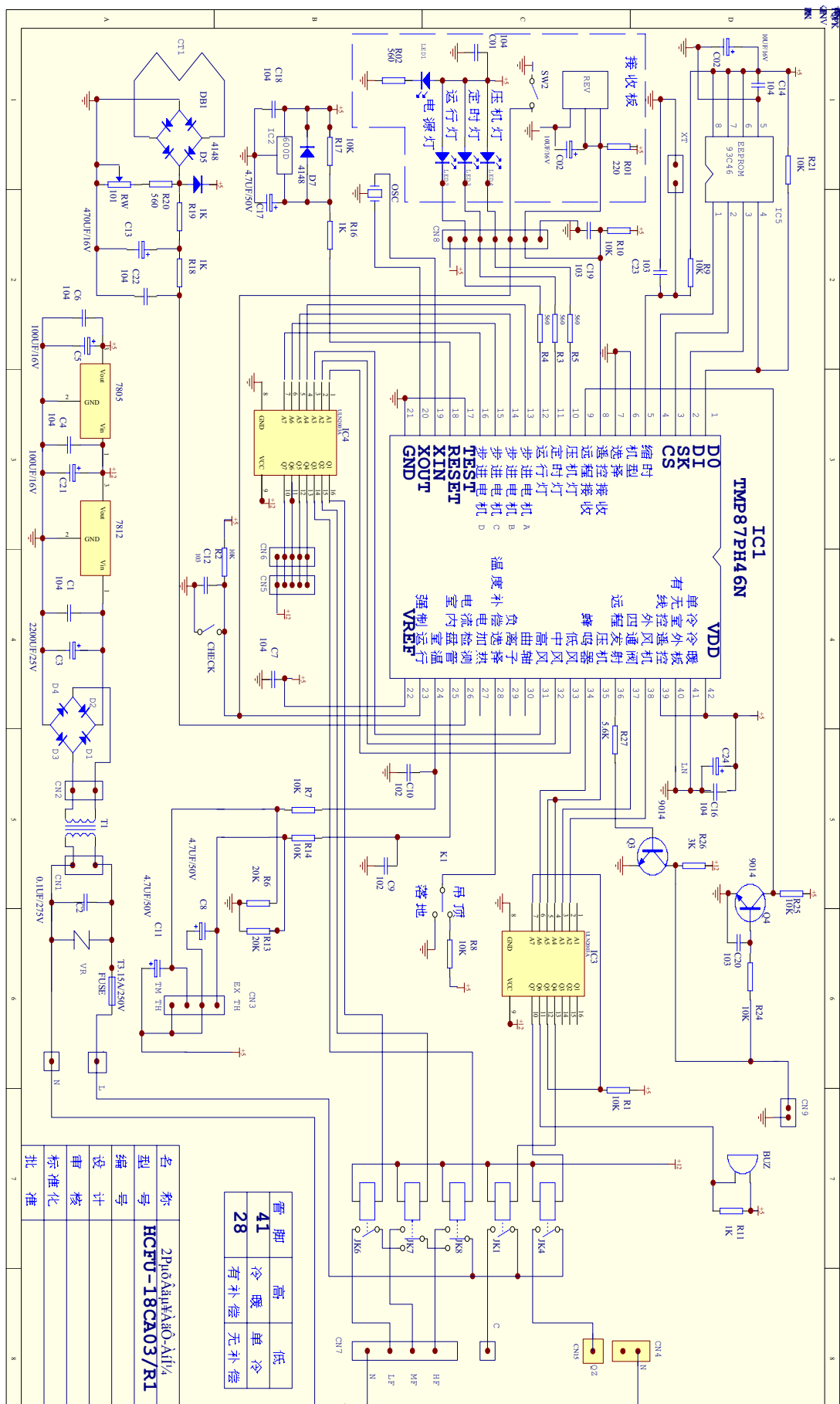


HCFU-28CF03 HCFU-28HF03



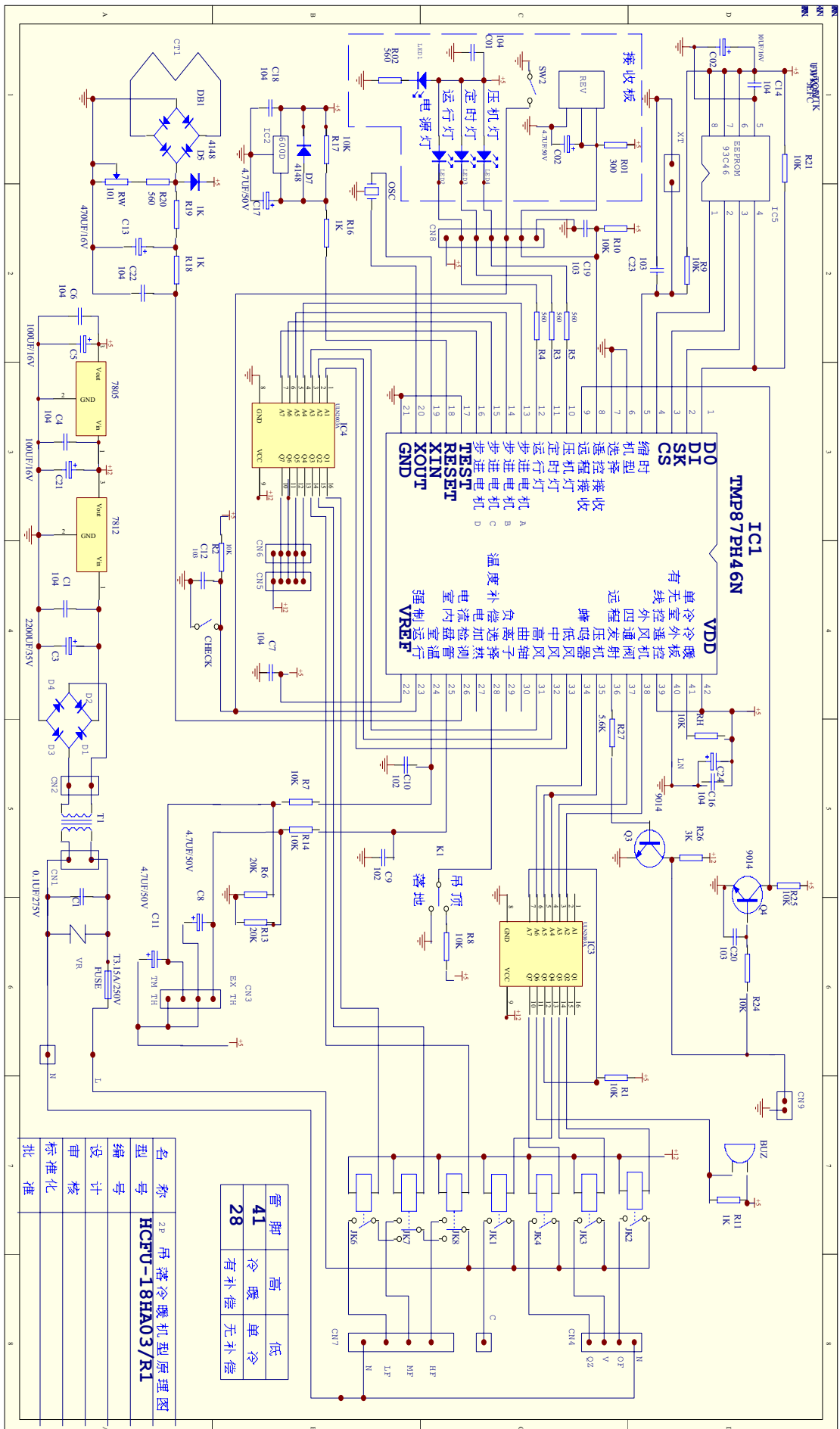
11.2 Circuit diagram and printed diagram

