CAUTION

READ THIS MANUAL CAREFULLY TO DIAGNOSE TROUBLE CORRECTLY BEFORE OFFERING SERVICE .

SERVICE MANUAL

Air Conditioners

MODEL: HSU-07HV03/R2
HSU-09HV03/R2
HSU-12HV03/R2
HSU-18HV03/R2
HSU-22HV03/R2

THIS MANUAL IS USED BY QUALIFIED APPLIANCE TECHNICIANS ONLY. HAIER DOES NOT ASSUME ANY RESPONSIBILITY FOR PROPERTY DAMAGE OR PERSONAL INJURY FOR IMPROPER SERVICE PROCEDURES DONE BY ONE UNQUALIFIED PERSON.

REVISION 0

IMPORTANT INFORMATION

MODEL: HSU-07HV03/R2

●Features

- ●Comfortable: wide-angle airflow
- ●health air purifying
- ●quiet operation
- ●super energy efficient

●Main Specification

- ●Cooling Capacity： 2300W
- ●Rated Power/Current(cooling)： 680W/3.0A
- ●EER: 3.38
- ●Heating Capacity： 2500W
- ●Rated Power/Current(heating): 690W/3.1A
- ●COP: 3.62
- ●Air Volume(Indoor): 400m^3/h
- ●Power: 1PH 220-230V~ 50 Hz

IMPORTANT INFORMATION

MODEL: HSU-09HV03/R2

●Features

- ●Comfortable: wide-angle airflow
- ●health air purifying
- ●quiet operation
- ●super energy efficient

●Main Specification

- ●Cooling Capacity： 3000W
- ●Rated Power/Current(cooling)： 860W/3.5A
- ●EER: 3.49
- ●Heating Capacity： 3000W
- ●Rated Power/Current(heating): 830W/3.5A
- ●COP: 3.61
- ●Air Volume(Indoor): 420m^3/h
- ●Power: 1PH 220-230V~ 50 Hz

IMPORTANT INFORMATION

MODEL: HSU-12HV03/R2

●Features

- ●Comfortable: wide-angle airflow
- ●health air purifying
- ●quiet operation
- ●super energy efficient

●Main Specification

- ●Cooling Capacity： 4000W
- ●Rated Power/Current(cooling)： 1200W/5.0A
- ●EER: 3.33
- ●Heating Capacity： 4200W
- ●Rated Power/Current(heating): 1160W/5.8A
- ●COP: 3.62
- ●Air Volume(Indoor): 450m^3/h
- ●Power: 1PH 220-230V~ 50 Hz

IMPORTANT INFORMATION

MODEL: HSU-18HV03/R2

●Features

- ●Comfortable: wide-angle airflow
- ●health air purifying
- ●quiet operation
- ●super energy efficient

●Main Specification

- ●Cooling Capacity： 5000W
- ●Rated Power/Current(cooling)： 1555W/6.9A
- ●EER: 3.22
- ●Heating Capacity： 5500W
- ●Rated Power/Current(heating): 1525W/6.8A
- ●COP: 3.61
- ●Air Volume(Indoor): 750m^3/h
- ●Power: 1PH 220-230V~ 50 Hz

IMPORTANT INFORMATION

MODEL: HSU-22HV03/R2

●Features

- ●Comfortable: wide-angle airflow
- ●health air purifying
- ●quiet operation
- ●super energy efficient

●Main Specification

- ●Cooling Capacity： 6000W
- ●Rated Power/Current(cooling)： 1990W/8.9A
- ●EER: 3.02
- ●Heating Capacity： 6500W
- ●Rated Power/Current(heating): 2020W/9.0A
- ●COP: 3.22
- ●Air Volume(Indoor): 750m^3/h
- ●Power: 1PH 220-230V~ 50 Hz

Safety Information

General Information

This Service Manual describes the operation,disassembly,troubleshooting,and repair of Haier Room Air Conditioners,etc. It is intended for use by authorized servicers who troubleshoot and repair these units.

NOTE:It is assumed that users of this manual are familiar with the use of tools and equipment used to troubleshoot and repair electrical,mechanical,and refrigeration systems;and understand the terminology used to describe and discuss them.

Haier urges you read and follow all safety precautions and warnings contained in this manual. Failure to comply with safety information may result in severe personal injury or death.

Related Publications

This is a base service manual,covering a range of similar models.It is intended to be used in conjunction with the Parts Manual and Technical Sheet covering specific model being serviced.

General Precautions and Warnings

WARNING

To avoid risk of personal injury or death due to electrical shock,disconnect electrical power to unit before attempting to service the unit.

WARNING

To avoid risk of personal injury or death due to electrical shock,**DO NOT**,under any circumstances,alter the grounding plug .Air conditioner must be grounded at all times.Do not remove warning tag from power cord.If a two-prong (non-grounding) wall receptacle is encountered,contact a qualified electrician and have the receptacle replaced with a properly grounder wall receptacle in accordance with the National Electrical Code.

WARNING

To avoid risk of personal injury or death due to electrical shock,grounding wires and wires colored like grounding wires are **NOT** to be used as current carrying conductors.The standard accepted color coding for ground wires is **green** or **green with a yellow stripe**.Electrical components such as the compressor and fan motor are grounded through an individual wire attached to the electrical component and to another part of the air conditioner.Grounding wires should not to be removed from individual components while servicing,unless the component is to be removed and replaced.It is extremely important to replace all removed grounding wires before completing service.

WARNING

To avoid risk of heat exposure,which may cause death or severe illness,air conditioner must be monitored when malfunctions or shuts down.

CONTENTS

SPECIFICATION

Model:	HSU-07HV03/R2		Brand Mark:	HAIER	
Cooling	Cooling Capacity:	2300W	Frequency Range:	50Hz	
	Rated Power/Current:	680W/3.0A	Power	1PH 220-230V~ 50 Hz	
	Max Power/Current:	1050W/4.0A	Power Cord	Model×Sectional Area:	--------
	EER	3.38			
Heating	Heating Capacity:	2500W		Refer. No.:	--------
	Rated Power/Current:	690W/3.1A	Compressor manufacturer/Type	RECHI/39A173AD&94K	
	Max Power/Current:	1300W/5.3A	Compressor Oil charge	----(poe)	
	COP	3.62			
Power/Current of Electric Heating:		-----	Refrigerant	Type/Net Charge:	R410A 650g
Operating temp. range		-7°C-43°C		Additional Charge for exhausting air.	0 g
Indoor Velocity	H:	1200 r/min		Charge if over Standrad Pipe Lenth	20g/m
	M:	1000 r/min	Capilary	Lenth×Internal/External Diametre	1.4*550+1.4*1350
	L:	950 r/min		Refer No.:	----
Outdoor Velocity	H:	850 r/min	Height of rising radiator slice	Indoor:	---- mm
	H:	---- r/min		Outdoor:	---- mm
	H:	---- r/min	Indoor Weight	Net:	8.6kg
				Gross:	10.6kg
Air Volume (High)	Indoor:	400 m^3/h	Outdoor Weight	Net:	28kg
	Outdoor:	----- m^3/h		Gross:	30kg
Capacitor of Fan Motor:		2.5μF	Indoor Dimension(L×W×H):		778*197*250mm
Class of electric Shock Protection		I	indoor Packaging Dimension(L×W×H)		865*272*330mm
Class of Water Proof:		IP 24	Outdoor Dimension (L×W×H):		780*245*540 mm
Moisture Removal:		$1.2\times10^{-3}m^3/h$	Outdoor Packaging dimension(L×W×H)		908*342*619mm
Remote Controller	Model:	YR-H65	Refrigerant Pipe	liquid /Gas pipe Diametre	φ6.35/9.52 mm
	Refer. No.:	0010401540		standard Lenth	5m
				Max Lenth	15 m
Remote Controller Bracket:		-----	Lenth/Diametre of Drain Hose		---- MPa
Appearance:		-----	Max. pressure at warm side:		4.15 MPa
Climate Type:		T1	Max.pressure at cool side:		4.15MPa
Installation Bracket Type:		-----	Plug Type(spec.):		---
Area available for clooling/heating		15-23 m^2	Ammeter spec.:		---
Max.running temperature(cooling):		Dry/Wet ball(indoor): 32 /23 ℃	Max.running temperature(heating):		Dry/Wet ball(indoor) 27℃/--℃
		Dry/Wet ball(outdoor): 43 ℃/ 26 ℃			Dry/Wet ball(outdoor):24℃/18℃

Model:	HSU-09HV03/R2		Brand Mark:	HAIER	
Cooling	Cooling Capacity:	3000W	Frequency Range:	50Hz	
	Rated Power/Current:	860W/3.5A	Power	1PH 220-230V~ 50 Hz	
	Max Power/Current:	1150W/5.0A	Power Cord	Model×Sectional Area:	--------
	EER	3.49			
Heating	Heating Capacity:	3000W		Refer. No.:	--------
	Rated Power/Current:	830W/3.5A	Compressor manufacturer/Type	RECHI/44A233AJ-JEK	
	Max Power/Current:	1500W/6.3A	Compressor Oil charge	---(poe)	
	COP	3.61			
Power/Current of Electric Heating:		-----	Refrigerant	Type/Net Charge:	R410A 950g
Operating temp. range		-7°C-43°C		Additional Charge for exhausting air.	0 g
Indoor Velocity	H:	1250 r/min		Charge if over Standrad Pipe Lenth	20g/m
	M:	1050 r/min	Capilary	Lenth×Internal/External Diametre	1.4*750+1.4*800
	L:	950 r/min		Refer No.:	----
Outdoor Velocity	H:	850 r/min	Height of rising radiator slice	Indoor:	---- mm
	:	---- r/min		Outdoor:	---- mm
	L:	---- r/min	Indoor Weight	Net:	8.6kg
				Gross:	10.6kg
Air Volume (High)	Indoor:	420 m^3/h	Outdoor Weight	Net:	31kg
				Gross:	32kg
	Outdoor:	----- m^3/h	Indoor Dimension(L×W×H):		778*197*250mm
Capacitor of Fan Motor:		2.5μF	indoor Packaging Dimension(L×W×H)		865*272*330 mm
Class of electric Shock Protection		I	Outdoor Dimension (L×W×H):		780*245*540mm
Class of Water Proof:		IP 24	Outdoor Packaging dimension(L×W×H)		908*342*619 mm
Moisture Removal:		$1.2\times10^{-3}m^3/h$	Refrigerant Pipe	liquid /Gas pipe Diametre	φ6.35/9.52 mm
Remote Controller	Model:	YR-H65		standard Lenth	5m
	Refer. No.:	0010401540		Max Lenth	15 m
Remote Controller Bracket:		-----	Lenth/Diametre of Drain Hose		---- MPa
Appearance:		-----	Max. pressure at warm side:		4.15 MPa
Climate Type:		T1	Max.pressure at cool side:		4.15MPa
Installation Bracket Type:		-----	Plug Type(spec.):		---
Area available for clooling/heating		15-23 m^2	Ammeter spec.:		---
Max.running temperature(cooling):		Dry/Wet ball(indoor): 32 / 23 ℃	Max.running temperature(heating):		Dry/Wet ball(indoor) 27℃/--℃
		Dry/Wet ball(outdoor): 43 ℃/ 26 ℃			Dry/Wet ball(outdoor):24℃/18℃

Model:	HSU-12HV03/R2		Brand Mark:	HAIER		
Cooling	Cooling Capacity:	4000W	Frequency Range:	50Hz		
	Rated Power/Current:	1200W/5.0A	Power	1PH 220-230V~ 50 Hz		
	Max Power/Current:	1500W/6.0A	Power Cord	Model×Sectional Area:	--------	
	EER	3.33				
Heating	Heating Capacity:	4200W		Refer. No.:	--------	
	Rated Power/Current:	1160W/5.8A	Compressor manufacturer/Type	MEIZHI/PA150X2C-4EN		
	Max Power/Current:	1500W/6.3A	Compressor Oil charge	500(poe)		
	COP	3.62				
Power/Current of Electric Heating:		-----	Refrigerant	Type/Net Charge:	R410A 950g	
Operating temp. range		-7℃-43℃		Additional Charge for exhausting air.	0 g	
Indoor Velocity	H:	1350 r/min		Charge if over Standrad Pipe Lenth	20g/m	
	M:	1200 r/min	Capilary	Lenth×Internal/External Diametre	-----	
	L:	1150 r/min		Refer No.:	-----	
Outdoor Velocity	H:	850 r/min	Height of rising radiator slice	Indoor:	---- mm	
	M:	---- r/min		Outdoor:	------ mm	
	L:	---- r/min	Indoor Weight	Net:	8.8kg	
				Gross:	10.6kg	
Air Volume (High)	Indoor:	450 m^3/h	Outdoor Weight	Net:	31kg	
	Outdoor:	----- m^3/h		Gross:	32kg	
Capacitor of Fan Motor:		2.5¦ÌF	indoor Packaging Dimension(L×W×H)		865*272*330 mm	
Class of electric Shock Protection		I	Outdoor Dimension (L×W×H):		780*245*540mm	
Class of Water Proof:		IP 24	Outdoor Packaging dimension(L×W×H)		908*342*619 mm	
Moisture Removal:		$1.6\times10^{-3}m^3/h$	Refrigerant Pipe	liquid /Gas pipe Diametre	φ6.35/9.52 mm	
Remote Controller	Model:	YR-H65		standard Lenth	5m	
	Refer. No.:	0010401540		Max Lenth	15 m	
Remote Controller Bracket:		-----	Lenth/Diametre of Drain Hose		---- MPa	
Appearance:		-----	Max. pressure at warm side:		4.15 MPa	
Climate Type:		T1	Max.pressure at cool side:		4.15MPa	
Installation Bracket Type:		-----	Plug Type(spec.):		---	
Area available for clooling/heating		15-23 m^2	Ammeter spec.:		---	
Max.running temperature(cooling):		Dry/Wet ball(indoor): 32 /23 ℃	Max.running temperature(heating):		Dry/Wet ball(indoor) 27℃/--℃	
		Dry/Wet ball(outdoor): 43 ℃/ 26 ℃			Dry/Wet ball(outdoor):24℃/18℃	

Model:	HSU-18HV03/R2		Brand Mark:	HAIER		
Cooling	Cooling Capacity:	5000W	Frequency Range:	50Hz		
	Rated Power/Current:	1555W/6.9A	Power	1PH 220-230V~ 50 Hz		
	Max Power/Current:	2000W/9.2A	Power Cord	Model×Sectional Area:	--------	
	EER	3.22				
Heating	Heating Capacity:	5500W		Refer. No.:	--------	
	Rated Power/Current:	1525W/6.8A	Compressor manufacturer/Type	HITACHI/ASH201		
	Max Power/Current:	2000W/9.2A	Compressor Oil charge	500(poe)		
	COP	3.61				
Power/Current of Electric Heating:		-----	Refrigerant	Type/Net Charge:	R410A 1230g	
Operating temp. range		-7°C-43°C		Additional Charge for exhausting air.	0 g	
Indoor Velocity	H:	1350 r/min		Charge if over Standrad Pipe Lenth	20g/m	
	M:	1250 r/min	Capilary	Lenth×Internal/External Diametre	-----	
	L:	1100 r/min		Refer No.:	-----	
Outdoor Velocity	H:	880 r/min	Height of rising radiator slice	Indoor:	1.30 mm	
	M	---- r/min		Outdoor:	1.55 mm	
	L:	---- r/min	Indoor Weight	Net:	12kg	
				Gross:	15kg	
Air Volume (High)	Indoor:	750 m^3/h	Outdoor Weight	Net:	39kg	
	Outdoor:	----- m^3/h		Gross:	44kg	
Capacitor of Fan Motor:		……	Indoor Dimension(L×W×H):		850×305×230 mm	
Class of electric Shock Protection		I	Indoor Packaging Dimension(L×W×H)		960x310x370 mm	
Class of Water Proof:		IP 24	Outdoor Dimension (L×W×H):		820×290×650 mm	
Moisture Removal:		$2.0\times10^{-3}m^3/h$	Outdoor Packaging dimension(L×W×H)		890×340×710 mm	
Remote Controller	Model:	YR-H10	Refrigerant Pipe	liquid /Gas pipe Diametre	φ6.35/12.7 mm	
	Refer. No.:	0010401627		standard Lenth	5m	
				Max Lenth	15 m	
Remote Controller Bracket:		-----	Lenth/Diametre of Drain Hose		---- MPa	
Appearance:		-----	Max. pressure at warm side:		4.15 MPa	
Climate Type:		T1	Max.pressure at cool side:		4.15MPa	
Installation Bracket Type:		-----	Plug Type(spec.):		---	
Area available for clooling/heating		15-23 m^2	Ammeter spec.:		---	
Max.running temperature(cooling):		Dry/Wet ball(indoor): 32 / 23 ℃	Max.running temperature(heating):		Dry/Wet ball(indoor) 27 ℃/--℃	
		Dry/Wet ball(outdoor): 43 ℃/ 26 ℃			Dry/Wet ball(outdoor):24℃/18℃	

Model:	HSU-22HV03/R2		Brand Mark:	HAIER	
Cooling	Cooling Capacity:	6000W	Frequency Range:	50Hz	
	Rated Power/Current:	1990W/8.9A	Power	1PH 220-230V~ 50 Hz	
	Max Power/Current:	2650W/14.0A	Power Cord	Model×Sectional Area:	--------
	EER	3.02		Refer. No.:	--------
Heating	Heating Capacity:	6500W			
	Rated Power/Current:	2020W/9.0A	Compressor manufacturer/Type	HITACHI/PA240X2CS-4KT1	
	Max Power/Current:	2650W/14.0/	Compressor Oil charge	500(poe)	
	COP	3.22			
Power/Current of Electric Heating:		-----	Refrigerant	Type/Net Charge:	R410A 1530g
Operating temp. range		-7°C-43°C		Additional Charge for exhausting air.	0g
Indoor Velocity	H:	1350 r/min		Charge if over Standrad Pipe Lenth	20g/m
	M:	1250 r/min	Capilary	Lenth×Internal/External Diametre	-----
	L:	1150 r/min		Refer No.:	-----
Outdoor Velocity	H:	880 r/min	Height of rising radiator slice	Indoor:	1.30 mm
	M:	---- r/min		Outdoor:	1.55 mm
	L:	---- r/min	Indoor Weight	Net:	12kg
				Gross:	15kg
Air Volume (High)	Indoor:	750 m^3/h	Outdoor Weight	Net:	45kg
	Outdoor:	----- m^3/h		Gross:	53kg
Capacitor of Fan Motor:		……	Indoor Dimension(L×W×H):		865×228×304 mm
Class of electric Shock Protection		I	Indoor Packaging Dimension(L×W×H)		923x294x347 mm
Class of Water Proof:		IP 24	Outdoor Dimension (L×W×H):		810×288×680 mm
Moisture Removal:		$2.5×10^{-3}m^3/h$	Outdoor Packaging dimension(L×W×H)		915×325×699 mm
Remote Controller	Model:	YR-H10	Refrigerant Pipe	liquid /Gas pipe Diametre	φ6.35/12.7 mm
	Refer. No.:	0010401627		standard Lenth	5m
				Max Lenth	15 m
Remote Controller Bracket:		-----	Lenth/Diametre of Drain Hose		----
Appearance:		-----	Max. pressure at warm side:		4.15 MPa
Climate Type:		T1	Max.pressure at cool side:		4.15MPa
Installation Bracket Type:		-----	Plug Type(spec.):		---
Area available for clooling/heating		15-23 m^2	Ammeter spec.:		---
Max.running temperature(cooling):		Dry/Wet ball(indoor): 32 / 23 ℃	Max.running temperature(heating):		Dry/Wet ball(indoor) 27 ℃/--℃
		Dry/Wet ball(outdoor): 43 ℃/ 26 ℃			Dry/Wet ball(outdoor):24℃/18℃

OPERATION

Cautions

Disposal of the old air conditioner

Before disposing an old air conditioner that goes out of use, please make sure it's inoperative and safe. Unplug the air conditioner in order to avoid the risk of child entrapment.