HCFU-18CF03



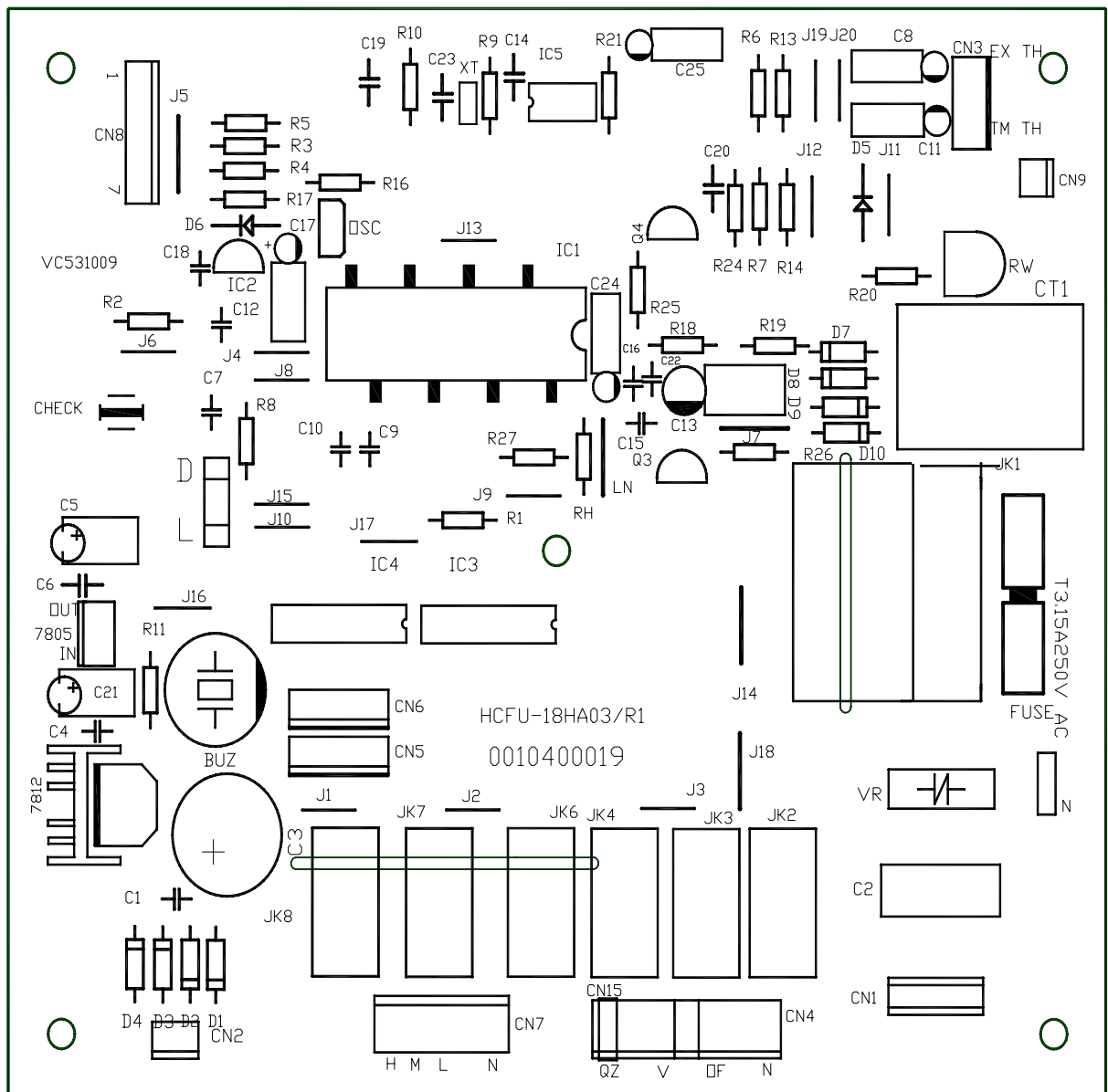
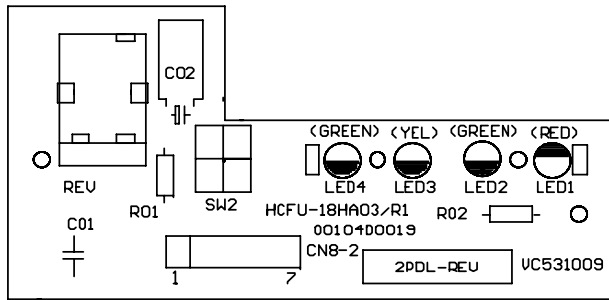
No.	Port	Function	0010400020 cooling only
0	Chip	TMP87PH46N	1CA2
1	CN1	Primary side of transformer RTB-1.5-2P	Without sequence
2	CN2	Second side of transformer B3B-XH	Without sequence
3	CN3	Sensor B4B-XH	1 2-TM 3 4-EX
4	CN4	Outdoor unit wire B2P3-VH	1 3-N OF
5	CN5	Swing motor B5B-XH	1-12VDC, 2~5-ABCD
6	CN6	Swing motor B5B-XH	1-12VDC, 2~5-ABCD
7	CN7	Indoor fan motor B4P5-VH	1 2 3 5-H M L N
8	CN8	Receiver – opposite to the sign B7B-XH	1-5VDC, ~, 7-GND
9	CN9	Long distance B2B-XH-H	1-COM, 2-GND
10	CN15	Crank -250	QZ
11	L	Live wire -250	Relay
12	N	Neutral wire -250	N
13	Fuze	T3.15A 250VAC	Have
14	R6 R13	RJ2002	R B B R BR
15	CT	R20 fan motor stop: 13.5A	—

HCFU-18HF03



名称	2P 吊塔冷暖机型原理图
型号	HCFU-18HA03/R1
编号	
设计	
审核	
标准化	
批准	

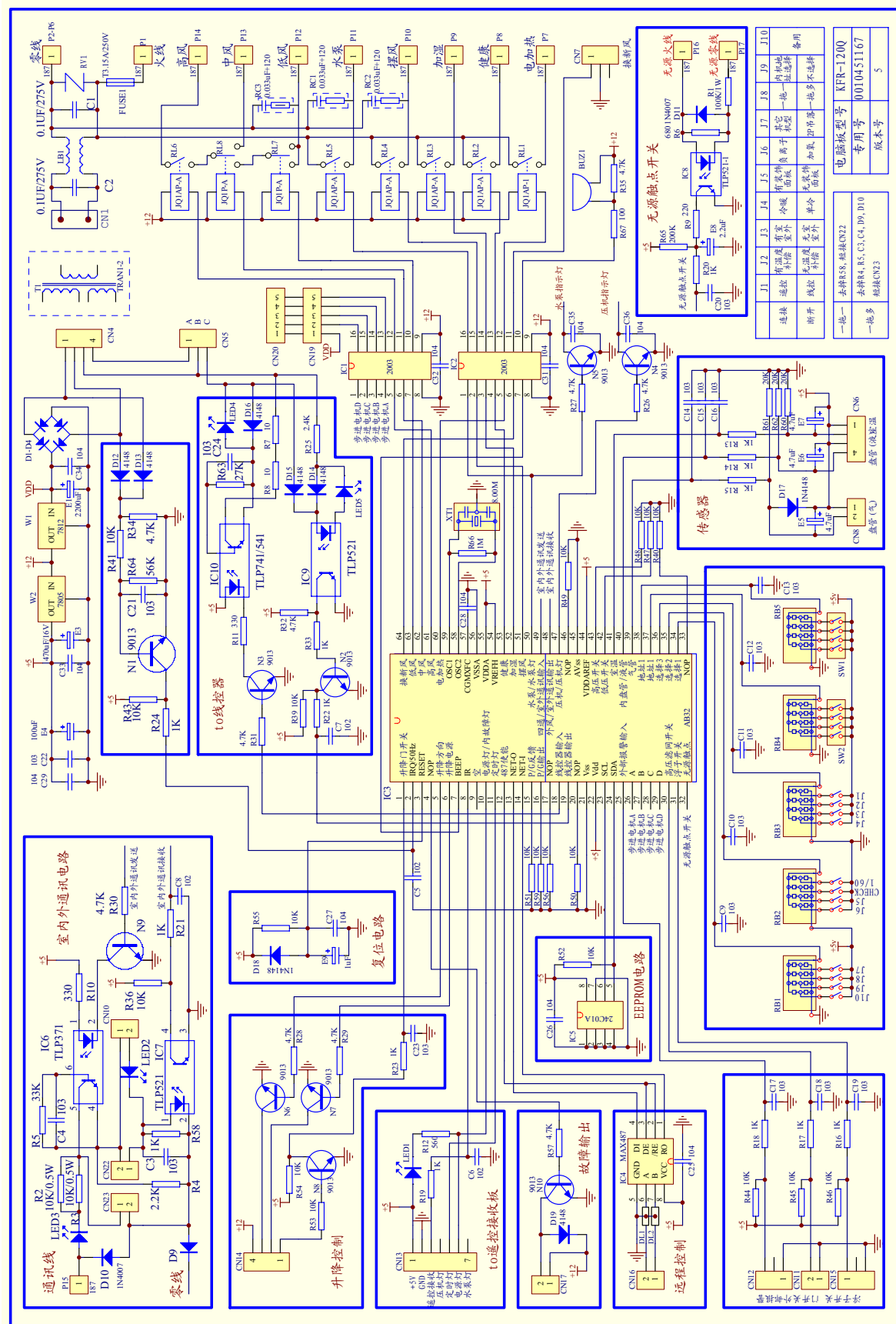
管脚	高	低
41	冷暖	单冷
28	有补偿	无补偿



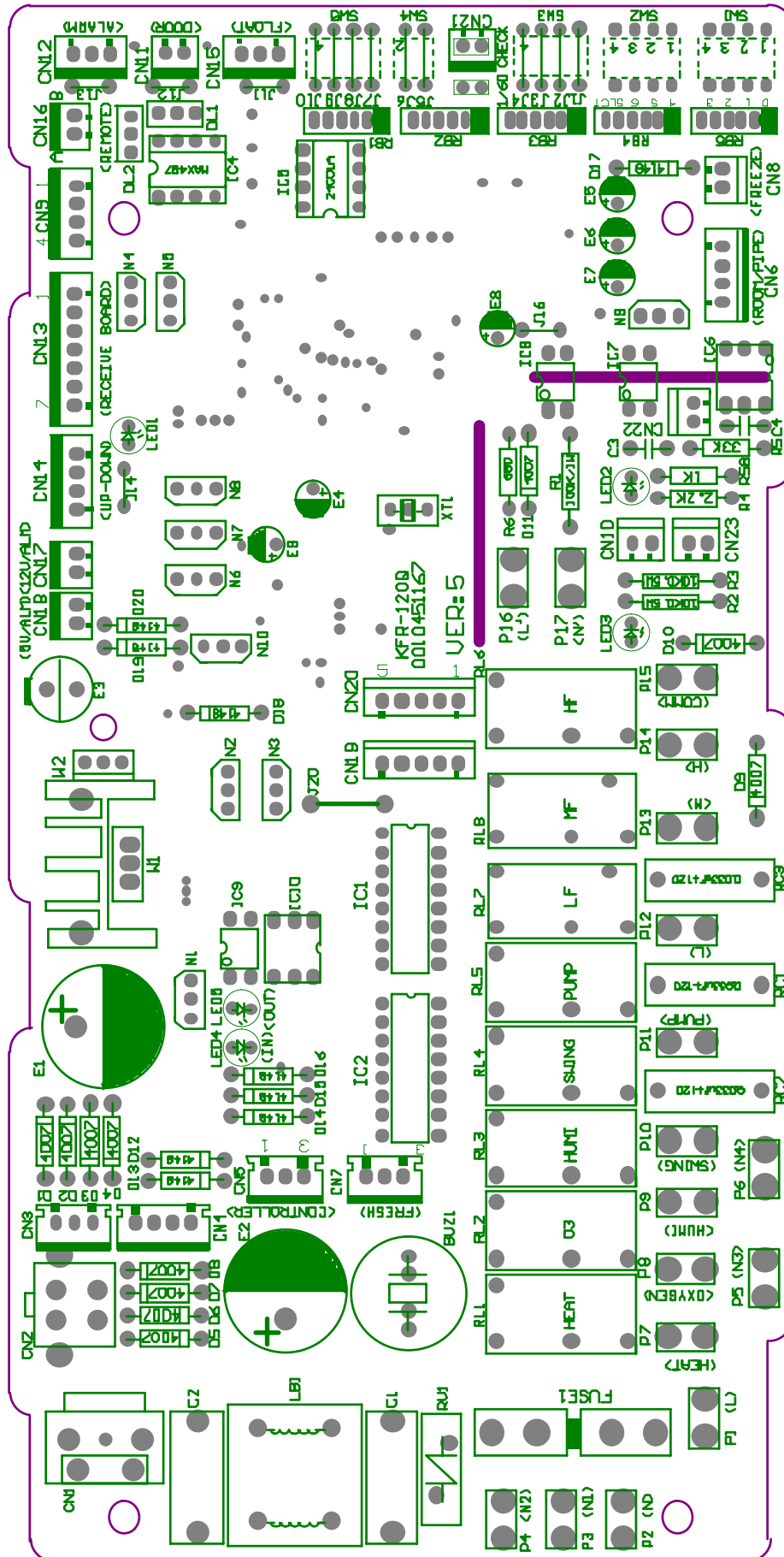
No.	Port	Function	0010400019 heat pump
0	Chip	TMP87PH46N	1CA2
1	CN1	Primary side of transformer RTB-1.5-2P	Without sequence
2	CN2	Second side of transformer B3B-XH	Without sequence
3	CN3	Sensor B4B-XH	1 2-TM 3 4-EX
4	CN4	Outdoor unit wire B4P7-VH	1 3 5 7-N OF V QZ
5	CN5	Swing motor B5B-XH	1-12VDC, 2~5-ABCD
6	CN6	Swing motor B5B-XH	1-12VDC, 2~5-ABCD
7	CN7	Indoor fan motor B4P5-VH	1 2 3 5-H M L N
8	CN8	Receiver – opposite to the sign B7B-XH	1-5VDC, ~, 7-GND
9	CN9	Long distance B2B-XH-H	1-COM, 2-GND
10	CN15	Crank - 250	QZ
11	L	Live wire -250	Relay
12	N	Neutral wire -250	N
13	Fuze	T3.15A 250VAC	Have
14	R6 R13	RJ2002	R B B R BR
15	CT	R20 fan motor stop: 13.5A	BR B B BR G