It must be noticed that air conditioner system contains refrigerants, which require specialized waste disposal. The valuable materials contained in an air conditioner can be recycled .Contact your local waste disposal center for proper disposal of an old air conditioner and contact your local authority or your dealer if you have any question. Please ensure that the pipework of your air conditioner does not get damagedprior to being picked up by the relevant waste disposal center, and contribute to environmental awareness by insisting on an appropriate, anti-pollution method of disposal.

Disposal of the packaging of your new air conditioner

All the packaging materials employed in the package of your new air conditioner may be disposed without any danger to the environment.

The cardboard box may be broken or cut into smaller pieces and given to a waste paper disposal service. The wrapping bag made of polyethylene and the polyethylene foam pads contain no fluorochloric hydrocarbon.

All these valuable materials may be taken to a waste collecting center and used again after adequate recycling.

Consult your local authorities for the name and address of the waste materials collecting centers and waste paper disposal services nearest to your house.

Safety Instructions and Warnings

Before starting the air conditioner, read the information given in the User's Guide carefully. The User's Guide contains very important observations relating to the assembly, operation and maintenance of the air conditioner.

The manufacturer does not accept responsibility for any damages that may arise due to non-observation of the following instruction.

- Damaged air conditioners are not to be put into operation. In case of doubt, consult your supplier.

- Use of the air conditioner is to be carried out in strict compliance with the relative instructions set forth in the User's Guide.

- Installation shall be done by professional people, don't install unit by yourself.

- For the purpose of the safety,the air conditioner must be properly grounded in accordance with specifications.

- Always remember to unplug the air conditioner before openning inlet grill. Never unplug your air conditioner by pulling on the power cord. Always grip plug firmly and pull straight out from the outlet.

- All electrical repairs must be carried out by qualified electricians. Inadequate repairs may result in a major source of danger for the user of the air conditioner.

- Do not damage any parts of the air conditioner that carry refrigerant by piercing or performating the air conditioner's tubes with sharp or pointed items, crushing or twisting any tubes, or scraping the coatings off the surfaces. If the refrigerant spurts out and gets into eyes, it may result in serious eye injuries.

Cautions

- Do not obstruct or cover the ventilation grille of the air conditoner.Do not put fingers or any other things into the inlet/outlet and swing louver.

- Do not allow children to play with the air conditioner.In no case should children be allowed to sit on the outdoor unit.

Specifications

- The refrigerating circuit is leak-proof.

The machine is adaptive in following situation

1.Applicable ambient temperature range:

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

2. If the power supply cord is damaged, it must be replaced by the manufacturer or its service agent or a similar qualified person.

3. If the fuse of indoor unit on PC board is broken,please change it with the type of T. 3.15A/ 250V.

4. The wiring method should be in line with the local wiring standard.

5. After installation, the power plug should be easily reached.

6. The waste battery should be disposed properly.

7. The appliance is not intended for use by young children or infirm persons without supervision.

8. Young children should be supervised to ensure that they do not play with the applience.

9.Please employ the proper power plug, which fit into the power supply cord.

10 .The power plug and connecting cable must have acquired the local attestation.

Cautions

Safety Instruction

- Please read the following Safety Instructions carefully prior to use.
- The instructions are classified into two levels, WARNING and CAUTION according to the seriousness of possible risks and damages as follows. Compliance to the instructions are strictly required for safety use.

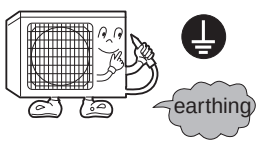
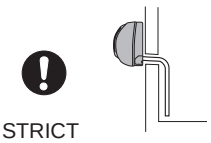
Installation

⚠WARNING

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

Installation in a inadequate place may cause accidents. Do not install in the following place.

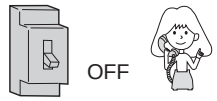
⚠CAUTION

Connect the earth cable. 	Do not install in the place where there is any possibility of inflammable gas leakage around the unit. PROHIBITION	Do not get the unit exposed to vapor or oil steam. PROHIBITION	Check proper installation of the drainage securely  STRICT ENFORCEMENT

Cautions

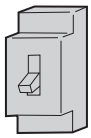
⚠ WARNING

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



STRICT ENFORCEMENT

Use an exclusive power source with a circuit breaker



Connect power supply cord to the outlet completely

STRICT ENFORCEMENT

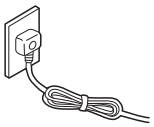
Use the proper voltage

STRICT ENFORCEMENT

Do not use power supply cord extended or connected in halfway

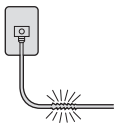
PROHIBITION

Do not use power supply cord in a bundle.



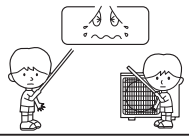
PROHIBITION

Take care not to damage the power supply cord.



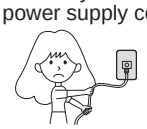
PROHIBITION

Do not insert objects into the air inlet or outlet.



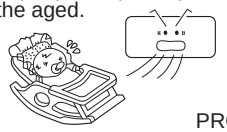
PROHIBITION

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



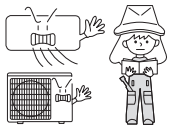
PROHIBITION

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



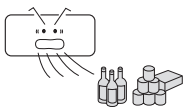
PROHIBITION

Do not try to repair or reconstruct by yourself.



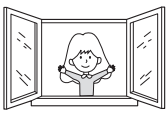
⚠ CAUTION

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



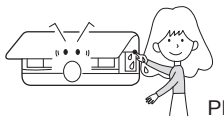
PROHIBITION

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



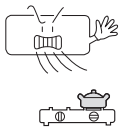
STRICT ENFORCEMENT

Do not operate the switch with wet hand.



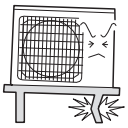
PROHIBITION

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



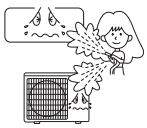
PROHIBITION

Check good condition of the installation stand



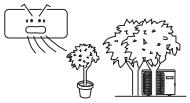
PROHIBITION

Do not pour water onto the unit for cleaning



PROHIBITION

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



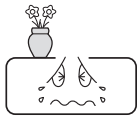
PROHIBITION

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

PROHIBITION

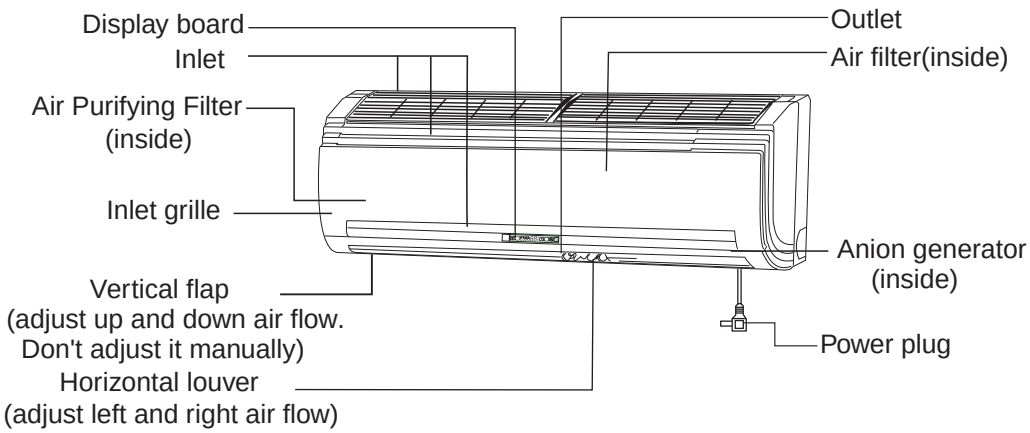
Do not place flower vase or water containers on the top of the unit.

PROHIBITION



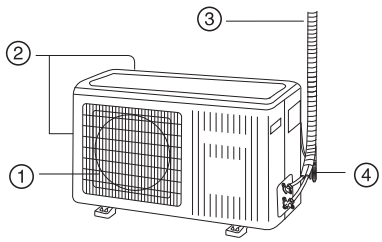
Parts and Functions

Indoor unit

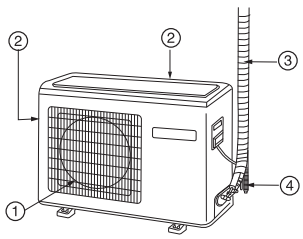


For multi-split type, the power plug is on the outdoor unit.

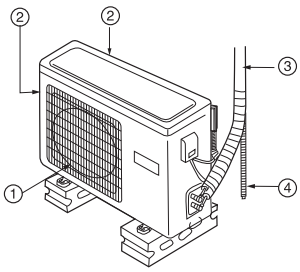
Outdoor unit



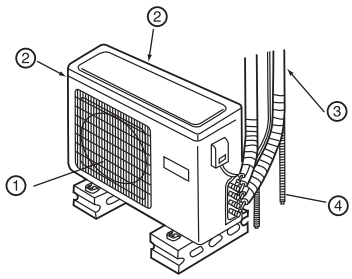
HSU-07HV03/R2
HSU-09HV03/R2



HSU-12HV03/R2
HSU-18HV03/R2



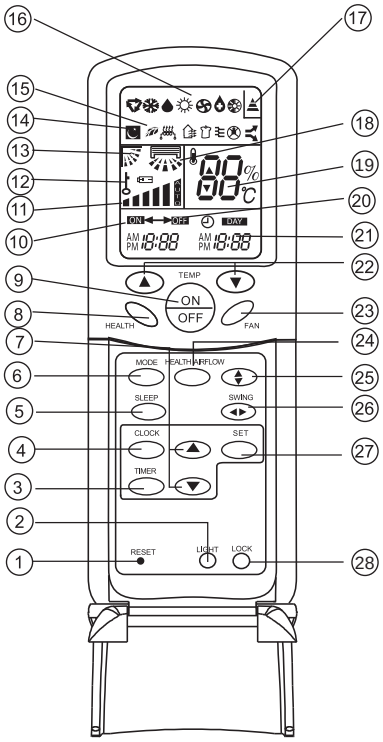
HSU-22HV03/R2



H2SM-18HV03/R2
H2SM-(9+12)HV03/R2

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

Parts and Functions



1.RESET
When the remote controller appears abnormal, use a sharp pointed article to press this button to reset the remote controller normal.

2.LIGHT button
Control the lightening and extinguishing of the indoor LCD display board.

3. TIMER button
Used to select TIMER ON, TIMER OFF, TIMER ON-OFF.

4. CLOCK button
Used to set correct time.

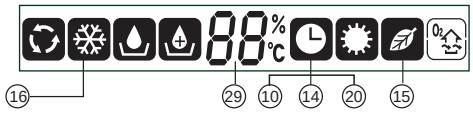
5. SLEEP button
Used to select sleep mode.

6. MODE button

7. HOUR button
Used to set clock and timer setting.

8. HEALTH button
Used to set healthy operation.

9. ON/OFF button
Used for unit start and stop.



10. TIMER ON display
11. FAN SPEED display

12. LOCK display
13. SWING UP/DOWN display
14. SLEEP display
15. HEALTH display
16. Operation mode display

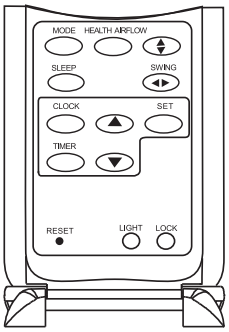
Operation mode	AUTO	COOL	DRY	HEAT	FAN
Remote controller					
Display board					

17.Singal sending display
18. Left/right air flow display
19. TEMP display
Remote controller: to display the TEMP. setting.
20. TIMER OFF display
21. TIMER display
22. TEMP button
Used to select your desired temperature.
23. FAN button
Used to select fan speed: LOW,MED, HI, AUTO.
24. HEALTH AIRFLOW button
Used to set the health airflow mode.
25. SWING UP/DOWN button
Used to select up or down air sending direction.
26. SWING LEFT/RIGHT button
Used to select left/right air flow.
27. SET button
Used to confirm timer and clock settings.
28. LOCK
Used to lock buttons and LCD display. If pressed, the other buttons will be disabled and the lock condition display appears. Press it once again, lock will be canceled and lock condition display disappears.
29. Ambient temp.display
When receiving the remote control signal, display the set temperature and in the rest time the room temperature is displayed and this room temperature is only for reference.

NOTE: Cooling only unit do not have functions and displays related with heating.

Parts and Functions

■ Clock Set



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

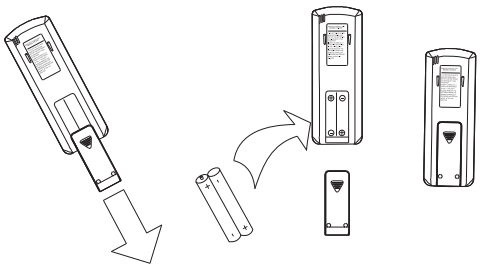
1. Press CLOCK button,"AM" or "PM" flashes.
2. Press△ or▽ to set correct time. Each press will increase or decrease 1 min. If the button is kept depressed, time will change quickly.
3. After time setting is confirmed, press SET, "AM" or "PM" stop flashing, while clock starts working.

■ Remote controller's operation

- When in use, put the signal transmission head directly to the receiver hole on the indoor unit.
- The distance between the signal transmission head and the receiver hole should be within 7m without any obstacle as well.
- Don't throw or knock the remoter controller.
- When electronic-started type fluorescent lamp or change-over type fluorescent lamp or wireless telephone is installed in the room, the receiver is apt to be disturbed in receiving the signals, so the distance to the indoor unit should be shorter.

■ Loading of the battery

Load the batteries as illustrated right
2 R-03 (7#) batteries



Remove the battery cover:
Slightly press" ⇶ "area and push down the cover as illustrated.

Load the battery:
Be sure that the loading is in line with the "+" / "-". request as illustrated on the bottom of the case.

Put on the cover again.

Confirmation indicator:
After pressing power ON/OFF, if no display, reload the batteries.

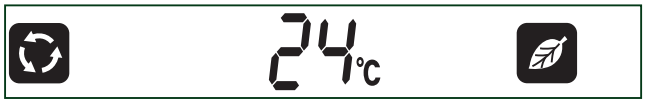
Note:

- Full display or unclear display during operation indicates the batteries have been used up. Please change batteries.
- Used two new same-typed batteries when loading.
- If the remote controller can't run normally during operation, please remove the batteries and reload several minutes later.

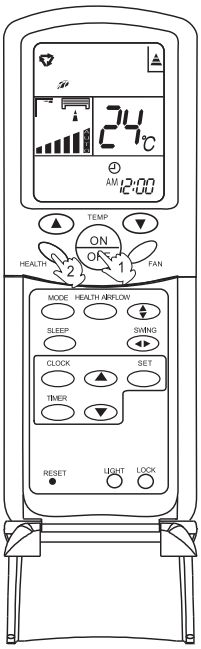
Hint:
Remove the batteries in case unit won't be in usage for a long period. If there are any display after taking-out, just need to press reset key.

Operation

HEALTH operation



Remote controller



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

2.Health anion function
Press HEALTH button. For each press, is displayed.
Air conditioner starts health anion function operation.
For twice press, disappears,the operation stops.

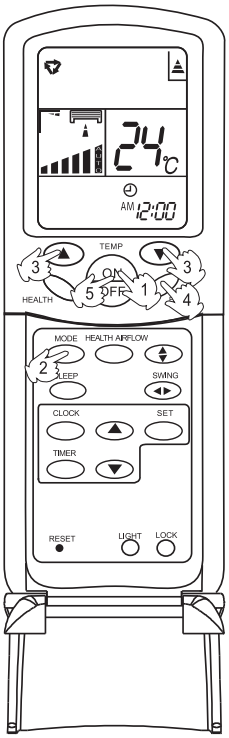
When indoor fan motor is running, it has healthy process function. (It's available under any mode)
When the fan in the indoor unit does not work, the health lamp lights up, but the anion generator does not release anion.

BRIEF INTRODUCTION TO HEALTH ANION FUCTION
The anion generator in the air conditioner can generate a lot of anion effectively balance the quantity of position and anion in the air and also to kill bacteria and speed up the dust sediment in the room and finally clean the air in the room.

Operation

Auto Operation

Remote controller



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

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

   Remote controller:

   AUTO → COOL → DRY → FAN → HEAT

   Then Select Auto operation

   On the displaying board,colorful displaying bar will be white.

3.Select temp.setting
   Press TEMP. button

   △ Every time the button is pressed, temp.setting increase 1°C,if kept depressed, it will increase rapidly

   ▽ Every time the button is pressed, temp.setting decrease 1°C,if kept depressed, it will decrease rapidly

   Select a desired temperature.

4.Fan speed selection
   Press FAN button. For each press, fan speed changes as follows:

   Remote controller:

   LOW MED HI AUTO

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

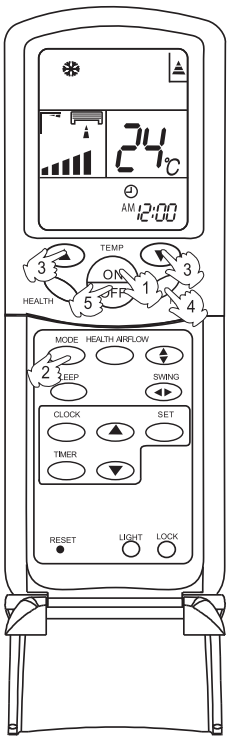
5.Unit stop
   Press ON/OFF button, the unit stops.

About Auto Operation
Under the mode of auto operation, air conditioner will automatically select Cool or Heat operation according to room temperature.