HCFU-28

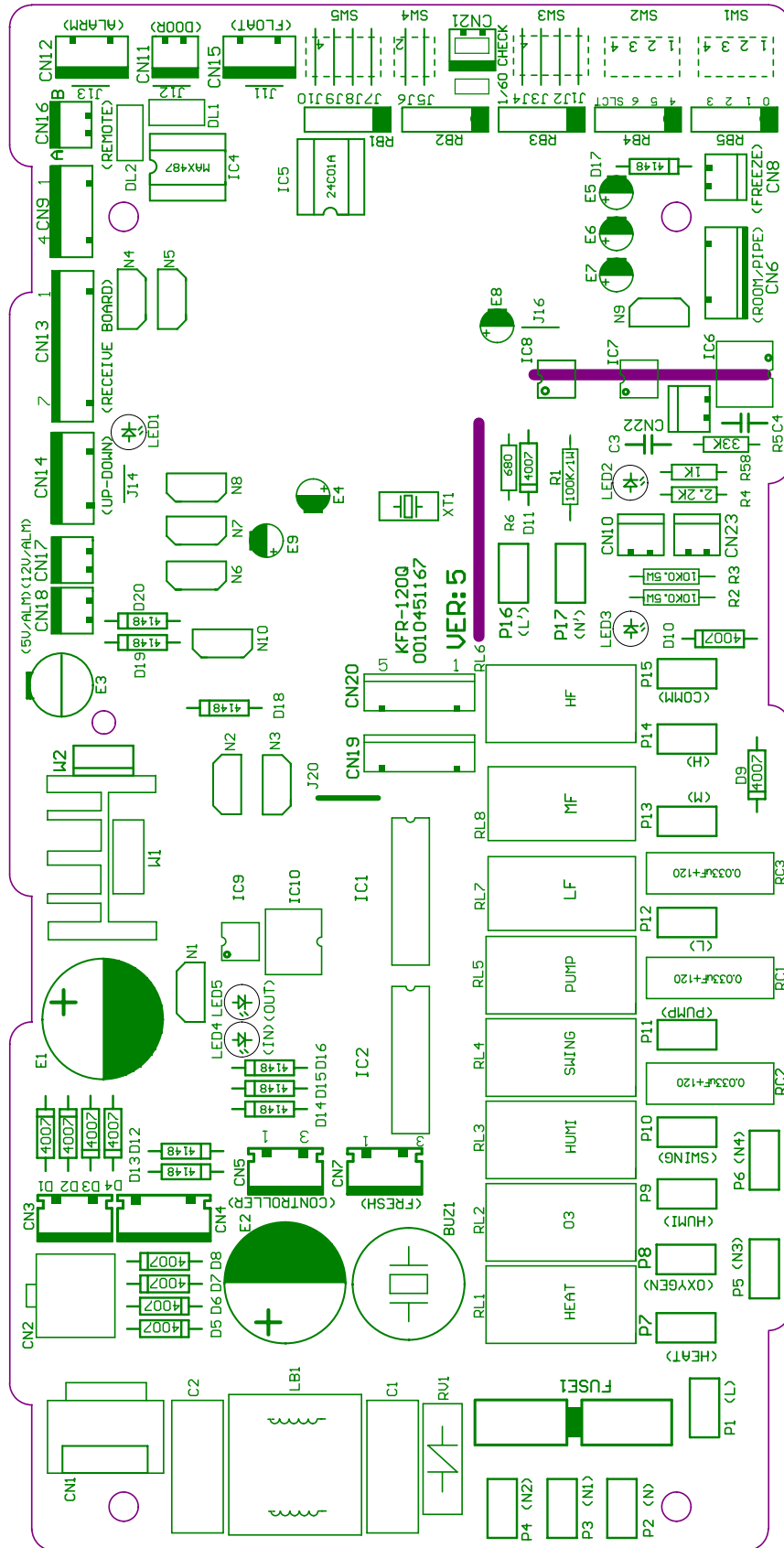
0010451167 PCB information circuit diagram



0010451167 PCB information characters on board (horizontal)



0010451167 characters on board (vertical)



Condition for the PCB data:

1. Working ambient temperature: $-10^{\circ}\text{C} \sim 70^{\circ}\text{C}$, relative humidity: 30%~95%
2. Preserved ambient temperature: $-20^{\circ}\text{C} \sim 80^{\circ}\text{C}$, relative humidity: 30%~95%
3. Power supply: 220VAC、50/60Hz, voltage range: 160V~250V
4. Precise of temperature control: $\pm 1^{\circ}\text{C}$

0010451167 PCB information – port and definition

- P1—connect to external power supply, live line: L (220VAC)
P2—connect to external power supply, neutral line: N (0VAC)
P3、4、5、6—control external load, neutral line: N1、N2、N3、N4(0VAC)
P7—control external load, if there is outdoor PCB, electrical heat: HEAT (control output 220VAC); if there is not outdoor PCB, compressor control function(control output 220VAC).
P8—control external load, if there is outdoor PCB, health function: OXYGEN (control output 220VAC); if there is not outdoor PCB, 4-way valve control(control output 220VAC).
P9—control external load, if there is outdoor PCB, humidification: HUMI (control output 220VAC); if there is not outdoor PCB, outdoor fan motor control(control output 220VAC).
P10—control external load, SWING(control output 220VAC)
P11—control external load, WATER PUMP(control output 220VAC)
P12—control external load, indoor fan motor low speed: L(control output 220VAC)
P13—control external load, indoor fan motor mid speed: M(control output 220VAC)
P14—control external load, indoor fan motor high speed: H(control output 220VAC)
P15—communication with fixed frequency single outdoor unit: COMM(0~220VAC)
P16—input control, signal live line: L'(220VAC)
P17—input control, signal neutral line: N'(0VAC)
CN1—input port of transformer (220VAC)
CN2—input port 1 of transformer (no use)
CN3—input port 2 of transformer (no use)
CN4—input port 3 of transformer (1-2、14VAC, 3-4、12VAC)
CN5—input control, connecting port to wired controller: CONTROLLER (three bits: 1. power supply: 12VAC, 2. power supply: 0VAC, 3. communication: COMM.) .
CN6—input control, ambient temp.-coil temp. sensor connecting port: ROOM/PIPE (1-2, ROOM, 3-4, PIPE.)
Indoor ambient temp. sensor: $R_{25}=23\text{K}\Omega \pm 2.5\%$, $B_{25/50}=4200\text{K} \pm 3\%$, range: (-40, 80)
Indoor coil temp. sensor: $R_{25}=10\text{K}\Omega \pm 3\%$, $B_{25/50}=3700\text{K} \pm 3\%$, range: (-20, 90)
CN7—control external load, fresh air control: FRESH (1. blank, 2. power supply 0VDC, 3. control output: 12VDC.)
CN8—input signal: FREEZE
CN9—input control (no use)
CN10—communication with fixed frequency single outdoor unit: (0~12VDC)
CN11—input signal, outdoor pressure switch control function (for the unit without outdoor PCB)
CN12—input signal, external alarm input: ALARM (1-3 short circuit is normal, if cut off, air conditioner stops work.)
CN13—input signal, wiring port of remote receiver board: RECEIVE BOARD (1. power supply 5VDC, 2. power supply 0VDC, 3. remote signal, 4. signal output of running lamp 0VDC, 5. signal output of timer

lamp 0VDC, 6. signal output of power lamp 0VDC, 7. signal output of water pump running lamp 0VDC)

CN14—control external load, auto elevating function (1. signal of door switch close, 2. output of elevating direction control 0VDC, 3. output of elevating power control 0VDC, 4. power supply 12VDC)

CN15—input signal, detecting water level of float switch (1-3 short circuit is normal, cut off shows that level exceeds the limitation). If float switch cuts off or occurs other failure, LED1 will flash 10 times.