Operation

Cool Operation

Remote controller



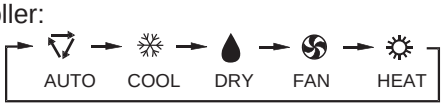
1. Unit start

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

2.Select operation mode

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

Remote controller:



Then Select COOL operation

On the displaying board,colorful displaying bar will be blue.

3.Select temp.setting

Press TEMP. button

△ Every time the button is pressed, temp.setting increase 1°C,if kept depressed, it will increase rapidly

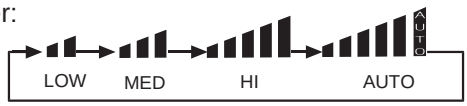
▽ Every time the button is pressed, temp.setting decrease 1°C,if kept depressed, it will decrease rapidly

Select a desired temperature.

4.Fan speed selection

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

Remote controller:



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

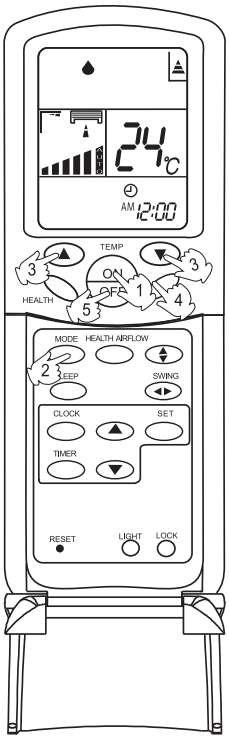
5.Unit stop

Press ON/OFF button, the unit stops.

Operation

Dry Operation

Remote controller



1. Unit start

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

2.Select operation mode

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

Remote controller:

AUTO → COOL → DRY → FAN → HEAT

Then Select DRY operation

On the displaying board,colorful displaying bar will be light blue

3.Select temp.setting

Press TEMP. button

△ Every time the button is pressed, temp.setting increase 1°C,if kept depressed, it will increase rapidly

▽ Every time the button is pressed, temp.setting decrease 1°C,if kept depressed, it will decrease rapidly

Select a desired temperature.

4.Fan speed selection

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

Remote controller:

LOW MED HI AUTO

Air conditioner is running under displayed fan speed. In DRY mode, when room temperature becomes lower than temp.setting+2°C,unit will run intermittently at LOW speed regardless of FAN setting.

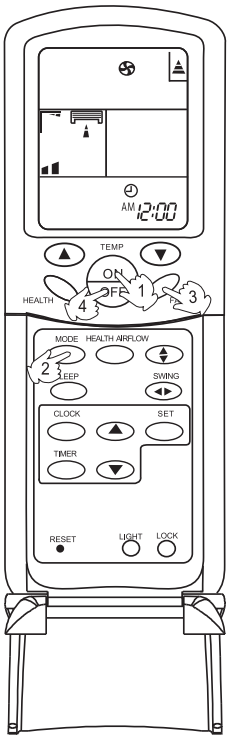
5.Unit stop

Press ON/OFF button, the unit stops.

Operation

Fan Operation

Remote controller



1. Unit start

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

2.Select operation mode

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

Remote controller:

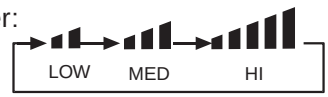
Then Select FAN operation

On the displaying board,colorful displaying bar will be pink.

3.Fan speed selection

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

Remote controller:



4.Unit stop

Press ON/OFF button, the unit stops.

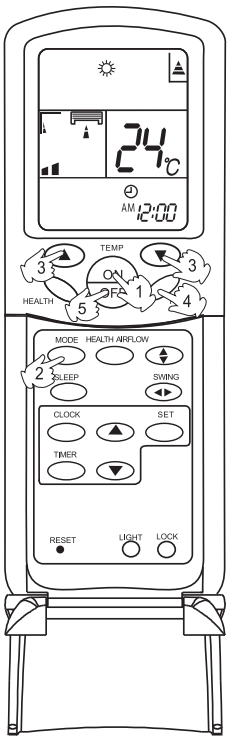
About FAN operation

In FAN operation mode, the unit will not operate in COOL or HEAT mode but only in FAN mode ,AUTO is not available in FAN mode.And temp.setting is disabled. In FAN mode,SLEEP operation is not available.

Operation

Heat Operation

Remote controller



1. Unit start

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

2.Select operation mode

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

Remote controller:

Then Select HEAT operation

On the displaying board,colorful displaying bar will be red

3.Select temp.setting

Press TEMP. button

△ Every time the button is pressed, temp.setting increase 1°C,if kept depressed, it will increase rapidly

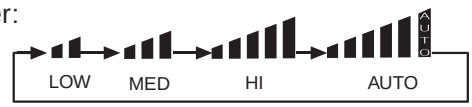
▽ Every time the button is pressed, temp.setting decrease 1°C,if kept depressed, it will decrease rapidly

Select a desired temperature.

4.Fan speed selection

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

Remote controller:



Air conditioner is running under displayed fan speed

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

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

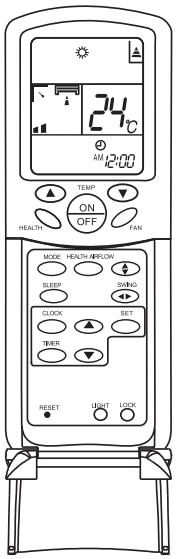
5.Unit stop

Press ON/OFF button, the unit stops.

Operation

Air Flow Direction Adjustment

1.Status display of air sending



Vertical flap

Pos.1
Pos.2
Pos.3
Pos.4
Pos.5
Pos.6 (Auto swing)

Horizontal louvers

Pos.1
Pos.2
Pos.3
Pos.4
Pos.5
Pos.6
Pos.7
Pos.8

2.Up and down air flow direction

For each press of button, air flow direction on remote controller displays as follows according to different operation modes:

COOL/DRY/FAN
remote controller: → Pos.1 → Pos.2 → Pos.3 → Pos.4 → Pos.6 ↩

HEAT:
remote controller: → Pos.5 → Pos.4 → Pos.3 → Pos.2 → Pos.1 → Pos.6 ↩

AUTO:
remote controller: → Pos.1 → Pos.2 → Pos.3 → Pos.4 → Pos.5 → Pos.6 ↩

The vertical flap will swing according to the above positions

3.Left and right air flow direction

For each press of button, remote controller displays as follows :

remote controller:

→ Pos.1 → Pos.2 → Pos.3 → Pos.4 → Pos.5 → Pos.6 → Pos.7 → Pos.8 ↩

The horizontal louvers will swing according to the above positions.

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

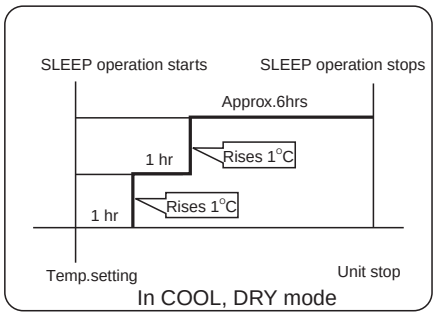
Operation

Sleep Operation

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

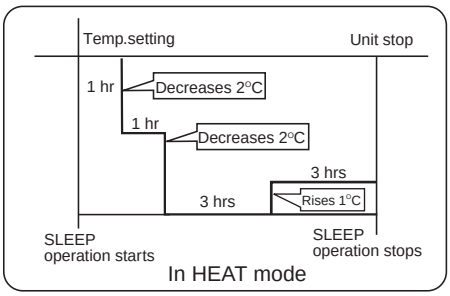
Use of SLEEP function
After the unit starts, set the operation status, then press SLEEP button before which the clock must be adjusted and time being set.

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



In COOL, DRY mode

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



In HEAT mode

3. In AUTO mode
The unit operates in corresponding sleep mode adapted to the automatically selected operation mode.

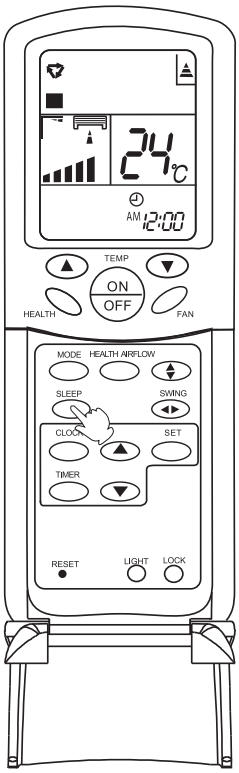
4. In FAN mode
It has no SLEEP function.

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

6.Note to the compensation for the power out:
press the sleep button ten times in five seconds and enter this function after hearing four sounds. And press the sleep button ten times within five seconds and leave this function after hearing two sounds.

NOTE: With the power-out compensation, when setting the TIMER ON, TIMER OFF and TIMER ON/OFF, itís memorized as shutdown status when resuming after power out.

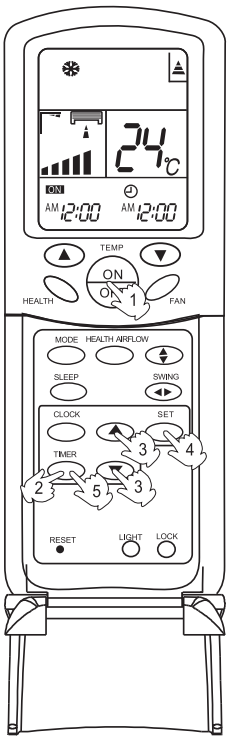
Remote Controller



Operation

Timer On/Off Operation

Remote Controller



Set clock correctly before starting TIMER operation.

1. After unit starts, select your desired operation mode
   Operation mode will be displayed on LCD.

2. Timer mode selection
   Press TIMER button to change TIMER mode. Every time the button is pressed, display changes as follows:
   Remote controller:

   Then select your desired TIMER mode (TIMER ON or TIMER OFF). " ON "or " OFF "will flash.

3. Time setting
   Press HOUR △/▽ button.
   △ Every time the button is pressed, time setting increases 1 min, if kept depressed, it will increase rapidly.
   ▽ Every time the button is pressed, time setting decreases 1 min, if kept depressed, it will decrease rapidly.
   It can be adjusted within 24 hours.

4. Confirming your setting
   After setting correct time, press SET button to confirm " ON "or" OFF "on the remote controller stops flashing.
   Time displayed: Unit starts or stops at x hour x min. (TIMER ON or TIMER OFF).

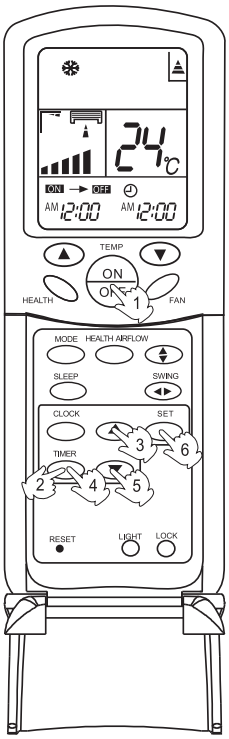
5. Cancel TIMER mode
   Just press TIMER button several times until TIMER mode disappears.

Hints:
After replacing batteries or a power failure happens, time setting should be reset.
Remote controller possesses memory function, when use TIMER mode next time, just press SET button after mode selecting if time setting is the same as previous one.

Operation

Timer On-Off Operation

Remote Controller



Set clock correctly before starting TIMER operation.

1. After unit starts, select your desired operation mode
   Operation mode will be displayed on LCD.

2. Timer mode selection
   Press TIMER button to change TIMER mode. Every time the button is pressed, display changes as follows:
   Remote controller:

   Then select your desired TIMER mode (TIMER ON - OFF).
   " ON "will flash.

3. Time setting
   Press HOUR △/ ▽ button.
   △ Every time the button is pressed, time setting increases 1 min, if kept depressed, it will increase rapidly.
   ▽ Every time the button is pressed, time setting decreases 1 min, if kept depressed, it will decrease rapidly.
   It can be adjusted within 24 hours.

4. Timer confirming for TIMER ON
   After setting correct time, press TIMER button to confirm
   " ON " on the remote controller stops flashing.
   " OFF " starts flashing.
   Time displayed: Unit starts or stops at x hour x min.

5. Time setting for TIMER OFF
   Just press HOUR button ,follow the same procedure in "Time setting for TIMER ON"

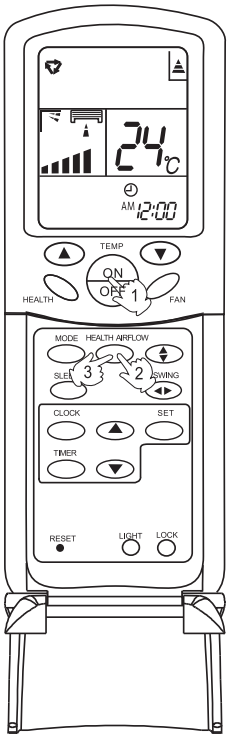
6. Time confirming for TIMER OFF
   After time setting,press SET button to confirm.
   " OFF " on the remote controller stops blinking.
   Time displayed:Unit stops at x hour x min.

To cancel TIMER mode
Just press TIMER button several times until TIMER de disappears.
According to the Time setting sequence of TIMER ON or TIMER OFF, either Start-Stop or Stop-Start can be achieved.

Operation

Health airflow Operation

Remote controller



1.Press ON/OFF to starting

The liquid crystal will display the working state of last time (Except timer, sleeping, power/soft and health airflow). Setting the comfort work conditions.

2.The setting of health airflow function

1).Press the button of health airflow, appears on the display. The nether inlet and outlet grills of the air conditioner are closed and the airflow is blown horizontally from the above inlet and outlet grills. Avoid the strong airflow blows direct to the body.

2).Press the button of health airflow again, appears on the display. The above inlet and outlet grills of the air conditioner are closed and the airflow is blown vertically from the nether inlet and outlet grills. Avoid the strong airflow blows direct to the body.

3.The cancel of the health airflow function

Press the button of health airflow again, both the inlet and outlet grills of the air conditioner are opened, and the unit goes on working under the condition before the setting of health airflow function.

After stopping, the outlet grille will close automatically.

Notice: Cannot pull direct the outlet grille by hand. Otherwise, the grille will run incorrectly. If the grille is not run correctly, stop for a minute and then start, adjusting by remote controller.

Note:

1 .After setting the health airflow function, the position of inlet and outlet grills is fixed.

2.In heating, it is better to select the mode.

3.In cooling, it is better to select the mode.

4.In cooling and dry, using the air conditioner for a long time under the high air humidity, a phenomenon falling drips of water occurs at the outlet grille .

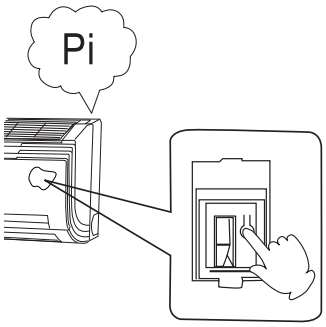
5.Select the appropriate fan direction according to the actual conditions.

Operation

Emergency and Test Operation

Emergency operation:

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



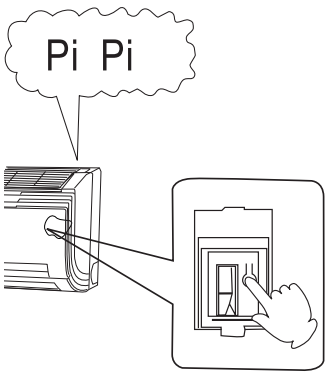
Temperature	Operation mode	Designated temperature	Timer mode	Air flow
ABOVE 21°C	COOLING	24°C	NO	AUTOMATIC
BELOW 21°C	HEATING	24°C	NO	AUTOMATIC

- It is not possible to operate in dry mode.

Test operation:

Test operation switch is the same as emergency switch.

- Use this switch in the test operation when the room temperature is below 16°C, do not use it in the normal operation.
- Continue to press the test operation switch for more than 5 seconds. After you hear the "Pi" sound twice, release your finger from the switch: the cooling operation starts with the air flow speed "Hi".
- After 30 minutes, test operation ends automatically.



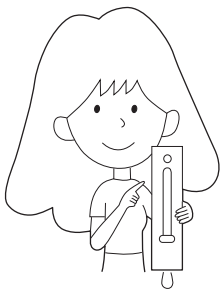
Removal of the restriction of emergency or test operation

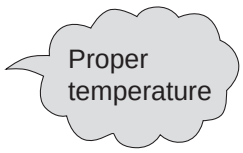
- Press the emergency operation switch once more, or manipulate through the remote controller; the "Pi" sound, the emergency or test operation is terminated.
- When the remote controller is manipulated, it gets the system back to the normal operation mode.

Maintenance

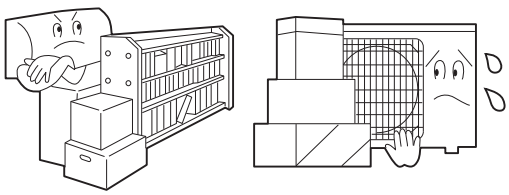
For Smart Use of The Air Conditioner

Setting of proper room temperature

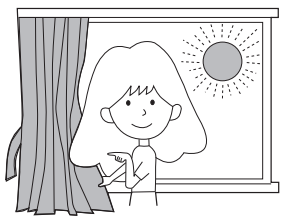


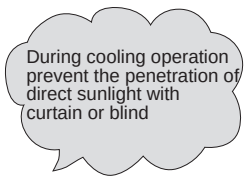


Do not block the air inlet or outlet

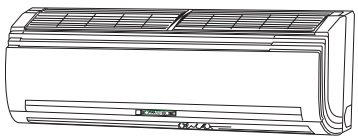


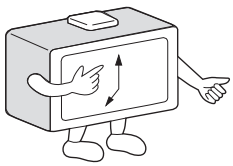
Close doors and windows during operation



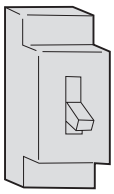


Use the timer effectively



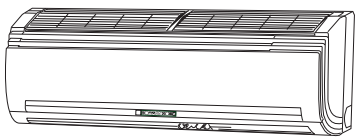


If the unit is not to be used for a long time, turn off the power supply main switch.



OFF

Use the louvers effectively



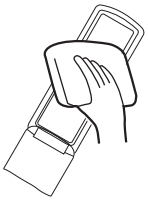
Maintenance

For Smart Use of The Air Conditioner

⚠ WARNING

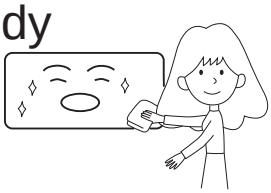
Before maintenance,be sure to turn off the system and the circuit breaker.

Remote Controller



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

Indoor Body



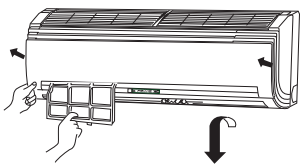
Wipe the air conditioner by using a soft and dry cloth.For serious stains,use a neutral detergent diluted with water.Wring the water out of the cloth before wiping.then wipe off the detergent completely.