CN16—input control, wiring port of central controller: REMOTE (1、RS485-B, 2、RS485-A.)

CN17—output signal, output signal of failure alarm, control external load, 12V/ALM (1. control output 0VDC, 2. power supply 12VDC)

CN18—output signal (no use)

CN19—control external load, swing 1 (1、16VDC, 2、0VDC, 3、0VDC, 4、0VDC, 5、0VDC.)

CN20—control external load, swing 2 (1、16VDC, 2、0VDC, 3、0VDC, 4、0VDC, 5、0VDC.)

CN21—input signal, spring switch, CHECK (1、input signal of earthing, 2. power supply 0VDC)

CN22—short circuit means selecting single split communication type.

CN23—short circuit means selecting multi split communication type.

0010451167 PCB information – function selection (ON is 1, OFF is 0)

The standard condition for PCB in factory

SW1: 4 bits are OFF

SW2: 4 bits are OFF

SW3: 4 bits are ON

SW4: 2 bits are ON

SW5: 4 bits are ON

SW1-SW2: used for indoor unit to set unit address from 1 to 16'

SW3-SW5: used for indoor unit to select different functions.(every dip switches are corresponding to J1-J10.

SW2-4——logistic relationship of control function (door card control and remote/ wired control) 0 means logistic relationship is “and”, 1 means the later coming is preferential.

J1, SW3-1——function selection-control type: 1 means remote control, 0 means wired control.

J2, SW3-2——function selection-temperature compensation in heating mode: 1 means “yes”, 0 means “no”.

J3, SW3-3——function selection-outdoor communication: 1 means “yes”, 0 means “no”. This PCB must be 1.

J4, SW3-4——function selection-heat pump unit: 1 means “heat pump”, 0 means “cooling only”.

1/60——test in short circuit, but in operation short circuit mustn't be permitted.

CHECK——short spring switch control, it also can be used as switch of convertible type except for testing.

J5, SW4-1——function selection-outdoor pressure switch control function(if outdoor is without PCB): 1 means the pressure switch is invalid, 0 means the pressure switch is valid.

J6, SW4-2——function selection –outdoor defrosting temp. sensor control function(when outdoor is without PCB): 1 means outdoor defrost temp. sensor is invalid; 0 means outdoor defrost temp. sensor is valid.

J7, SW5-1——function selection –swing mode: 1 means common (simultaneous motor) , 0 means special (swing motor).

J8, SW5-2——function selection – system combination: 1 means fixed frequency single unit, 0 means fixed frequency multi split.

J9, SW5-3——function selection –group control: 1 stands for the master unit (its address in wired controller is 0), 0 stands for the slave units (the address should be set by the dip switch, their addresses only can be in the range: 1~15)

J10, SW5-4——function selection –preset: 1 no meaning, 0 no meaning

0010451167 PCB information- control type

Control type selection between remote and wired: select by dip switch J1, SW3-1 (1 means remote control; 0 means wired control) .

For remote control type, please use remote controller, and a remote receiver is equipped with indoor unit.

Door card control: controls ON/OFF, the start up setting will comply with last time request memorized according to condition memorize function. Its difference with emergency switch of convertible type unit lies: the emergency switch control will perform in the condition: 24degrees, auto fan speed in auto mode.

The function combination between door card and remote/wired control type: select by dip switch: SW2-4 (0 means "and", 1 means later coming is preferential.)

Dip switch position in central control type: the addresses (SW1:1~4; SW2:1~4) of indoor units connected with central controller can not repeat. In principle, they should be in the order from small to big.

Wiring request in central control type: port A-B is connected with indoor port CN16 (A-B) through 2-core shield wire. Requirements:

1. Port A connects with port CN16 (A) of all indoor units.
2. Port B connects with port CN16 (B) of all indoor units.

LED in indoor PCB:

1. LED1: is the state lamp for remote receiver as well as failure lamp. If indoor unit is normal, LED1 is on, or if failure occurs, LED1 flashes regularly, and you can adjust failure type according to the flash times.
2. LED2: is used for multi split units as communication lamp. If communication between indoor and outdoor is normal, LED2 will be on.
3. LED3: is used for single split units as communication lamp. If communication between indoor and outdoor is normal, LED3 will be on.
4. LED4、LED5: is the lamp that shows the data receiving or sending between wired controller and PCB, If LED4、LED5 be on in turn, communication between wired controller and PCB is normal.

11.3 Sensor characteristic

Model	Name	Code	characteristic
HCFU-18CF03	Indoor ambient temp. sensor	001A3900005	R25=23KΩ±2.5% B25/50=4200K±3%
HCFU-18HF03			
	Indoor coil temp. sensor	001A3900006	R25=10KΩ±3% B25/50=3700K±3%
HCFU-28CF03	Indoor coil temp. sensor	001A3900006	R25=10KΩ±3% B25/50=3700K±3%
HCFU-28HF03			
	ambient temp. sensor	001A3900159	R25=23K Ω ± 2.5% B25/50=4200K ± 3%

R25=23K Ω ±2.5% B25/50=4200K±3%		R25=23K Ω ±2.5% B25/50=4200K±3%	
T(°C)	Rnom(KΩ)	2°C	74.67
-20°C	281.34	3°C	70.65
-19°C	263.56	4°C	66.88
-18°C	247.04	5°C	63.33
-17°C	231.66	6°C	60
-16°C	217.35	7°C	56.86
-15°C	204.02	8°C	53.91
-14°C	191.61	9°C	51.13
-13°C	180.04	10°C	48.51
-12°C	169.24	11°C	46.04
-11°C	159.17	12°C	43.72
-10°C	149.77	13°C	41.52
-9°C	140.99	14°C	39.45
-8°C	132.78	15°C	37.5
-7°C	125.11	16°C	35.66
-6°C	117.93	17°C	33.92
-5°C	111.22	18°C	32.27
-4°C	104.93	19°C	30.72
-3°C	99.04	20°C	29.25
-2°C	93.52	21°C	27.86
-1°C	88.35	22°C	26.54
0°C	83.5	23°C	25.3
1°C	78.94	24°C	24.12

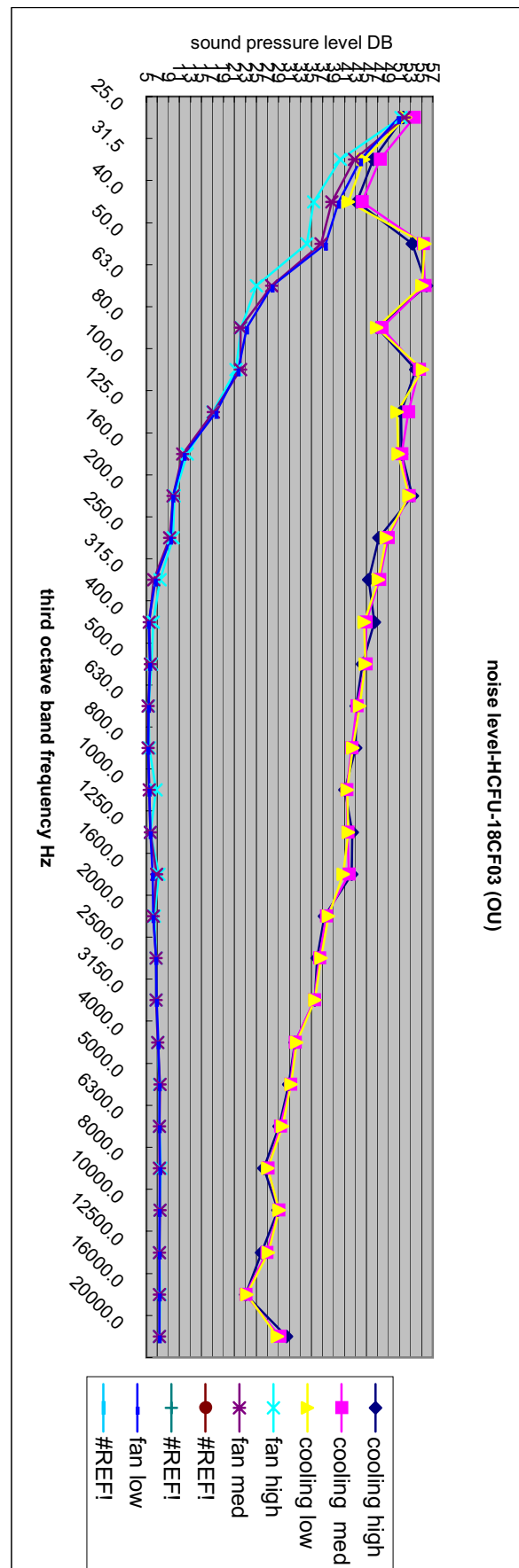
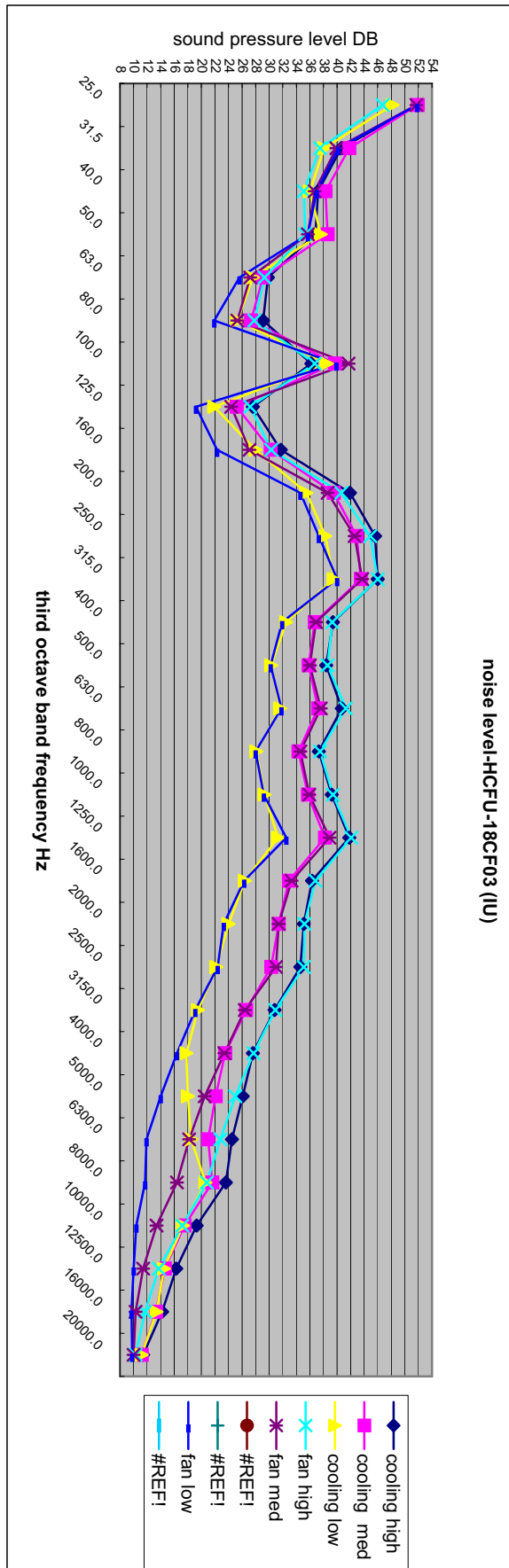
25°C	23	48°C	8.39
26°C	21.94	49°C	8.05
27°C	20.94	50°C	7.73
28°C	19.99	51°C	7.43
29°C	19.09	52°C	7.14
30°C	18.23	53°C	6.86
31°C	17.42	54°C	6.6
32°C	16.65	55°C	6.34
33°C	15.92	56°C	6.1
34°C	15.22	57°C	5.87
35°C	14.56	58°C	5.65
36°C	13.93	59°C	5.44
37°C	13.34	60°C	5.24
38°C	12.77		
39°C	12.23		
40°C	11.71		
41°C	11.22		
42°C	10.76		
43°C	10.31		
44°C	9.89		
45°C	9.49		
46°C	9.1		
47°C	8.74		

R25=10K Ω ±3% B25/50=3700K±3%		R25=10K Ω ±3% B25/50=3700K±3%	
T(°C)	Rnom(KΩ)		
-20°C	90.79	11	18.43
-19	85.72	12	17.61
-18	80.96	13	16.83
-17	76.51	14	16.09
-16	72.33	15	15.38
-15	68.41	16	14.71
-14	64.73	17	14.08
-13	61.27	18	13.48
-12	58.02	19	12.9
-11	54.97	20	12.36
-10	52.1	21	11.84
-9	49.4	22	11.34
-8	46.86	23	10.87
-7	44.46	24	10.43
-6	42.21	25	10
-5	40.08	26	9.59
-4	38.08	27	9.21
-3	36.19	28	8.84
-2	34.41	29	8.48
-1	32.73	30	8.15
0	31.14	31	7.83
1	29.64	32	7.52
2	28.22	33	7.23
3	26.4	34	6.95
4	25.61	35	6.68
5	24.41	36	6.43
6	23.27	37	6.18
7	22.2	38	5.95
8	21.18	39	5.73
9	20.21	40	5.52
10	19.3	41	5.32
		42	5.12