Do not use the following for cleaning

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

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

Air Filter cleaning



1 Open the inlet grille by pulling it upward.

2 Remove the filter.

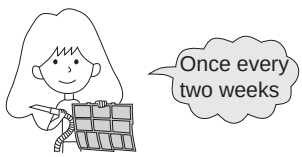
Push up the filter's center tab slightly until it is released from the stopper, and remove the filter downward.

3 Clean the filter.

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

4 Attach the filter.

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



5 Close the inlet grille.

Maintenance

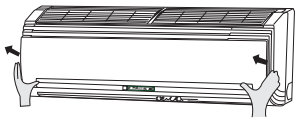
Replancement of Air Purifying Filter

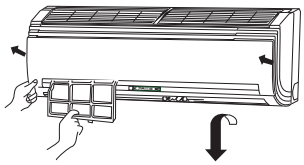
1.Open the Inlet Grille

Open the inlet grille by pushing each ends of the inlet grille upward.(use thumbs to push up)

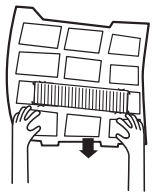
2.Detach the standard air filter

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



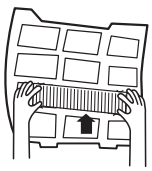


Detach old Air Purifying Filter



3.Attach old Air Purifying Filter

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



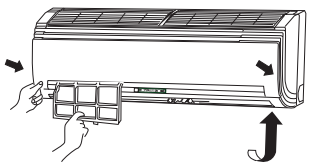
4.Attach the standard air filter

(Necessary installation)

5.Close the Inlet Grille

Close the Grille surely

Note: the bacteria-killing mediums placed on the left side. the multi-lights touching intermediary is placed on the right side.



NOTE:

- The photocatalyst air purifying filter and the bacteria-killing medium air purifying filter will be used based on real situation.
- The photocatalyst air purifying filter will be solarized in fixed time. In normal family, it will be solarized every 6 months. The solarization time will last no less than 8 hours under the state of abundant sun.
- The bacteria-killing medium air purifying filter is available for a long time and neednít to be changed. But it must be noticed to use the vacuum cleaner frequently to adsorb the dusts covering the purifying filter lest the covering dusts effect the function of the bacteria-killing medium air purifying filter. (It is strictly prohibited for the bacteria-killing medium air purifying filter to be washed)
- The green aspect of the bacteria-killing medium air purifying filter will face outside, the white aspect will face to the machine.

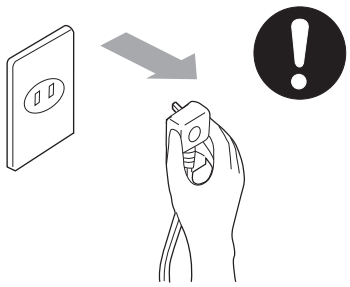
Maintenance

To Keep Your Air conditioner in Good Condition after Season.

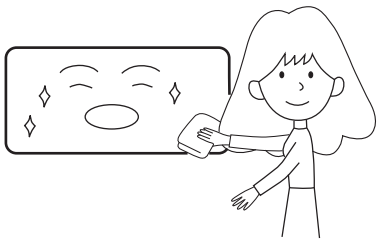
1 Operate in cooling mode for 2-3 hours.

To prevent breeding mold or bad smell, be sure to operate at the designated temperature or 30°C,cooling mode and High speed fan mode for 2-3 hours.

2 Put off the power supply cord.



3 Cleaning the body.



4 Take out the batteries from the wireless remote controller.

Maintenance

Before Setting in High season

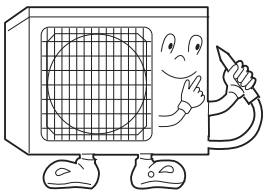
1 Cleaning the standard air filter.

Operation without filter may cause troubles.Be sure to attach both right and left filters prior to the operation. Each of them are of different shapes.

2 Connecting the earthing cable.

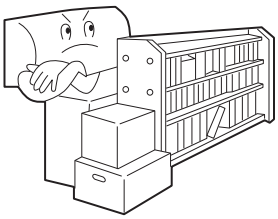
⚠ Caution

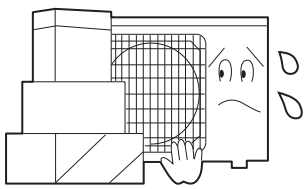
- Incomplete earthing may cause an electric shock.



EARTHING

3 Do not block the air inlet or outlet.





4 Plug-in

⚠ Caution

- After brush away dust at the plug, insert the plug of the power supply cord into the outlet completely.In case of suing exclusive circuit breaker,switch on the circuit breaker.

NO WET HAND

Trouble shooting

Before asking for service, check the following first.

	Phenomenon	Cause or check points
Normal Performance inspection	The system does not restart immediately. 	• When unit is stopped, it won't restart immediately until 3 minutes have elapsed to protect the system. • When the electric plug is pulled out and reinserted, the protection circuit will work for 3 minutes to protect the air conditioner.
	Noise is heard: 	• During unit operation or at stop, a swishing or gurgling noise may be heard. At first 2-3 minutes after unit start, this noise is more noticeable. (This noise is generated by refrigerant flowing in the system.) • During unit operation, a cracking noise may be heard. This noise is generated by the casing expanding or shrinking because of temperature changes. • Should there be a big noise from air flow in unit operation, air filter may be too dirty.
	Smells are generated.	• This is because the system circulates smells from the interior air such as the smell of furniture, cigarettes.
	Mist or steam are blown out.	• During COOL or DRY operation, indoor unit may blow out mist. This is due to the sudden cooling of indoor air.
Multiple check	Does not work at all.	• Is power plug inserted? • Is there a power failure? • Is fuse blown out?
	Poor cooling 	• Is the air filter dirty? Normally it should be cleaned every 15 days. • Are there any obstacles before inlet and outlet? • Is temperature set correctly? • Are there some doors or windows left open? • Is there any direct sunlight through the window during the cooling operation?(Use curtain) • Are there too much heat sources or too many people in the room during cooling operation?

ELECTRICAL CONTROLL

2. Run mode:(Tr: inlet air temperature,Ts：the set temperature)

2.1 automatic run mode

The background lighting of the LCD is white

1) cooling only type automatic run mode:

When the system runs under "automatic" mode for the first time, it will determine the operating mode according to the follows,

Tr≥Ts+3℃ Choose Cooling mode

Tr<Ts-3℃ Choolse Blowing Mode

The system will shift its operating mode between the above mentioned two to changes of the indoor temperature. If the system is currently under cooling mode, it will switch to blowing mode when Tr<Ts-3℃; if the system is currently under blowing mode, it will in turn switch to cooling mode when Tr > Ts+3℃. The switching mode as below,

2) cold/warm type run mode:

When the system runs under "automatic" mode for the first time, it will determine the operating mode according to the follows,

Tr≥Ts-3℃ Choose Cooling Mode

Tr＜Ts-3℃ Choose Heating Mode

The system will shift its operating mode between the above mentioned two to changes of the indoor temperature. If the system is currently under cooling mode, the compressor will stop functioning if the temperature lowers to such a degree that requires so; then it will recheck the temperature 15 minutes later: it will switch to the heating mode if the temperature is Tr＜Ts-3℃,or it will still stay in cooling mode(including blowing mode). if the system is currently under heating mode, the compressor will stop running if the temperatur lowers to such a degree that requires so, then it will recheck teh temperatur 15 minutes later: it will switch to the cooling mode if the temperature is Tr＞Ts+3℃.

2.2 Cooling run mode: (Tr: inlet air temperature,Ts：the set temperature)

The background lighting of the LCD is blue

Temperature control range : 16℃—30℃

Temperature control precision: ±1℃

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

Control character: when Tr> Ts, outdoor fan motor and compressor on, and indoor fan motor run at fixed wind speed. When Tr < Ts, outdoor fan motor and compressor off, and when Tr > Ts, outdoor fan motor and compressor are working again.

If Tr=Ts, the indoor fan motor,outdoor fan motor and the compressor's state will not change.

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

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

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

When Tr<Ts+1℃, the wind speed is low.

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

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

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

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

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

Avoiding electrical shock: outdoor fan motor is available 2 seconds later after the compressor startup.

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

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

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

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

Timer on, Timer off and sleep control are available.

2.3 Dehumidifying mode: (Tr: inlet air temperature,Ts：the set temperature)

The background lighting of the LCD is aquamarine blue

Temperature control range : 16℃—30℃

Temperature control precision: ±1℃

control character:

- When Tr (indoor temperature) > Ts (temperature setting) +2℃, compressor and outdoor fan motor run continuosly with indoor fan motor runnig in accordance with the wind speed setting.
- When Tr ranges from Ts to Ts +2℃, outdoor fan motor and compressor are on for 10 minutes and off for 6 minutes, the indoor fan motor is off in 3 minutes after shutdown of compressor and gives breeze in other time.
- When Tr < Ts, outdoor fan motor and compressor are unavailable, and the indoor fan motor enter breeze mode 3 minutes later after shut down of compressor.
- When all the ranges alternate, there is ±1℃ difference.

Wind speed control:

Automation: When Tr >= Ts + 5℃, the wind speed is high.

When Ts+3℃≤ Tr <Ts+5℃, the wind speed is medium.

When Ts+2℃≤ Tr <Ts+3℃, the wind speed is low.

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

When Tr < Ts, the indoor fan motor is shut off. in 3 minutes

When Tr < Ts, the machine gives breeze after 3 minutes

Manual operation: When the temperation sensor is off or the Indoor fan motor runs intermittently, the indoor fan motor can not be operated by hand (compelling automatic operation), along with

the indoor fan motor can be operated in cooling mode. While controlling fan motor by hand in cooling mode, the cooling ranges include wind speed setting and refriferation range, others are the same as fan motor in automation mode.

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

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

Avoiding electrical shock: outdoor fan motor is available 2 seconds later after compressor startup.

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

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

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

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

Timer on, Timer off and sleep control are available.

2.4 Heating mode: (Tr: inlet air temperature,Ts：the set temperature)

The background lighting of the LCD is red

Temperature control range : 16℃—30℃

Temperature control precision: ±1℃

Control Character:

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

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

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

Control of indoor fan motor:

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

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

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

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

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

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

be started again 3 minutes later after shutdown.

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

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

Timer on, Timer off and sleep control are available.

Control of 4-way valve: When the unit is started for the first time, the 4-way valve starts runnig 10 seconds earlier than compressor does. After compressor stops runnig, the 4-way valve continues running for 2 minutes and 30 seconds then stops. If changing the unit from heating to cooling, the 4-way valve is shut off 2 minutes later and compressor is started 3 minutes later.

Cold blast avoidance mode:

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

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

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

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

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

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

High temperature protection and high temperature expiration protection:

- High temperature prevention: When the temp. of coil pipe is above 64℃, the outdoor fan motor stops.When the temp descends to 60℃, the outdoor fan motor is restarted and fan speed invertage frequence is more than 45 seconds. High temperature expiration prevention: When the temp. of coil pipe is above 73℃,compressor and outdoor fan motor stop running 2 seconds later, and inlet air runs as the temp. sensor is off. When compressor stands by for 3 minute and the temp. of coil pipe is below 64℃, the unit can be started again.

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

- Current protection: If current detected is above (HSU-12HV03/R2:5.8A;HSU-09HV03/R2:4.5A;HSU-07HV03/R2:4.2A) and lasts 10 senconds continuously, outlet air stops. If current detected is below (HSU-12HV03/R2:5.2A;HSU-09HV03/R2:4.2A;HSU-07HV03/R2:3.8A) , outlet air is regained 。 Current peak expiration protection: If current detected is above (HSU-12HV03/R2:9.5A;HSU-09HV03/R2:8.5A;HSU-07HV03/R2:8.5A) , 3 seconds later the system enter current cross protection, compressor and air outlet stop and start again 3 minuts later, and air inlet runs as the temperature sensor is off.(different mode has the different CT value)

Overcooling protection:

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

restarted 3 minutes later.

Defrosting:

1.Entry conditions of defrosting:

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

B. Compressor runs 20 minutes continuously, and the temp. of indoor coil pipe decreases 1℃ per 6 minutes and this operation repeats 3 times, and the temp. of coil pipe is below 38℃, then 5 minutes later . the system enters defrosting mode.

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

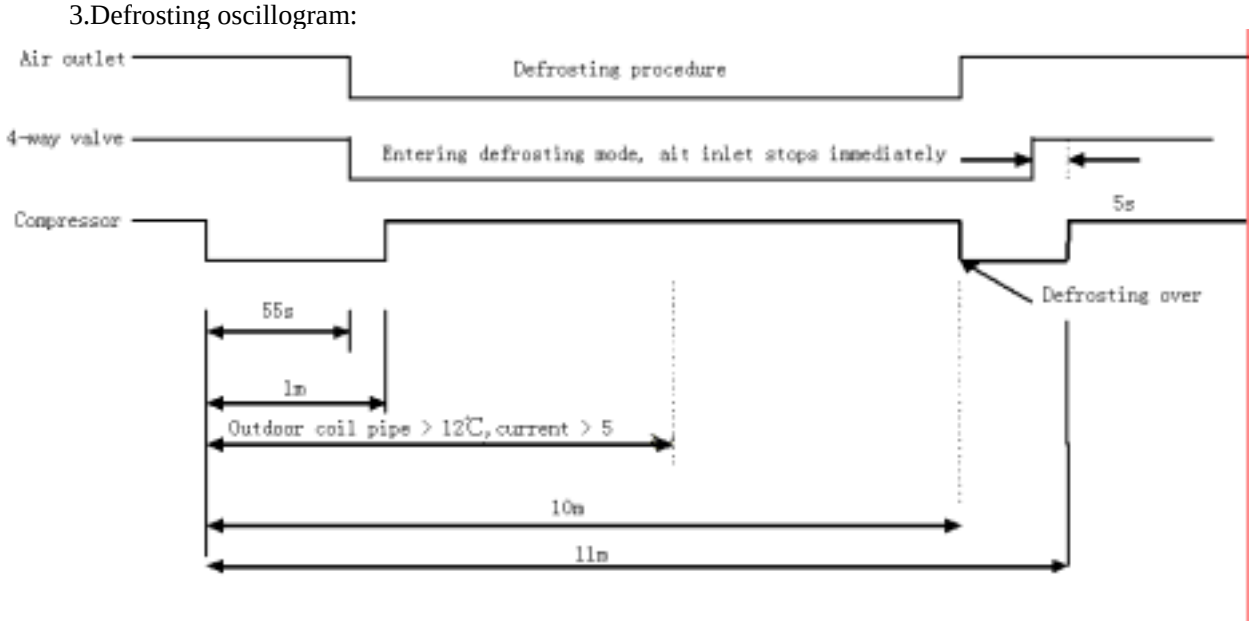
D. The difference between the temp. of indoor coil pipe and the indoot temp. is below 16℃ and lasts 5 minutes, compressor runs over 45 minutes in total and over 20 minutes continuously, the temp. of indoor coil pipe is below 38℃, the system enters defrosting mode.

2.Exit conditions of defrosting:

Defrosting time is higher than 12 minutes (compressor is on), or CT current is above (8.5A).

- During the defrosting, if current peak value is cut off, the unit quit the defrosting mode. But the protection of expiration of current peak value is unavailable with 60 senconds after compressor is started.
- During the defrosting and 2 minutes after the defrosting, abnormality of temp. sensor isn't detected.
- After quiting the defrosting mode, the fan motor enter cooling prevention mode.

3.Defrosting oscillogram:



Automatic temperature compensation of heating:

1. Conditions: Halt time of compressor is below 5 minutes.
2. Operation rules: 1) Ts=Tr + 5℃ + (Tr – Td (temperature detected)[the moment of startup])
   2)Tr – Td[the moment of startup] ≤ 2℃
   Note: the two items above is disable when starting for the first time.

3)Press "-" button in the remote controller, and then restore Ts = Tr + 5℃.
Press "+" button in the remote controller, and then operate according to automatic compensation setting
4)If Tr – Td [before compressor starts] ≤0℃, and then operate according to Ts = Tr + 5℃.

3. If air door in "health airflow mode" and blow up, the temp. setting of heating is added by 2℃ in the base of beginnig.

4.Control function:

4.1Timer function: You can set 24-hour timer on or timer off as required, and the minum time unit is 1 minute. After setting, a pattern of clock displaied on the LCD, and it is off when timer setting is completed. There are several timer mode as follows.

- Timer on: The pattern of clock displaied on the LCD,the background light is off, and unit behaves with halt status. Timer on is completed, and then unit starts running with the pattern of clock disappeared,and the background light is on. The unit starts with the last setting receiving timer signals, and sleep setting is not allowed.
- Timer off: Unit working, the pattern of clock displaied on the LCD; When reaching time setting, unit enters shutdown mode, and sleep function can be set. If timer off and sleep are set synchronously, the one which time is short run first. Executing shutdown instruction clear timer and sleep function.
- Timer on and timer off can be set synchronously. when they are completed,

4.2 Sleep function (saving function at night):. The pattern of clock displaied on the LCD

- In cooling/defrosting mode, the temp. setting increases 1℃ one hour later after startup. After another hour the temp. setting increase by more 1℃ and then run continuously for another 6 hours and then close.
- In heating mode, the temp. setting decrease 2℃ one hour after startup. After another hour the temp. setting decrease by more 2℃. After 3 hours the temp. setting rise by 1℃and then run continuously for another 3 hours and then close.
- If the wind speed is set to high or medium before going to bed, the wind speed shifts to medium or low. If the wind speed is set to low before going to bed, the wind speed keep unchanged.

4.3 Protection of malfunction of temperature sensitive resistance.

- The temperature sensitive resistor is short circuit or open circuit, the machine doesn't work.
- During defrosting, don't detect if the temperature sensor short circuit or open circuit.
- Detect the temperature of coil pipe is below -40℃, then think the temperation circuit of coil pipe is open.
- Detect the temperature of coil pipe is above 95℃, then think the temperation circuit of coil pipe is short .
- Detect the temperature of inlet air is below -20℃, then think the temperation circuit of inlet air is open.
- Detect the temperature of inlet air is above 90℃, then think the temperation circuit of inlet air is short.

4.4 Emergency switch imput:

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

- If the switch is kept pressed for 5 seconds, buzzer ring two times and unit enter enter test run mode.
- Press the switch again, and then closes.
- The unit can receive remote control.
- Enter emergency operation from timer mode, then timer is cancelled.
- Test run:
  1) The temperature sensor of inlet air doesn't work, and compressor starts (but subject to the limit of -minute delay excluding the first time), and high wind, cooling, and air door is open.The indoor fan motor runs, running indicator lights up, compressor relay and the one of outdoor fan motor is closed
  2) During test run:
     - The prevention of freezing of evaporator doesn't work.
     - Over current control doesn't work.
     - The control of current peak expiration doesn't work.
     - Temperature control doesn't work.
     - Temperature expiration control doesn't work.
     - The test run is over after 30 minutes,then the unit turn off

4.5 Executive function after 2 seconds by remoter control:

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

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

4.6 Alarm from indoor fan motor: 120 seconds later after the indoor fan motor is charged, and the impulse from fan motor is not detected, then stop outputting voltage to indoor fan motor, send alarm signals.

4. 7 Manual defrosting: when the wire controller is on, choose high wind, 30℃, and press the sleeping button for 6 times within 5 seconds, and after the buzzer rings 3 times, the air conditioner enter manual defrosting mode, which is the same as heating defrosting.

2. Run mode:(Tr: inlet air temperature,Ts：the set temperature)

2.1 automatic run mode

The background lighting of the LCD is white

1) cooling only type automatic run mode:

When the system runs under "automatic" mode for the first time, it will determine the operating mode according to the follows,

Tr≥Ts+3℃ Choose Cooling mode

Tr<Ts-3℃ Choose Blowing Mode

The system will shift its operating mode between the above mentioned two to changes of the indoor temperature. If the system is currently under cooling mode, it will switch to blowing mode when Tr<Ts-3℃; if the system is currently under blowing mode, it will in turn switch to cooling mode when Tr > Ts+3℃. The switching mode as below,

2) cold/warm type run mode:

When the system runs under "automatic" mode for the first time, it will determine the operating mode according to the follows,

Tr≥Ts-3℃ Choose Cooling Mode

Tr＜Ts-3℃ Choose Heating Mode

The system will shift its operating mode between the above mentioned two to changes of the indoor temperature. If the system is currently under cooling mode, the compressor will stop functioning if the temperature lowers to such a degree that requires so; then it will recheck the temperature 15 minutes later: it will switch to the heating mode if the temperature is Tr＜Ts-3℃,or it will still stay in cooling mode(including blowing mode). if the system is currently under heating mode, the compressor will stop running if the temperatur lowers to such a degree that requires so, then it will recheck teh temperatur

15 minutes later: it will switch to the cooling mode if the temperature is Tr＞Ts+3℃.

2.2 Cooling run mode: (Tr: inlet air temperature,Ts：the set temperature)

The background lighting of the LCD is blue

Temperature control range : 16℃—30℃

Temperature control precision: ±1℃

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

Control character: when Tr> Ts, outdoor fan motor and compressor on, and indoor fan motor run at fixed wind speed. When Tr < Ts, outdoor fan motor and compressor off, and when Tr > Ts, outdoor fan motor and compressor are working again.

If Tr=Ts, the indoor fan motor,outdoor fan motor and the compressor's state will not change.

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

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

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

When Tr<Ts+1℃, the wind speed is low.

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

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

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

compressor control：The compressor can't be controlled by temperature sensor within 2 minutes after

startup and can be only restarted at least 3 minutes later after shutdown. There is no 3-minute

protection with power on for the first time (over 3 minutes with power off). The compressor must

stands by for 3 minutes before it is restarted after shutdown.

There is no 2-minute limit when changing the temperature setting or shutting down the machine

through the remote controller, and the machine can be shut down immediately.

Avoiding electrical shock: outdoor fan motor is available 2 seconds later after the compressor startup.

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

Protection of expiration of current peak value is available: Current cross detection is available in order

to avoid burning out the compressor when the current is too big. The action character as follows:

The compressor can't be detected in 60 seconds after startup. when current is above "CT 1.6 V"

and lasts 3 seconds, the system enter protection mode and shut off compressor with outdoor air

blower and indoor fan motor controlled as the temperature sensor is off. After 3 minutes the machine can be started again.

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

Timer on, Timer off and sleep control are available.

2.3 Dehumidifying mode: (Tr: inlet air temperature,Ts：the set temperature)

The background lighting of the LCD is aquamarine blue

Temperature control range : 16℃—30℃

Temperature control precision: ±1℃

control character:

- When Tr (indoor temperature) > Ts (temperature setting) +2℃, compressor and outdoor fan motor run continuosly with indoor fan motor runnig in accordance with the wind speed setting.
- When Tr ranges from Ts to Ts +2℃, outdoor fan motor and compressor are on for 10 minutes and off for 6 minutes, the indoor fan motor is off in 3 minutes after shutdown of compressor and gives breeze in other time.
- When Tr < Ts, outdoor fan motor and compressor are unavailable, and the indoor fan motor enter breeze mode 3 minutes later after shut down of compressor.
- When all the ranges alternate, there is ±1℃ difference.

Wind speed control:

Automation: When Tr >= Ts + 5℃, the wind speed is high.

When Ts+3℃≤ Tr <Ts+5℃, the wind speed is medium.

When Ts+2℃≤ Tr <Ts+3℃, the wind speed is low.

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

When Tr < Ts, the indoor fan motor is shut off. in 3 minutes

When Tr < Ts, the machine gives breeze after 3 minutes

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

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

There is no 2-minutes limit when changing the temperature setting or shutting off the

machine

through the remote controller, and the machine can be shut down immediately.

Avoiding electrical shock: outdoor fan motor is available 2 seconds later after compressor startup.

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

Protection of expiration of current peak value is available: Current cross detection is available in order

to avoid burning out the compressor when the current is too big. The action character as follows:

The compressor can't be detected in 60 seconds after startup. when current is above "CT 1.6 V"

and lasts 3 seconds, the system enter protection mode and shut off compressor with outdoor air

blower and indoor fan motor controlled as the temperature sensor is off. After 3 minutes the

machine can be started again.

Protection of frost is available (disable in test run or heating mode): In order to prevent the indoor heat

exchanger from freezing (in refrigation or dehumidifying mode), the compressor will be shut off when the temperature of the indoor coil pipe is or below 0℃ and the compressor runs for over 5 minutes. When the temperature of the indoor coil pipe ascends to over 7℃, the compressor is restarted (must meet a 3-minutes delay)

Timer on, Timer off and sleep control are available.

2.4 Heating mode: (Tr: inlet air temperature,Ts：the set temperature)

The background lighting of the LCD is red

Temperature control range : 16℃—30℃

Temperature control precision: ±1℃

Control Character:

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

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

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

Control of indoor fan motor:

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

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

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

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

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

compressor control：The compressor can't be controlled by temperature sensor in 2

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

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

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

Timer on, Timer off and sleep control are available.

Control of 4-way valve: When the unit is started for the first time, the 4-way valve starts runnig 10 seconds earlier than compressor does. After compressor stops runnig, the 4-way valve continues running for 2 minutes and 30 seconds then stops. If changing the unit from heating to cooling, the 4-way valve is shut off 2 minutes later and compressor is started 3 minutes later.

Cold blast avoidance mode:

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

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

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

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

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

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

High temperature protection and high temperature expiration protection:

- High temperature prevention: When the temp. of coil pipe is above 65℃, the outdoor fan motor stops.When the temp descends to 60℃, the outdoor fan motor is restarted and fan speed invertage frequence is more than 45 seconds. High temperature expiration prevention: When the temp. of coil pipe is above 72 ℃,compressor and outdoor fan motor stop running 2 seconds later, and inlet air runs as the temp. sensor is off. When compressor stands by for 3 minute and the temp. of coil pipe is below 64℃, the unit can be started again.

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

- Current protection: If current detected is above (CT1) and lasts 10 senconds continuously, outlet air stops. If current detected is below (CT2) , outlet air is regained。 Current peak expiration protection: If current detected is above (CT3) , 3 seconds later the system enter current cross protection, compressor and air outlet stop and start again 3 minuts later, and air inlet runs as the temperature sensor is

off.(different mode has the different CT value)

Overcooling protection:

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

Defrosting:

1.Entry conditions of defrosting:

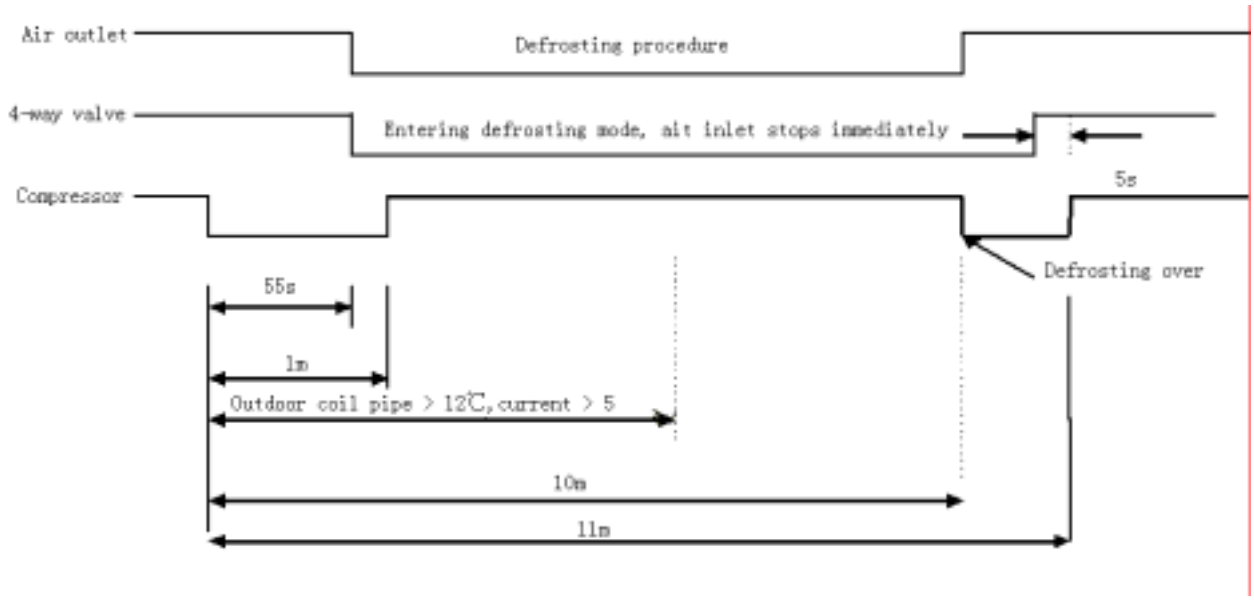
A. Indoor unit enter overload protection and air outlet stops when air outlet has been restarted and runs over 10 minutes, and compressor runs over 45 minutes in total and over 20 minutes continuously, and the temp. of indoor coil pipe is below 38 ℃.
B. Compressor runs 20 minutes continuously, and the temp. of indoor coil pipe decreases 1℃ per 6 minutes and this operation repeats 3 times, and the temp. of coil pipe is below 38℃, then 5 minutes later . the system enters defrosting mode.
C. When compressor runs over 3 hours in total and over 20 minutes continuously and after the temp. of indoor coil pipe is below 38℃, the system enters defrosting mode.
D. The difference between the temp. of indoor coil pipe and the indoot temp. is below 18℃ and lasts 5 minutes, compressor runs over 45 minutes in total and over 20 minutes continuously, the temp. of indoor coil pipe is below 38℃, the system enters defrosting mode.

2.Exit conditions of defrosting:

Defrosting time is higher than 12 minutes (compressor is on), or CT current is above (CT1).

- During the defrosting, if current peak value is cut off, the unit quit the defrosting mode. But the protection of expiration of current peak value is unavailable with 60 senconds after compressor is started.
- During the defrosting and 2 minutes after the defrosting, abnormality of temp. sensor isn't detected.
- After quiting the defrosting mode, the fan motor enter cooling prevention mode.

3.Defrosting oscillogram:



Automatic temperature compensation of heating:

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

   2)Tr – Td[the moment of startup] ≤ 2℃

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

   3)Press "-" button in the remote controller, and then restore Ts = Tr + 5 ℃.

   Press "+" button in the remote controller, and then operate according to automatic compensation setting

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

   Ts = Tr + 5℃.

4.Control function:

4.1Timer function: You can set 24-hour timer on or timer off as required, and the minum time unit is 1 minute. After setting, a pattern of clock displaied on the LCD, and it is off when timer setting is completed. There are several timer mode as follows.

- Timer on: The pattern of clock displaied on the LCD,the background light is off, and unit behaves with halt status. Timer on is completed, and then unit starts running with the pattern of clock disappeared,and the background light is on. The unit starts with the last setting receiving timer signals, and sleep setting is not allowed.
- Timer off: Unit working, the pattern of clock displaied on the LCD; When reaching time setting, unit enters shutdown mode, and sleep function can be set.

If timer off and sleep are set synchronously, the one which time is short run first. Executing shutdown instruction clear timer and sleep function.

- Timer on and timer off can be set synchronously. when they are completed,

4.2 Sleep function (saving function at night):. The pattern of clock displaied on the LCD

- In cooling/defrosting mode, the temp. setting increases 1℃ one hour later after startup. After another hour the temp. setting increase by more 1℃ and then run continuously for another 6 hours and then close.
- In heating mode, the temp. setting decrease 2℃ one hour after startup. After another hour the temp. setting decrease by more 2℃. After 3 hours the temp. setting rise by 1℃and then run continuously for another 3 hours and then close.
- If the wind speed is set to high or medium before going to bed, the wind speed shifts to medium or low. If the wind speed is set to low before going to bed, the wind speed keep unchanged.

4.3 Protection of malfunction of temperature sensitive resistance.

- The temperature sensitive resistor is short circuit or open circuit, the machine doesn't work.
- During defrosting, don't detect if the temperature sensor short circuit or open circuit.
- Detect the temperature of coil pipe is below -40℃, then think the temperation circuit of coil pipe is open.
- Detect the temperature of coil pipe is above 95℃, then think the temperation circuit of coil pipe is short .
- Detect the temperature of inlet air is below -20℃, then think the temperation circuit of inlet air is open.
- Detect the temperature of inlet air is above 90℃, then think the temperation circuit of inlet air is short.

4.4 Emergency switch imput:

- Press the switch of emergency operation, then buzzer rings once and unit enters the automatic operation mode. (emergency operation)
- If the switch is kept pressed for 5 seconds, buzzer ring two times and unit enter enter test run mode.
- Press the switch again, and then closes.
- The unit can receive remote control.
- Enter emergency operation from timer mode, then timer is cancelled.

- Test run:
  1) The temperature sensor of inlet air doesn't work, and compressor starts (but subject to the limit of -minute delay excluding the first time), and high wind, cooling, and air door is open.The indoor fan motor runs, compressor relay and the one of outdoor fan motor is closed
  2) During test run:
     - The prevention of freezing of evaporator doesn't work.
     - Over current control doesn't work.
     - The control of current peak expiration doesn't work.

- Temperature control doesn't work.
- Temperature expiration control doesn't work.
- The test run is over after 30 minutes,then the unit turn off

4.5 Executive function after 2 seconds by remoter control:

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

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

4.6 Alarm from indoor fan motor: 120 seconds later after the indoor fan motor is charged, and the impulse from fan motor is not detected, then stop outputting voltage to indoor fan motor, send alarm signals.

4. 7 Manual defrosting: when the wire controller is on, choose high wind, 30℃, and press the sleeping button for 6 times within 5 seconds, and after the buzzer rings 3 times, the air conditioner enter manual defrosting mode, which is the same as heating defrosting.

2. Run mode:(Tr: inlet air temperature,Ts：the set temperature)

2.1 automatic run mode

The background lighting of the LCD is white

1) cooling only type automatic run mode:

When the system runs under "automatic" mode for the first time, it will determine the operating mode according to the follows,

Tr≥Ts+3℃ Choose Cooling mode

Tr<Ts-3℃ Choose Blowing Mode

The system will shift its operating mode between the above mentioned two to changes of the indoor temperature. If the system is currently under cooling mode, it will switch to blowing mode when Tr<Ts-3℃; if the system is currently under blowing mode, it will in turn switch to cooling mode when Tr > Ts+3℃. The switching mode as below,

2) cold/warm type run mode:

When the system runs under "automatic" mode for the first time, it will determine the operating mode according to the follows,

Tr≥Ts-3℃ Choose Cooling Mode

Tr＜Ts-3℃ Choose Heating Mode

The system will shift its operating mode between the above mentioned two to changes of the indoor temperature. If the system is currently under cooling mode, the compressor will stop functioning if the temperature lowers to such a degree that requires so; then it will recheck the temperature 15 minutes later: it will switch to the heating mode if the temperature is Tr＜Ts-3℃,or it will still stay in cooling mode(including blowing mode). if the system is currently under heating mode, the compressor will stop running if the temperatur lowers to such a degree that requires so, then it will recheck teh temperatur

15 minutes later: it will switch to the cooling mode if the temperature is Tr＞Ts+3℃.

2.2 Cooling run mode: (Tr: inlet air temperature,Ts：the set temperature)

The background lighting of the LCD is blue

Temperature control range : 16℃—30℃

Temperature control precision: ±1℃

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

Control character: when Tr> Ts, outdoor fan motor and compressor on, and indoor fan motor run at fixed wind speed. When Tr < Ts, outdoor fan motor and compressor off, and when Tr > Ts, outdoor fan motor and compressor are working again.

If Tr=Ts, the indoor fan motor,outdoor fan motor and the compressor's state will not change.

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

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

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

When Tr<Ts+1℃, the wind speed is low.

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

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

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

compressor control：The compressor can't be controlled by temperature sensor within 2 minutes after

startup and can be only restarted at least 3 minutes later after shutdown. There is no 3-minute

protection with power on for the first time (over 3 minutes with power off). The compressor must

stands by for 3 minutes before it is restarted after shutdown.

There is no 2-minute limit when changing the temperature setting or shutting down the machine

through the remote controller, and the machine can be shut down immediately.

Avoiding electrical shock: outdoor fan motor is available 2 seconds later after the compressor startup.

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

Protection of frost is available (disable in test run or heating mode): In order to prevent the indoor heat

exchanger from freezing (in refrigation or dehumidifying mode), the compressor will be shut off when the temperature of the indoor coil pipe is or below 0℃ and the compressor runs for over 5 minutes. When the temperature of the indoor coil pipe ascends to over 7℃, the compressor is restarted (must meet a 3-minutes delay)

Timer on, Timer off and sleep control are available.

2.3 Dehumidifying mode: (Tr: inlet air temperature,Ts：the set temperature)

The background lighting of the LCD is aquamarine blue

Temperature control range : 16℃—30℃

Temperature control precision: ±1℃

control character:

- When Tr (indoor temperature) > Ts (temperature setting) +2℃, compressor and outdoor fan motor run continuosly with indoor fan motor runnig in accordance with the wind speed setting.
- When Tr ranges from Ts to Ts +2℃, outdoor fan motor and compressor are on for 10 minutes and off for 6 minutes, the indoor fan motor is off in 3 minutes after shutdown of compressor and gives breeze in other time.
- When Tr < Ts, outdoor fan motor and compressor are unavailable, and the indoor fan motor enter breeze mode 3 minutes later after shut down of compressor.
- When all the ranges alternate, there is ±1℃ difference.