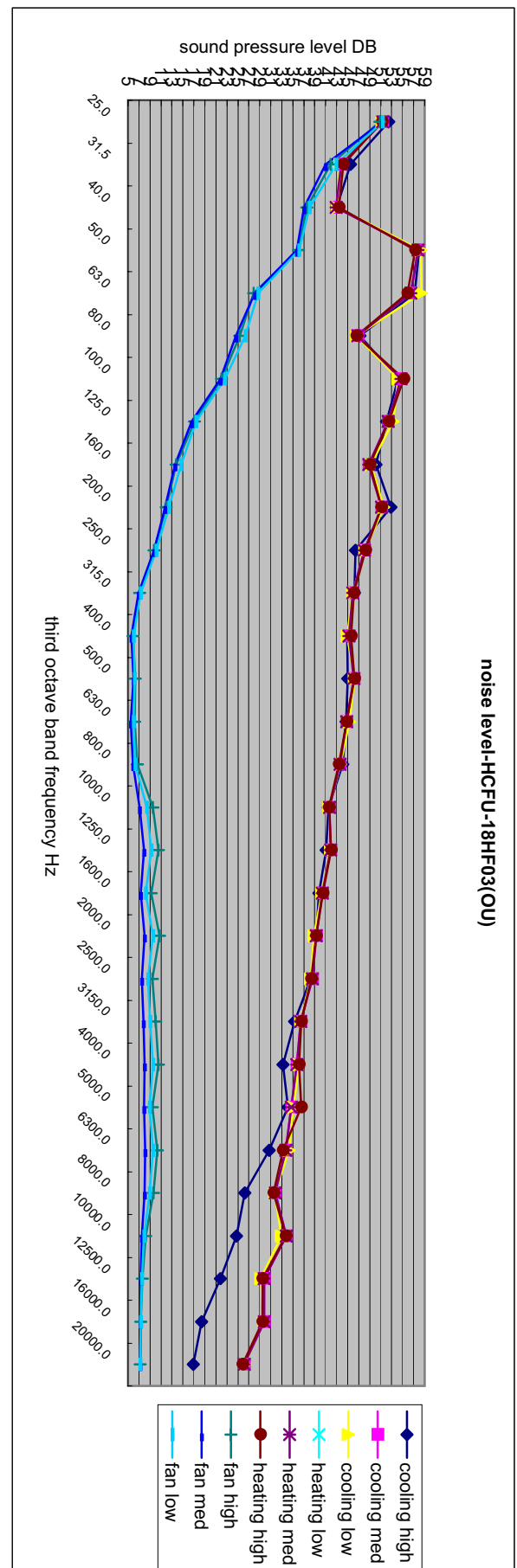
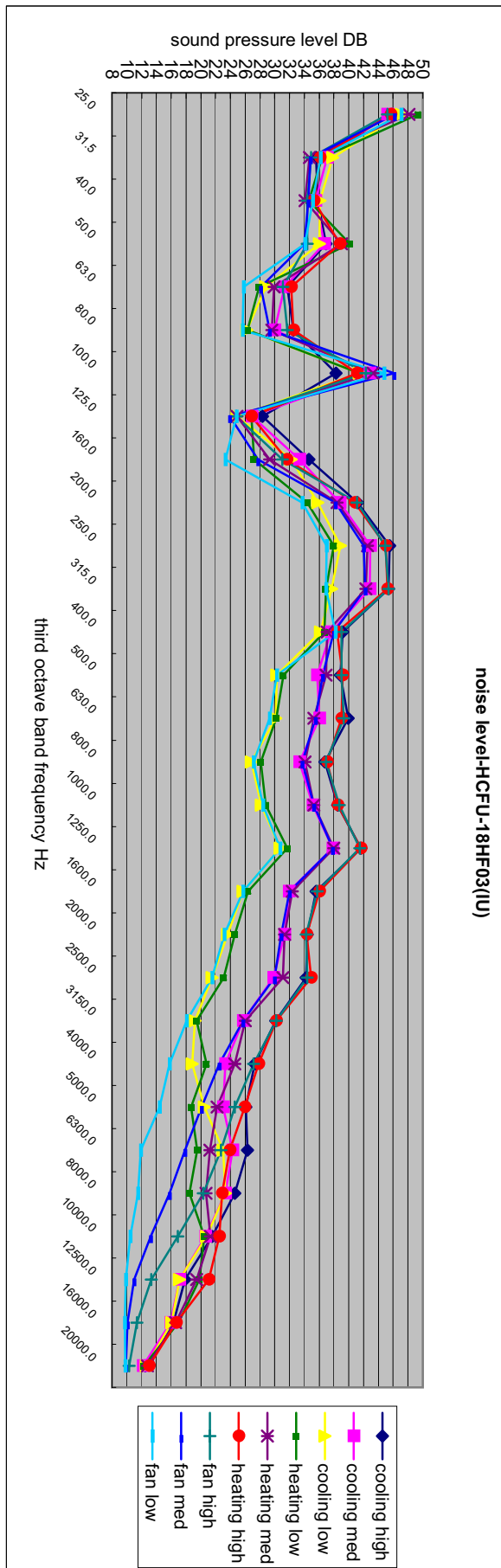
43	4.93	71	1.9
44	4.9	72	1.85
45	4.58	73	1.79
46	4.42	74	1.73
47	4.26	75	1.68
48	4.11	76	1.63
49	3.97	77	1.58
50	3.83	78	1.54
51	3.7	79	1.49
52	3.57	80	1.45
53	3.45		
54	3.33		
55	3.22		
56	3.11		
57	3.11		
58	2.9		
59	2.81		
60	2.72		
61	2.63		
62	2.54		
63	2.49		
64	2.38		
65	2.3		
66	2.23		
67	2.16		
68	2.09		
69	2.03		
70	1.96		

12 Noise curves

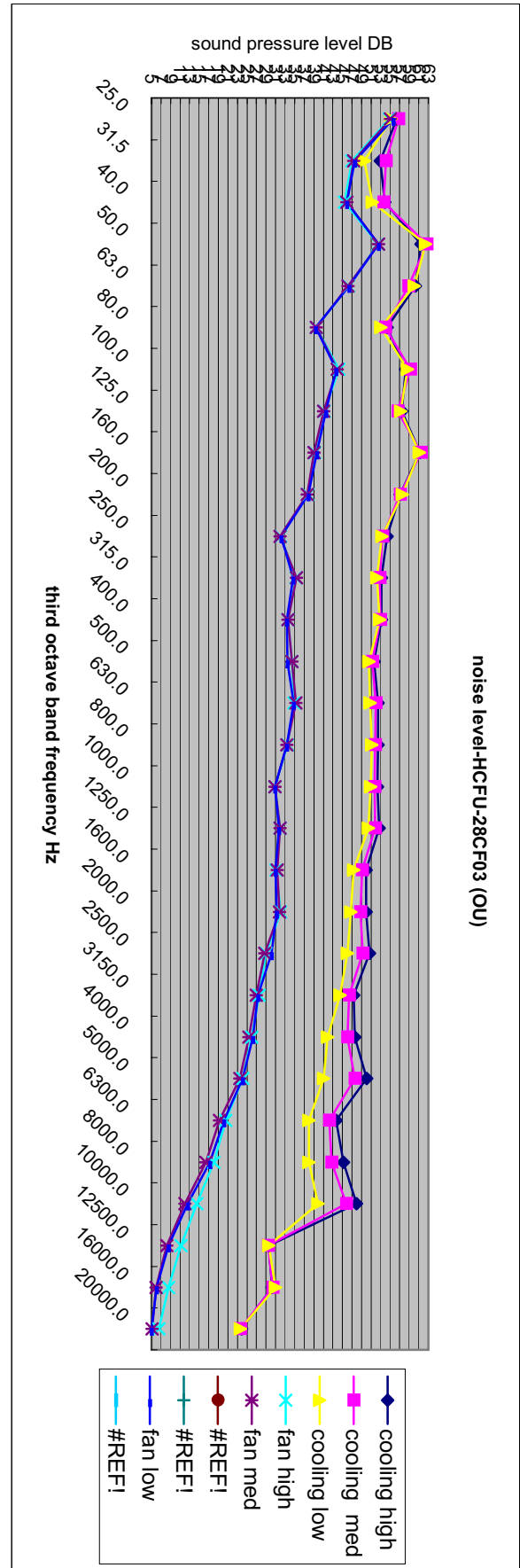
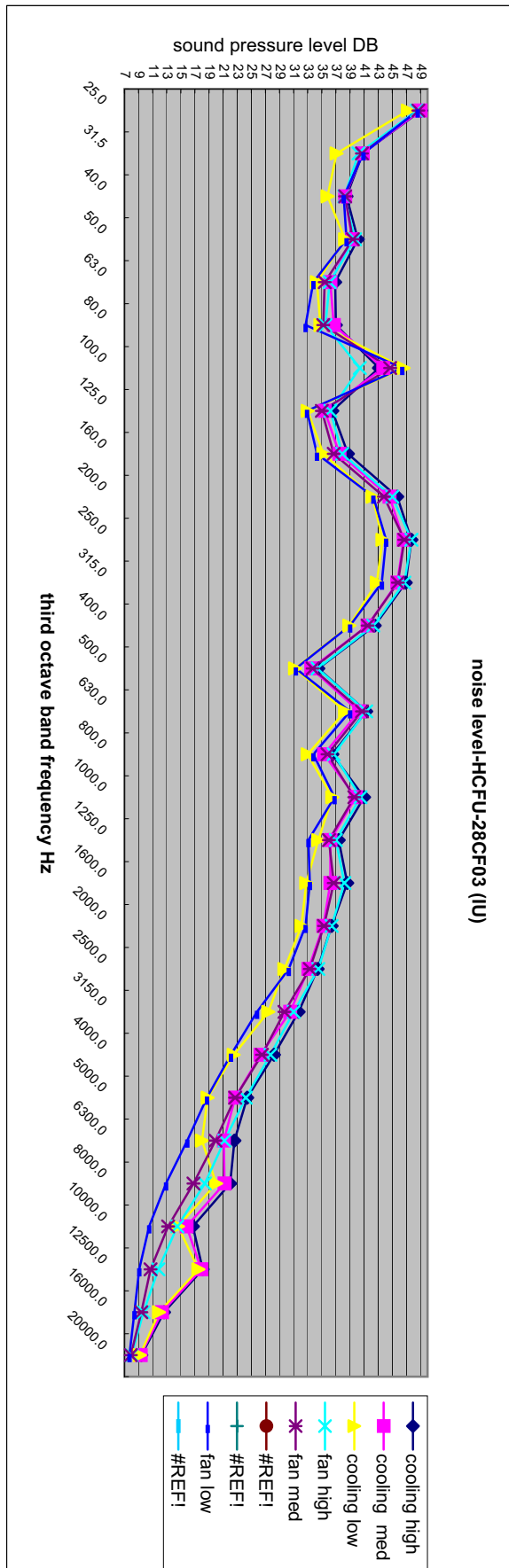
12.1 HCFU-18CF03