Wind speed control:

Automation: When Tr >= Ts + 5℃, the wind speed is high.

When Ts+3℃≤ Tr <Ts+5℃, the wind speed is medium.

When Ts+2℃≤ Tr <Ts+3℃, the wind speed is low.

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

When Tr < Ts, the indoor fan motor is shut off. in 3 minutes

When Tr < Ts, the machine gives breeze after 3 minutes

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

compressor control：The compressor can’t be controlled by temperature sensor in 2 minutes after

startup and also can’t be started again at least 3 minutes later after shutdown. There are 3-minutes protection with power on for the first time (over 3 minutes with power off). The compressor must be started again 3 minutes later after shutdown.

There is no 2-minutes limit when changing the temperature setting or shutting off the machine

through the remote controller, and the machine can be shut down immediately.

Avoiding electrical shock: outdoor fan motor is available 2 seconds later after compressor startup.

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

Protection of frost is available (disable in test run or heating mode): In order to prevent the indoor heat

exchanger from freezing (in refrigation or dehumidifying mode), the compressor will be shut off when the temperature of the indoor coil pipe is or below 0℃ and the compressor runs for over 5 minutes. When the temperature of the indoor

coil pipe ascends to over 7℃, the compressor is restarted (must meet a 3-minutes delay)

Timer on, Timer off and sleep control are available.

2.4 Heating mode: (Tr: inlet air temperature,Ts：the set temperature)

The background lighting of the LCD is red

Temperature control range : 16℃—30℃

Temperature control precision: ±1℃

Control Character:

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

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

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

Control of indoor fan motor:

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

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

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

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

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

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

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

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

Timer on, Timer off and sleep control are available.

Control of 4-way valve: When the unit is started for the first time, the 4-way valve starts runnig 10 seconds earlier than compressor does. After compressor stops runnig, the 4-way valve continues running for 2 minutes and 30 seconds then stops. If changing the unit from heating to cooling, the 4-way valve is shut off 2 minutes later and compressor is started 3 minutes later.

Cold blast avoidance mode:

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

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

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

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

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

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

High temperature protection and high temperature expiration protection:

- High temperature prevention: When the temp. of coil pipe is above 58℃, the outdoor fan motor stops.When the temp descends to 55℃, the outdoor fan motor is restarted and fan speed invertage frequence is more than 45 seconds. High temperature expiration prevention: When the temp. of coil pipe is above 68 ℃,compressor and outdoor fan motor stop running 2 seconds later, and inlet air runs as the temp. sensor is off. When compressor stands by for 3 minute and the temp. of coil pipe is below 46℃, the unit can be started again.

Overcooling protection:

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

Defrosting:

1.Entry conditions of defrosting:

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

B. Compressor runs 20 minutes continuously, and the temp. of indoor coil pipe decreases 1℃ per 6 minutes and this operation repeats 3 times, and the temp. of coil pipe is below 38℃, then 5 minutes later . the system enters defrosting mode.

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

D. The difference between the temp. of indoor coil pipe and the indoot temp. is below 18℃ and lasts 5 minutes, compressor runs over 45 minutes in total and over 20 minutes continuously, the temp. of indoor coil pipe is below 38℃, the system enters defrosting mode.

2.Exit conditions of defrosting:

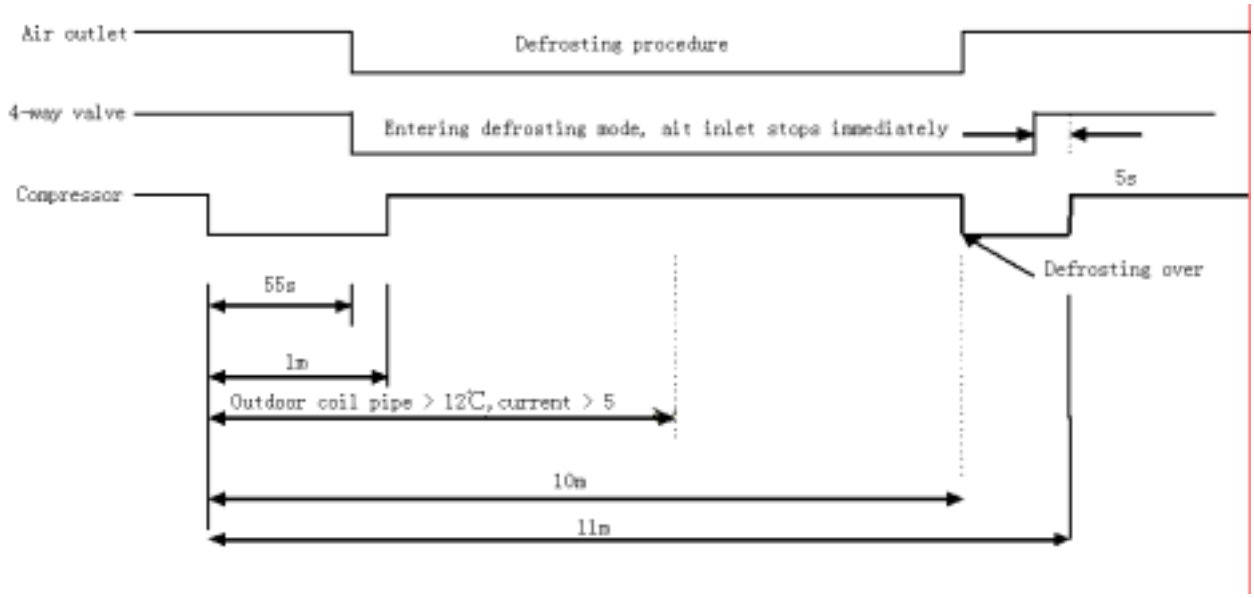
Defrosting time is higher than 12 minutes (compressor is on)

- During the defrosting, if current peak value is cut off, the unit quit the defrosting mode. But the protection of expiration of current peak value is unavailable with 60 senconds after compressor is started.
- During the defrosting and 2 minutes after the defrosting, abnormality of temp.

sensor isn't detected.

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

3.Defrosting oscillogram:



Automatic temperature compensation of heating:

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

   2)Tr – Td[the moment of startup] ≤ 2℃

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

   3)Press "-" button in the remote controller, and then restore Ts = Tr + 5 ℃.

   Press "+" button in the remote controller, and then operate according to automatic compensation setting

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

   Ts = Tr + 5℃.

4.Control function:

4.1Timer function: You can set 24-hour timer on or timer off as required, and the minum time unit is 1 minute. After setting, a pattern of clock displaied on the LCD, and it is off when timer setting is completed. There are several timer mode as follows.

- Timer on: The pattern of clock displaied on the LCD,the background light is off, and unit behaves with halt status. Timer on is completed, and then unit starts running with the pattern of clock disappeared,and the background light is on. The unit starts with the last setting receiving timer signals, and sleep setting is

not allowed.

- Timer off: Unit working, the pattern of clock displaied on the LCD; When reaching time setting, unit enters shutdown mode, and sleep function can be set. If timer off and sleep are set synchronously, the one which time is short run first. Executing shutdown instruction clear timer and sleep function.
- Timer on and timer off can be set synchronously. when they are completed,

4.2 Sleep function (saving function at night):. The pattern of clock displaied on the LCD

- In cooling/defrosting mode, the temp. setting increases 1℃ one hour later after startup. After another hour the temp. setting increase by more 1℃ and then run continuously for another 6 hours and then close.
- In heating mode, the temp. setting decrease 2℃ one hour after startup. After another hour the temp. setting decrease by more 2℃. After 3 hours the temp. setting rise by 1℃and then run continuously for another 3 hours and then close.
- If the wind speed is set to high or medium before going to bed, the wind speed shifts to medium or low. If the wind speed is set to low before going to bed, the wind speed keep unchanged.

4.3 Protection of malfunction of temperature sensitive resistance.

- The temperature sensitive resistor is short circuit or open circuit, the machine doesn't work.
- During defrosting, don't detect if the temperature sensor short circuit or open circuit.
- Detect the temperature of coil pipe is below -40℃, then think the temperation circuit of coil pipe is open.
- Detect the temperature of coil pipe is above 95℃, then think the temperation circuit of coil pipe is short .
- Detect the temperature of inlet air is below -20℃, then think the temperation circuit of inlet air is open.
- Detect the temperature of inlet air is above 90℃, then think the temperation circuit of inlet air is short.

4.4 Emergency switch imput:

- Press the switch of emergency operation, then buzzer rings once and unit enters the automatic operation mode. (emergency operation)
- If the switch is kept pressed for 5 seconds, buzzer ring two times and unit enter test run mode.
- Press the switch again, and then closes.
- The unit can receive remote control.
- Enter emergency operation from timer mode, then timer is cancelled.

- Test run:
  1) The temperature sensor of inlet air doesn't work, and compressor starts (but subject to the limit of -minute delay excluding the first time), and high wind, cooling, and air door is open.The indoor fan motor runs, compressor relay and the one of outdoor fan motor is closed
  2) During test run:

- The prevention of freezing of evaporator doesn't work.
- Over current control doesn't work.
- The control of current peak expiration doesn't work.
- Temperature control doesn't work.
- Temperature expiration control doesn't work.
- The test run is over after 30 minutes,then the unit turn off

4.5 Executive function after 2 seconds by remoter control:

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

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

4.6 Alarm from indoor fan motor: 120 seconds later after the indoor fan motor is charged, and the impulse from fan motor is not detected, then stop outputting voltage to indoor fan motor, send alarm signals.

4. 7 Manual defrosting: when the wire controller is on, choose high wind, 30℃, and press the sleeping button for 6 times within 5 seconds, and after the buzzer rings 3 times, the air conditioner enter manual defrosting mode, which is the same as heating defrosting.

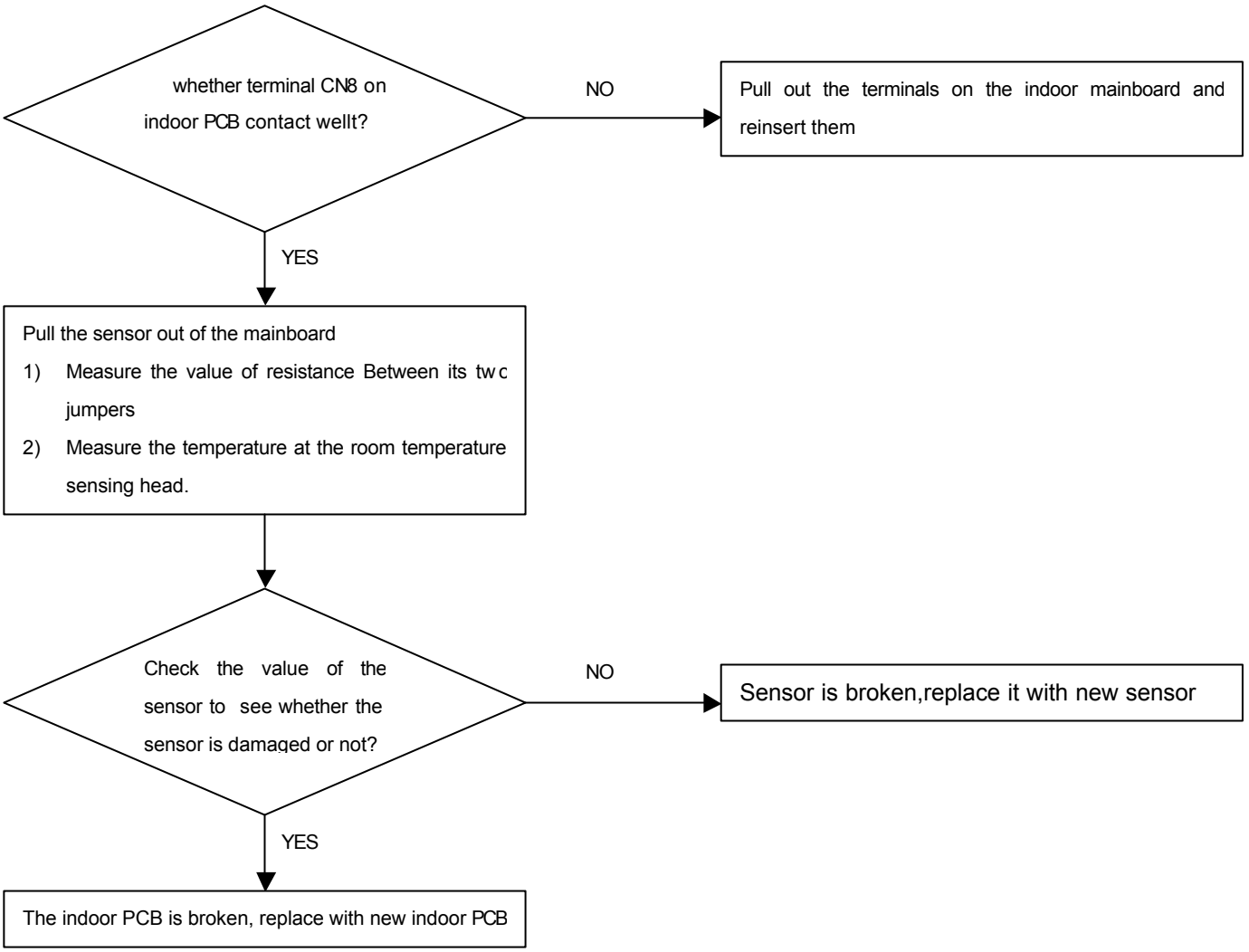
5.express mode of malfunction:

Error Codes and Description

	Code indication	Description	Reference Page
	indoor		
Indoor Malfunction	E1	Room temperature sensor failure	
	E2	Heat-exchange sensor failure	
	E4	Indoor EEPROM error/Humidity sensor malfunction	
	E14	Indoor fan motor malfunction	

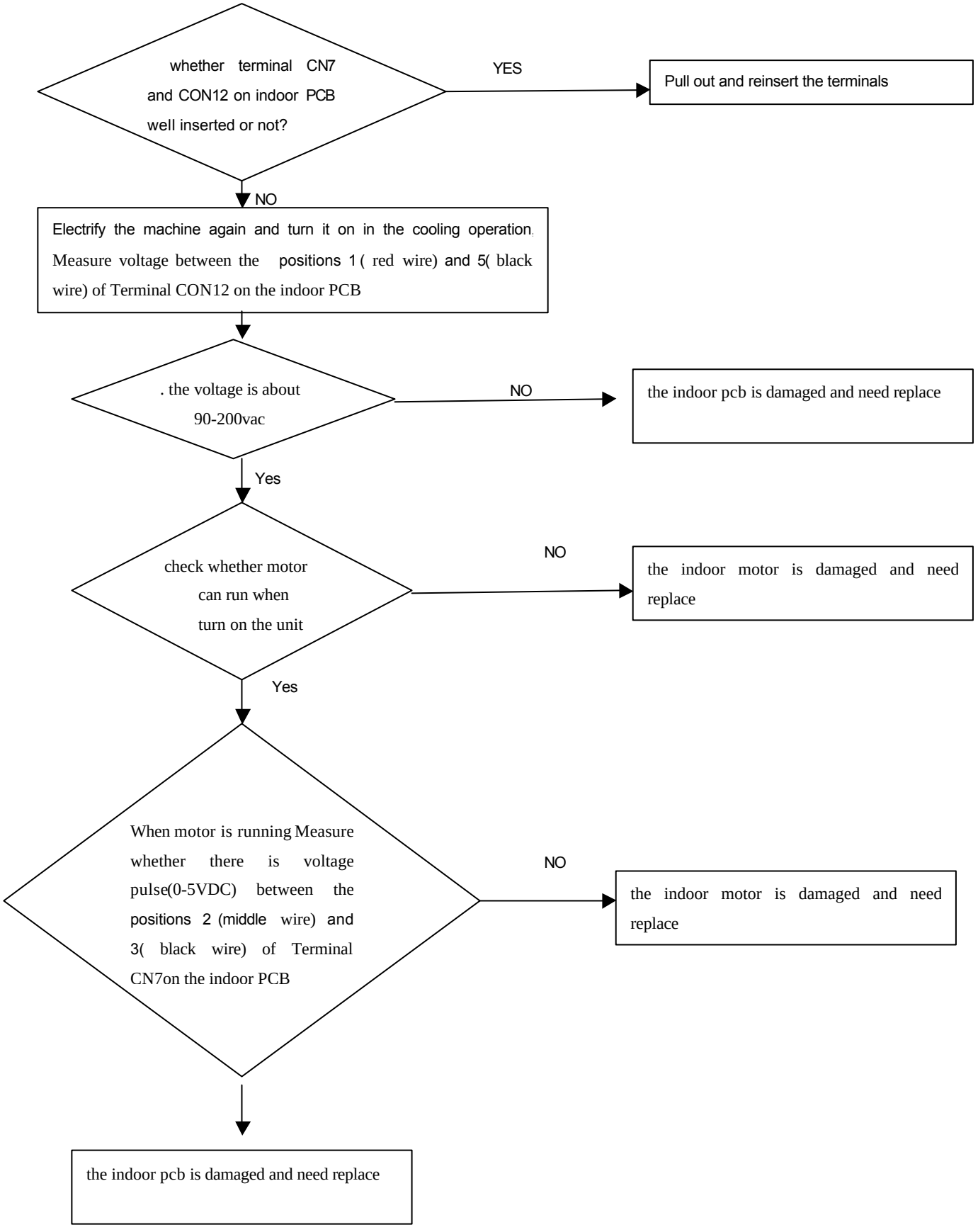
Trouble Shooting

E1: Room temperature sensor failure CN8
E2: Heat-exchange sensor failure CN8



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

E14 :Indoor fan motor malfunction



TROUBLE SHOOTING

Trouble Shooting

Before asking for service, check the following first.

	Phenomenon	Cause or check points
Normal Performance inspection	The system does not restart immediately. 	• When unit is stopped, it won't restart immediately until 3 minutes have elasped to protect the system. • When the electric plug is pulled out and reinserted, the protection circuit will work for 3 minutes to protect the air conditioner.
	Noise is heard. 	• During unit operation or at stop, a swishing or gurgling noise may be heard. At first 2-3 minutes after unit start, this noise is more noticeable. (This noise is generated by refrigerant flowing in the system.) • During unit operation, a cracking noise may be heard. This noise is generated by the casing expanding or shrinking because of temperature changes. • Should there be a big noise from air flow in unit operation, air filter may be too dirty.
	Smells are generated.	• This is because the system circulates smells from the interior air such as the smell of furniture, cigarettes.
	Mist or steam are blown out. 	• During COOL or DRY operation, indoor unit may blow out mist. This is due to the sudden cooling of indoor air.
Multiple check	Does not work at all. 	• Is power plug inserted? • Is there a power failure? • Is fuse blown out?
	Poor cooling 	• Is the air filter dirty? Normally it should be cleaned every 15 days. • Are there any obstacles before intel and outlet? • Is temperature set correctly? • Are there some doors or windows left open? • Is there any direct sunlight through the window during the cooling operation?(Use curtain) • Are there too much heat sources or too many people in the room during cooling operation?