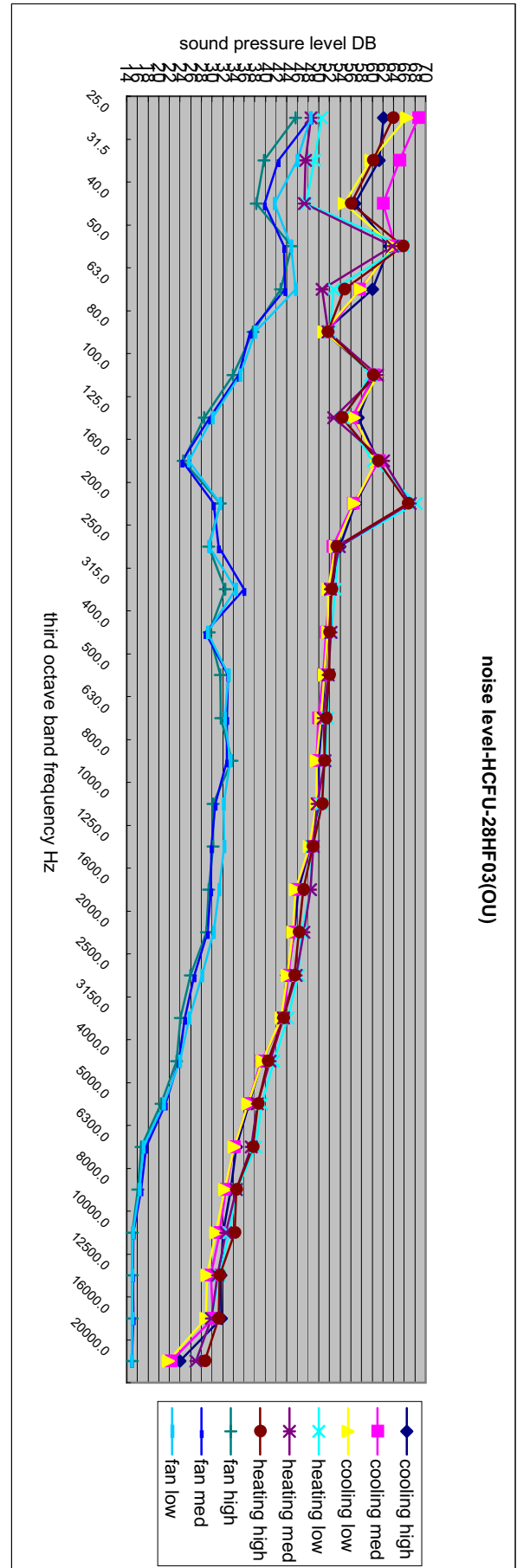
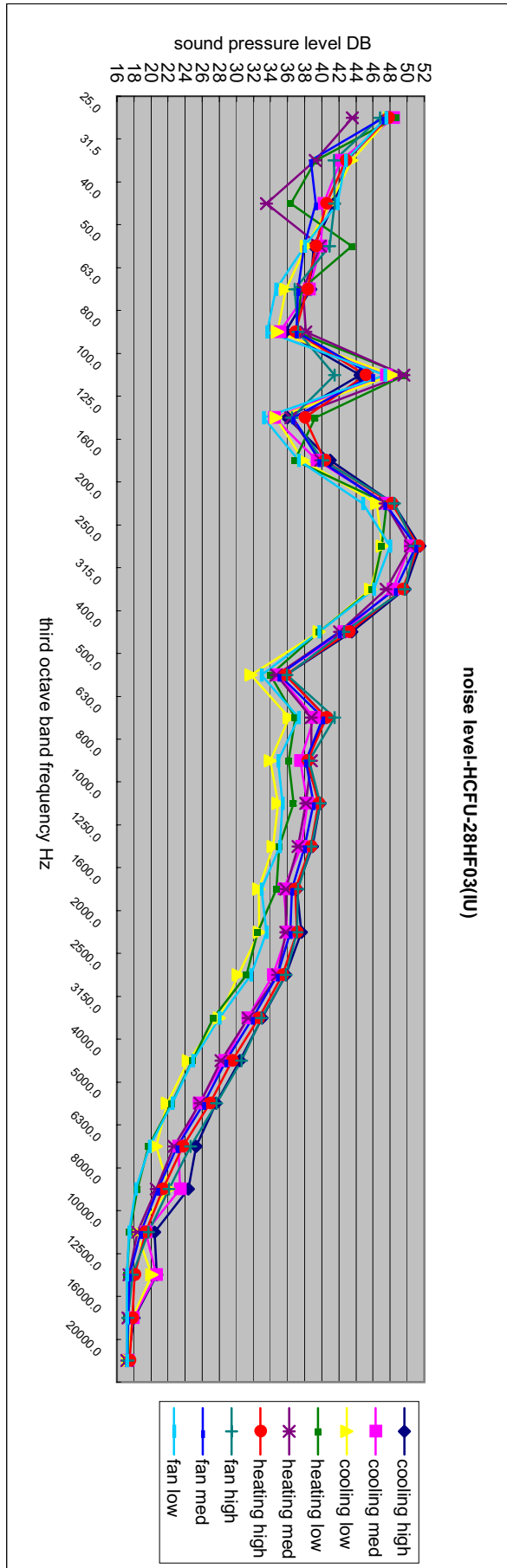
12.2 HCFU-18HF03



12.3 HCFU-28CF03



12.4 HCFU-28HF03



Haier

Commercial Air Conditioner

Model: HCFU-18/28CF03
HCFU-18/28HF03

Sincere Forever

Haier Group

Haier Industrial Park, No.1, Haier Road

266101, Qingdao, China

<http://www.haier.com>



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