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

INSTALLATION

Installation Manual of Room Air Conditioner

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

Necessary Tools for Installation

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

Drawing for the installation of indoor and outdoor units

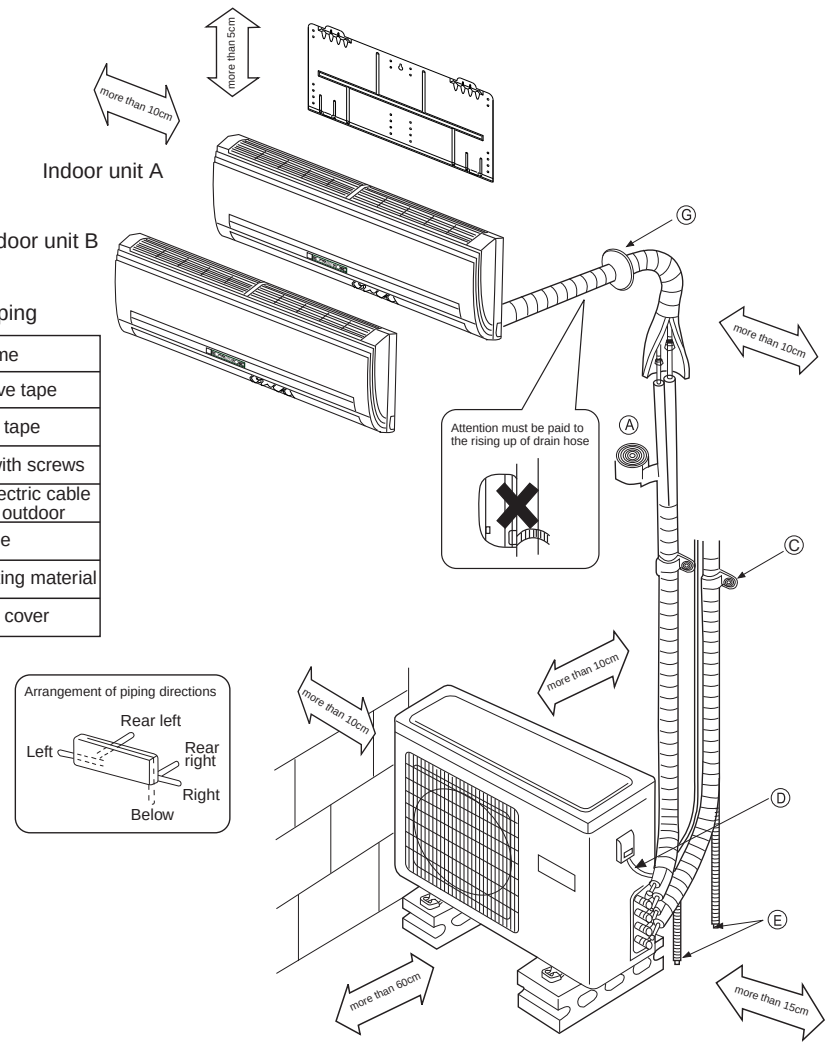
※ The models adopt HFC free refrigerant R410A

Accessory parts

No.	Accessory parts	Number of articles
①	Remote controller	2
②	R-03 dry battery	4
③	Mounting plate	2
④	Drain hose	2
⑤	ϕ4X25 Screw, Plastic cap	8
⑥	Drain-elbow	1
⑦	Cushion	4

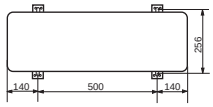
Optional parts for piping

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

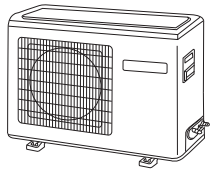


※ The marks from Ⓐ to Ⓖ in the figure are the parts numbers.

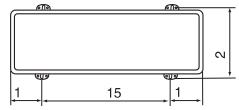
※ The distance between the indoor unit and the floor should be more than 2m.



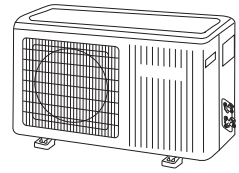
Floor fixing dimensions of the outdoor unit (Unit:mm)



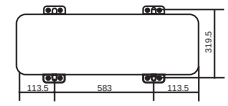
HSU-12HV03/R2
HSU-18HV03/R2



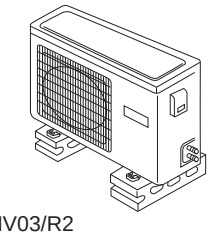
Floor fixing dimensions of the outdoor unit (Unit:mm)



HSU-07HV03/R2
HSU-09HV03/R2



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



HSU-22HV03/R2

Fixing of outdoor unit

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

Indoor Unit Selection of Installation Place Outdoor Unit

- Place, robust not causing vibration, where the body can be supported sufficiently.
- Place, not affected by heat or steam generated in the vicinity, where inlet and outlet of the unit are not disturbed.
- Place, possible to drain easily, where piping can be connected with the outdoor unit.
- Place, where cold air can be spread in a room entirely.
- Place, nearby a power receptacle, with enough space around. (Refer to drawings).
- Place where the distance of more than lm from televisions, radios, wireless apparatuses and fluorescent lamps can be left.
- In the case of fixing the remote controller on a wall, place where the indoor unit can receive signals when the fluorescent lamps in the room are lightened.
- Place, which is less affected by rain or direct sunlight and is sufficiently ventilated.
- Place, possible to bear the unit, where vibration and noise are not increased.
- Place, where discharged wind and noise do not cause a nuisance to the neighbors.
- Place, where a distance marked ⇦⇨is available as illustrated in the above figure.

Power Source

- Before inserting power plug into receptacle, check the voltage without fail. The power source is the same as the corresponding name plate.
- Install an exclusive branch circuit of the power.
- A receptacle shall be set up in a distance where the power cable can be reached. Do not extend the cable by cutting it.

Selection of pipe

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

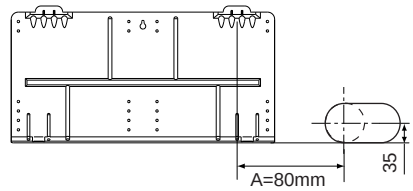
	For 07,09,12	For 18,22
Liquid pipe(ϕ)	6.35mm(1/4")	6.35mm(1/4")
Gas pipe(ϕ)	9.52mm(3/8")	12.7mm(1/2")

Indoor unit

1.Fitting of the Mounting Plate and Positioning of the wall Hole

When the mounting plate is first fixed

1.Carry out, based on the neighboring pillars or lintels, a proper leveling for the plate to be fixed against the wall, then temporarily fasten the plate with one steel nail.
2. Make sure once more the proper level of the plate, by hanging a thread with a weight from the central top of the plate, then fasten securely the plate with the attachment steel nail.
3. Find the wall hole location A using a measuring tape



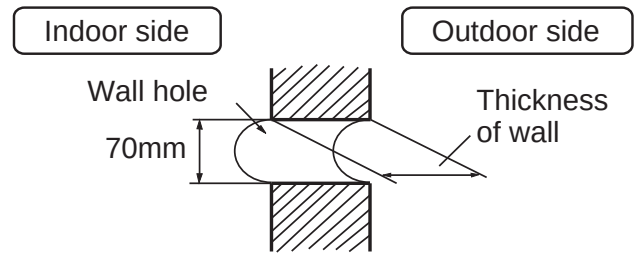
Fit the level line

When the mounting plate is fixed side bar and lintel

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

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

- Make a hole of 70 mm in diameter, slightly descending to outside the wall.
- Install piping hole cover and seal it off with putty after installation



(Section of wall hole) Ⓖ Piping hole pipe

3.Installation of the Indoor Unit

Drawing of pipe

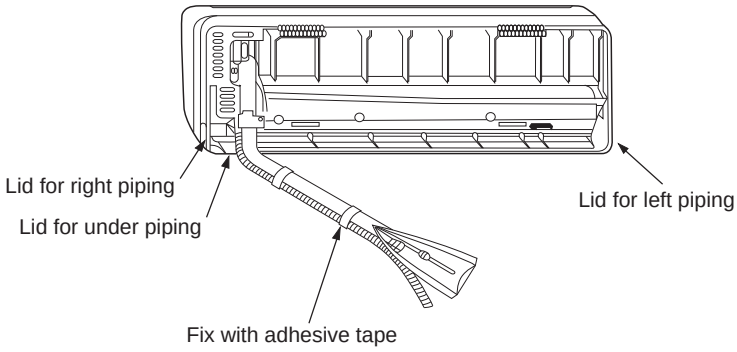
[Rear piping]

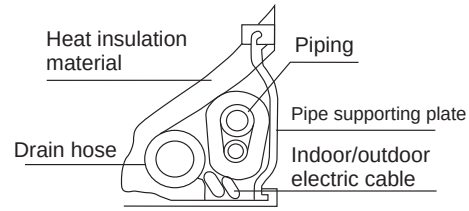
- Draw pipes and the drain hose, then fasten them with the adhesive tape

[Left • Left-rear piping]

- In case of left side piping, cut away, with a nipper, the lid for left piping.
- In case of left-rear piping, bend the pipes according to the piping direction to the mark of hole for left-rear piping which is marked on heat insulation materials.

1. Insert the drain hose into the dent of heat insulation materials of indoor unit.
2. Insert the indoor/outdoor electric cable from backside of indoor unit, and pull it out on the front side, then connect them.
3. Coat the flaring seal face with refrigerant oil and connect pipes.
   Cover the connection part with heat insulation materials closely, and make sure fixing with adhesive tape





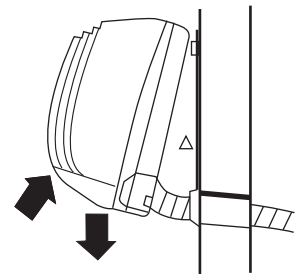
- Indoor/outdoor electric cable and drain hose must be bound with refrigerant piping by protecting tape.

[Other direction piping]

- Cut away, with a nipper, the lid for piping according to the piping direction and then bend the pipe according to the position of wall hole. When bending, be careful not to crash pipes.
- Connect beforehand the indoor/outdoor electric cable, and then pull out the connected to the heat insulation of connecting part specially.

Fixing the indoor unit body

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

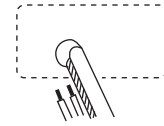


4.Connecting the indoor/outdoor Electric Cable

Removing the wiring cover

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

When connecting the cable after installing the indoor unit



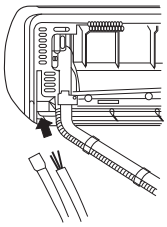
1. Insert from outside the room cable into left side of the wall hole, in which the pipe has already existed.
2. Pull out the cable on the front side, and connect the cable making a loop.

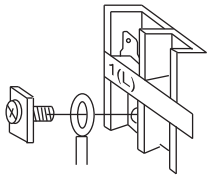
When connecting the cable before installing the indoor unit

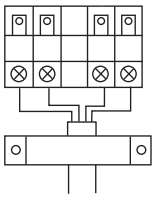
- Insert the cable from the back side of the unit, then pull it out on the front side.
- Loosen the screws and insert the cable ends fully into terminal block, then tighten the screws.
- Pull the cable slightly to make sure the cables have been properly inserted and tightened.
- After the cable connection,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

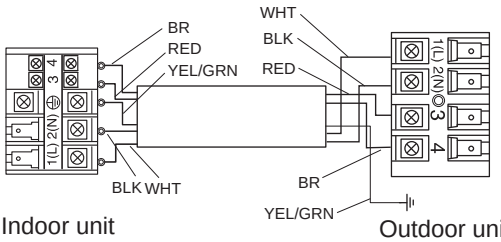
Note: When connecting the cable, confirm the terminal number of indoor and outdoor units carefully. If wiring is not correct, proper operation can not be carried out and will cause defect.

1. If the supply cord is damaged, it must be replaced by the manufacturer or its service agent or a similar qualified person. The type of connecting wire is H05RN-F or H07RN-F.
2. If the fuse on PC board is broken please change it with the type of T. 3.15A/250V.
3. The wiring method should be in line with the local wiring standard.
4. After installation, the power plug should be easily reached.

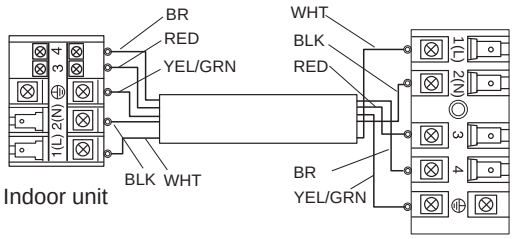








HSU-07HV03/R2
HSU-09HV03/R2
HSU-12HV03/R2



HSU-18HV03/R2
HSU-22HV03/R2

5.Easily-demount cleaning of indoor unit

1.Top inlet can be taken down

Open the inlet grille, press the claw of the clip on the unit,then take down the top inlet.(according to figure 1)

2.Vertical flap can be taken down

Overturn the vertical flap, press the claw of the clip ,then take down vertical flap.(according to figure 2)

3.Horizontal louvers can be taken down

After taking down vertical flap.Horizontal louvers are appeared,draw the middle louver,and take down the horizontal louvers . (according to figure 3)

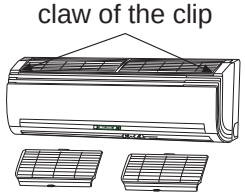


Figure 1

Figure 2

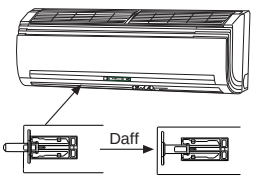


Figure 2

Figure 3

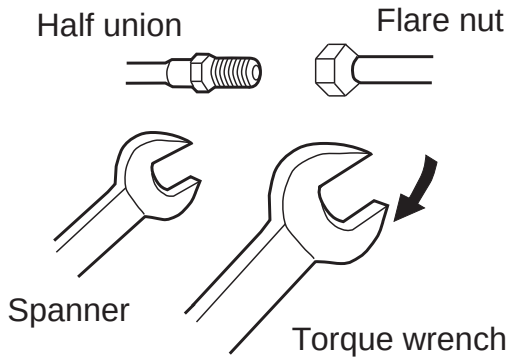
Outdoor unit

1.Installation of Outdoor Unit

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

2.Connection of pipes

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



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

Pipe Diameter (ϕ)	Fastening torque
Liquid side 6.35mm(1/4")	18N.m
Gas side 9.52mm(3/8")	40N.m
Gas side 12.7mm(1/2")	55N.m

Be careful that matters, such as wastes of sands, etc. shall not enter the pipe.
The standard pipe length is 5m. If it is over 5m, the function of the unit will be affected. If the pipe has to be lengthened, the refrigerant should be charged, according to 20 g/m. But the charge of refrigerant must be conducted by professional air conditioner engineer. Before adding additional refrigerant, perform air purging from the refrigerant pipes and indoor unit using a vacuum pump,then charge additional refrigerant.

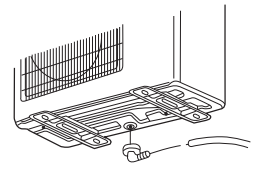
3.Connection

HSU-12HV03/R2

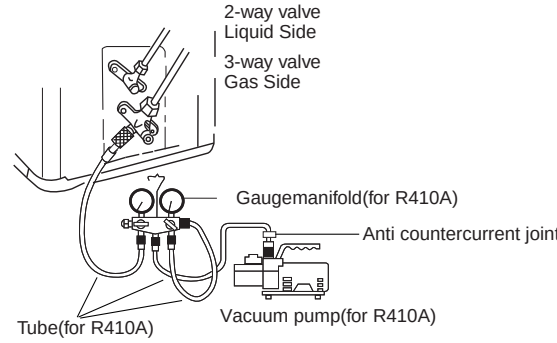
- Use the same method on indoor unit. Loosen the screws on terminal block and insert the plugs fully into terminal block, then tighten the screws.
- Insert the cable according to terminal number in the same manner as the indoor unit.
- If wiring is not correct, proper operation can not be carried out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

4.Attaching Drain-Elbow

- If the drain-elbow is used, please attach it as figure. (Note: Only for heat pump unit.)



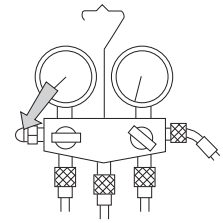
6.Purging Method:To use vacuum pump



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

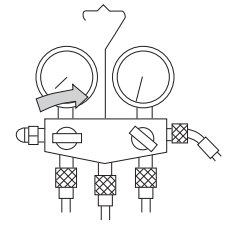
② Open the handle at low in gaugemanifold, operate vacuum pump. If the scale-moves of gause (low) reach vacuum condition in a moment, check ① again.

② Open

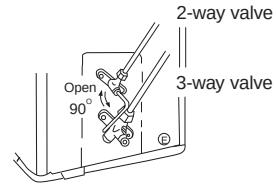


③ Vacuumize for over 15min. And check the level gauge which should read -0.1 MPa (-76 cm Hg) at low pressure side. After the completion of vacuumizing, close the handle 'Lo' in gaugemanifold and stop the operation of the vacuum pump.
Check the condition of the scale and hold it for 1-2min. If the scale-moves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

③ Close



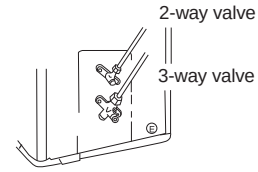
④ Open the valve rod for the 2-way valve to an angle of anticlockwise 90 degrees.
After 6 seconds, close the 2-way valve and make the inspection of gas leakage.



⑤ No gas leakage?

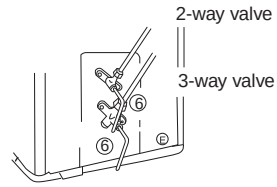
In case of gas leakage, tighten parts of pipe connection. If leakage stops, then proceed ⑥ steps.

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

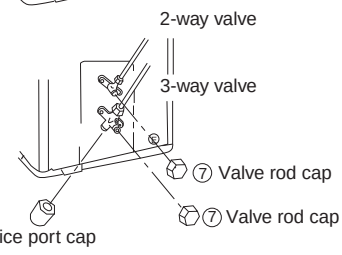


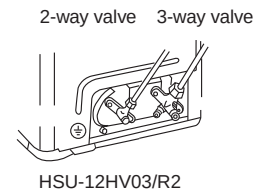
HSU-07HV03/R2
HSU-09HV03/R2
HSU-22HV03/R2

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



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





HSU-12HV03/R2
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⑧ After attaching the each caps, check the gas leakage around the caps.

CAUTION:

1.If the refrigerant of the air conditioner leaks, it is necessary to discharge all the refrigerant. Vacuumize first, then charge the liquid refrigerant into air conditioner according to the amount marked on the name plate.

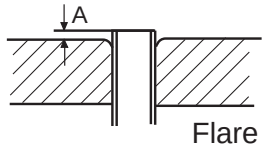
2.Please do not let other cooling medium, except specified one (R410A), or air enter into the cooling circulation system. Otherwise, there will be abnormal high pressure in the system to make it crack and lead to personal injuries.

1.Power Source Installation

- The power source must be exclusively used for air conditioner. (Over I0A)
- In the case of installing an air conditioner in a moist place, please install an earth leakage breaker.
- For installation in other places, use a circuit breaker as far as possible.

2.Cutting and Flaring Work of Piping

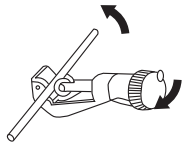
- Pipe cutting is carried out with a pipe cutter and burs must be removed.
- After inserting the flare nut, flaring work is carried out.



Flare tooling die

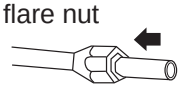
	Flare tool for R410A	Conventional flare tool	
	Clutch-type	clutch-type(Rigid-type)	Wing-nut type (Imperial-type)
A	0~0.5mm	1.0~1.5mm	1.5~2.0mm

1.Cut pipe

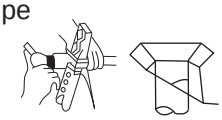


2.Remove burs

3.Insert the flare nut



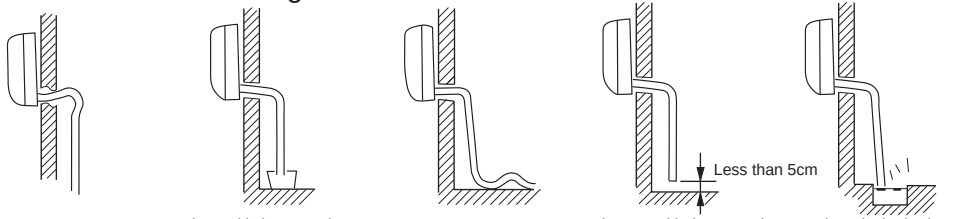
4.Flare pipe



Correct	Incorrect				
					
	Lean	Damage of flare	Crack	Partial	Too outside

3.On Drainage

Please install the drain hose so as to be downward slope without fail.
Please don't do the drainage as shown below.



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

- Please pour water in the drain pan of the indoor unit, and confirm that drainage is carried out surely to outdoor.
- In case that the attached drain hose is in a room, please apply heat insulation to it without fail.

Check for Installation and Test Run

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

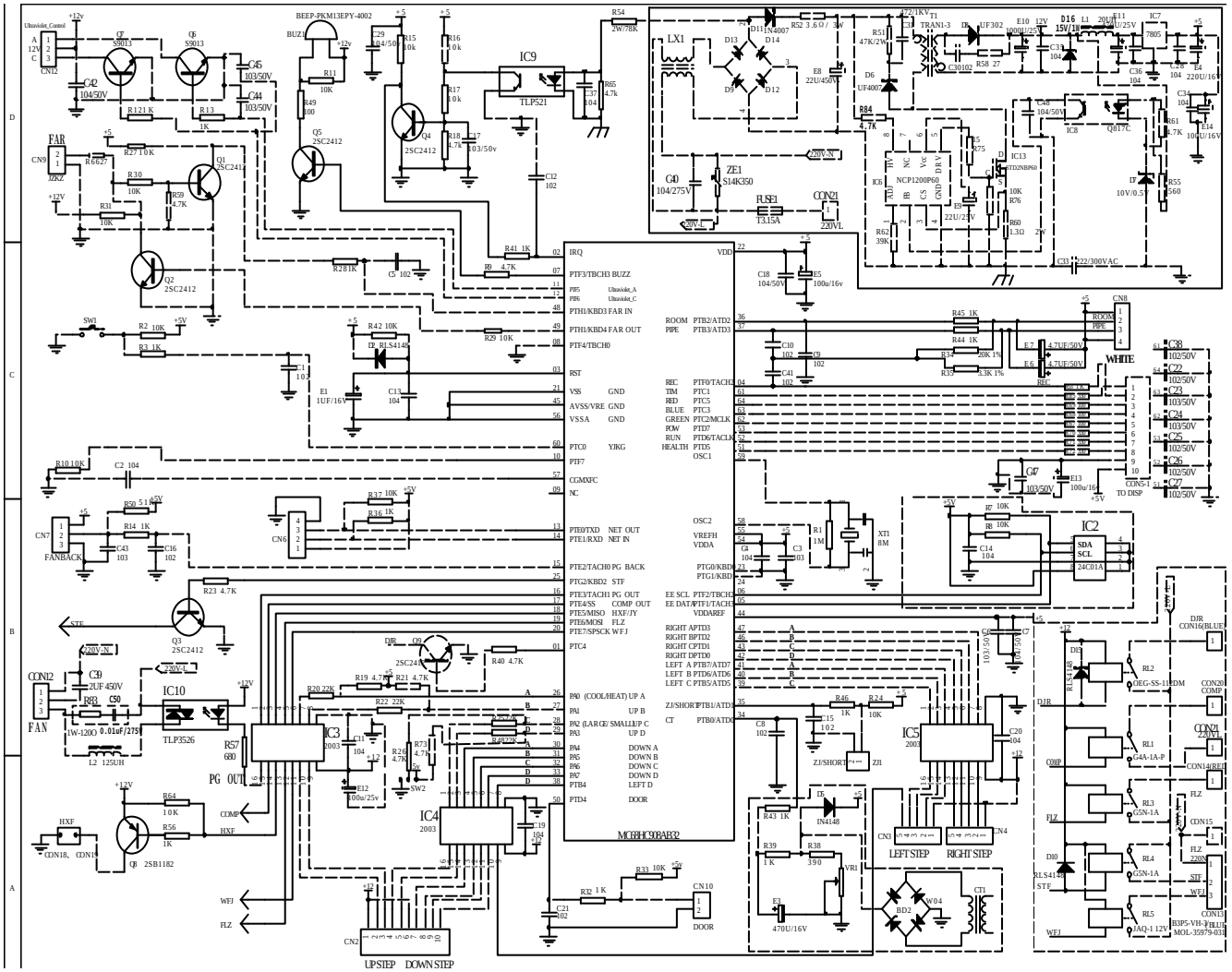
Check Items for Test Run

☐ Put check mark ✓ in boxes

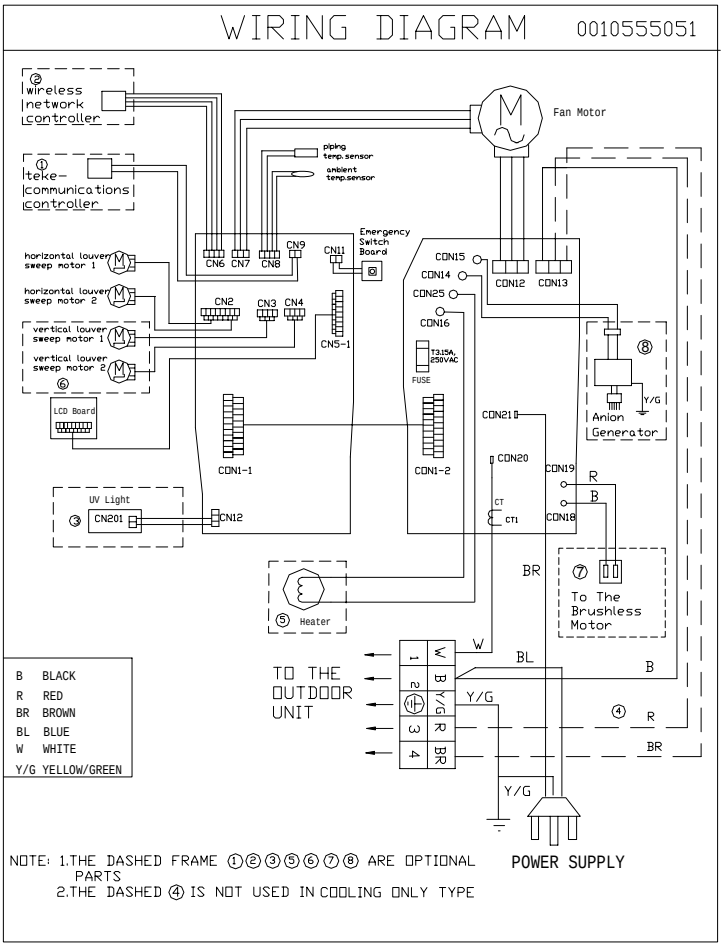
- ☐ Gas leak from pipe connecting?
- ☐ Heat insulation of pipe connecting?
- ☐ Are the connecting wirings of indoor and outdoor firmly inserted to the terminal block?
- ☐ Is the connecting wiring of indoor and outdoor firmly fixed?
- ☐ Is drainage securely carried out?
- ☐ Is the earth line securely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

CIRCUIT AND WIRING DIAGRAM

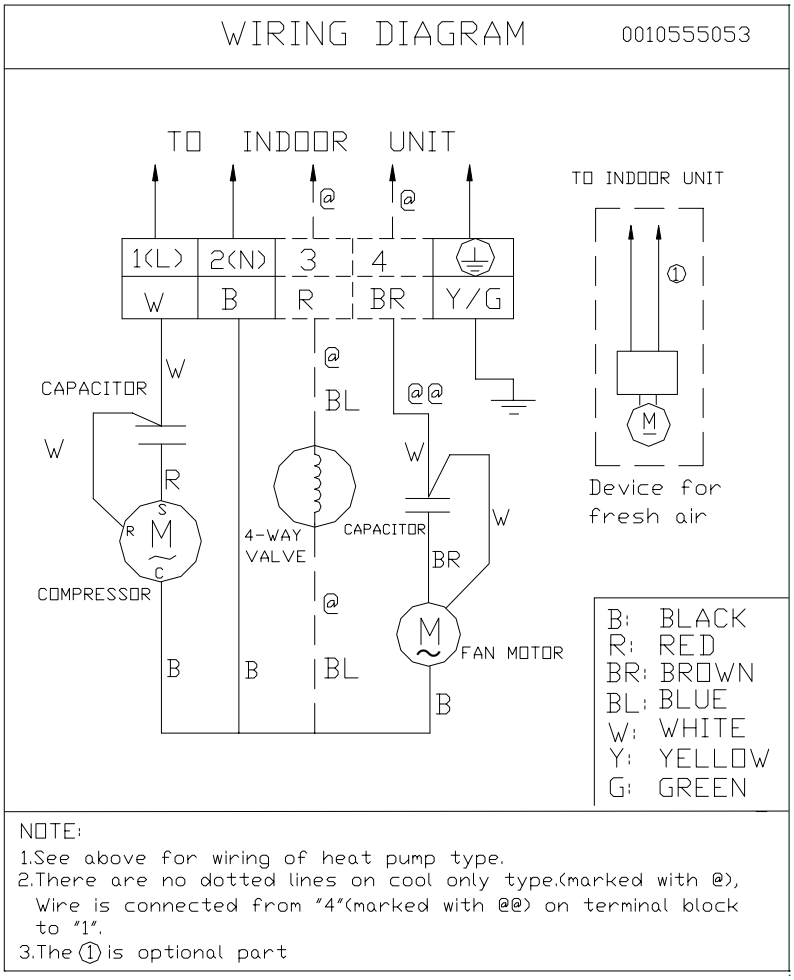
CIRCUIT DIAGRAM FOR INDOOR UNIT HSU-07/09/12HV03/R2



WIRING DIAGRAM FOR INDOOR □ HSU-07HV03/R2

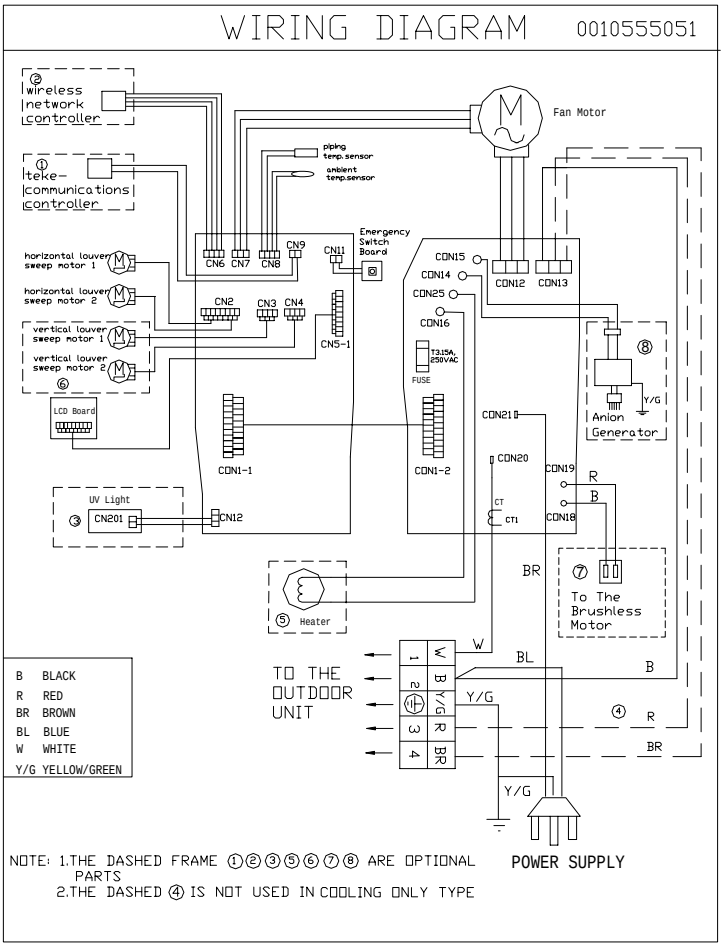


WIRING DIAGRAM FOR OUTDOOR □ HSU-07HV03/R2

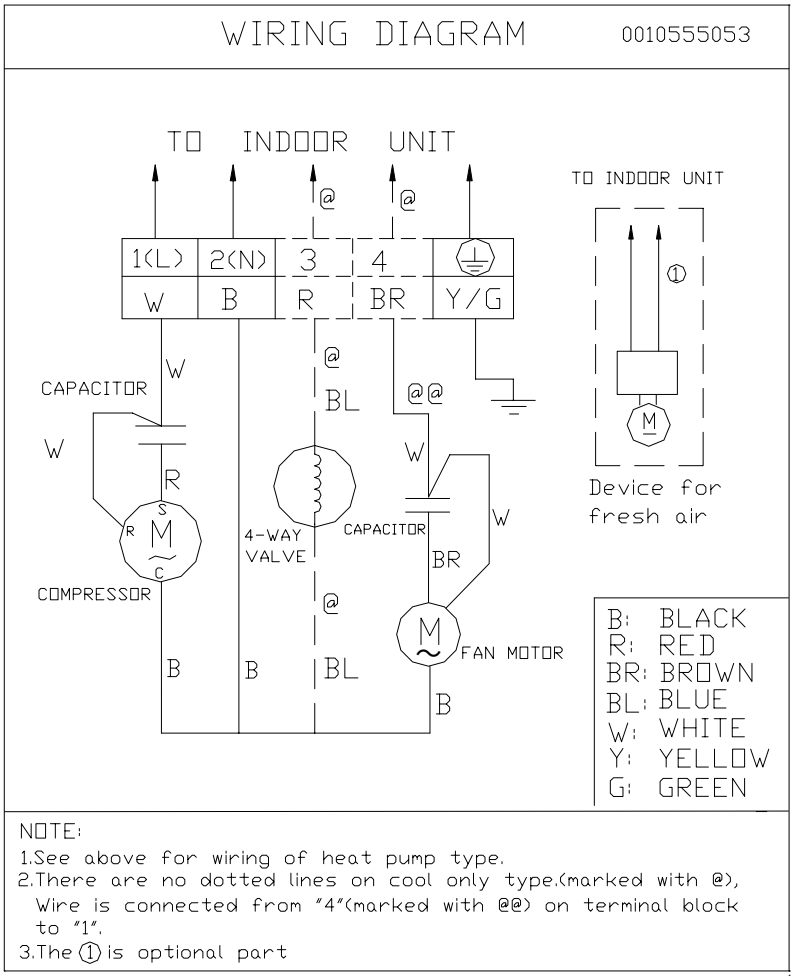


NOTE:
1.See above for wiring of heat pump type.
2.There are no dotted lines on cool only type.(marked with @), Wire is connected from "4"(marked with @@) on terminal block to "1".
3.The ① is optional part

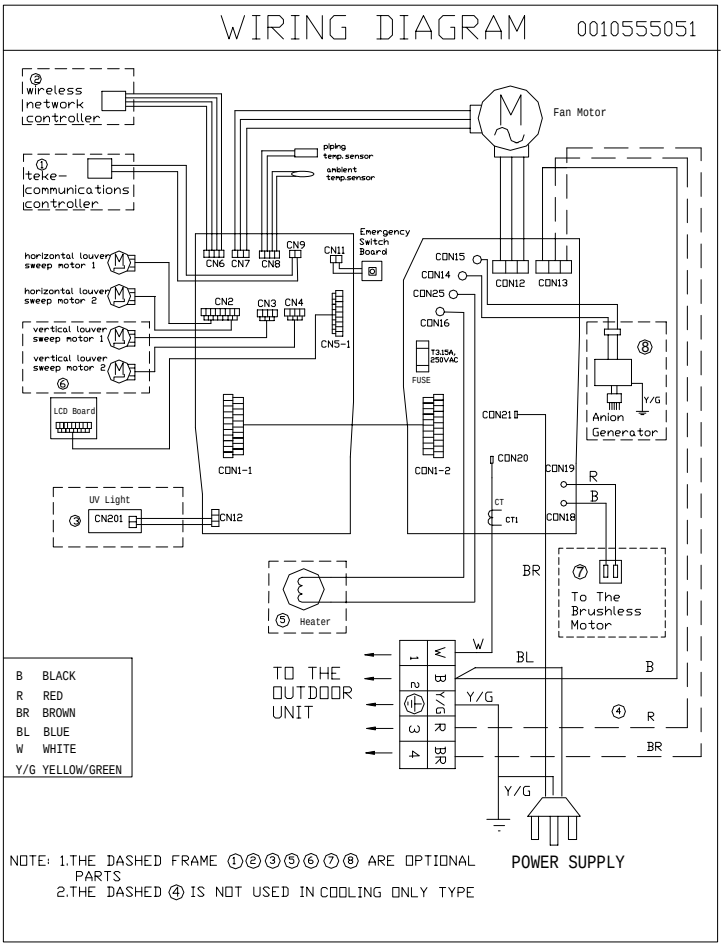
WIRING DIAGRAM FOR INDOOR □ HSU-09HV03/R2



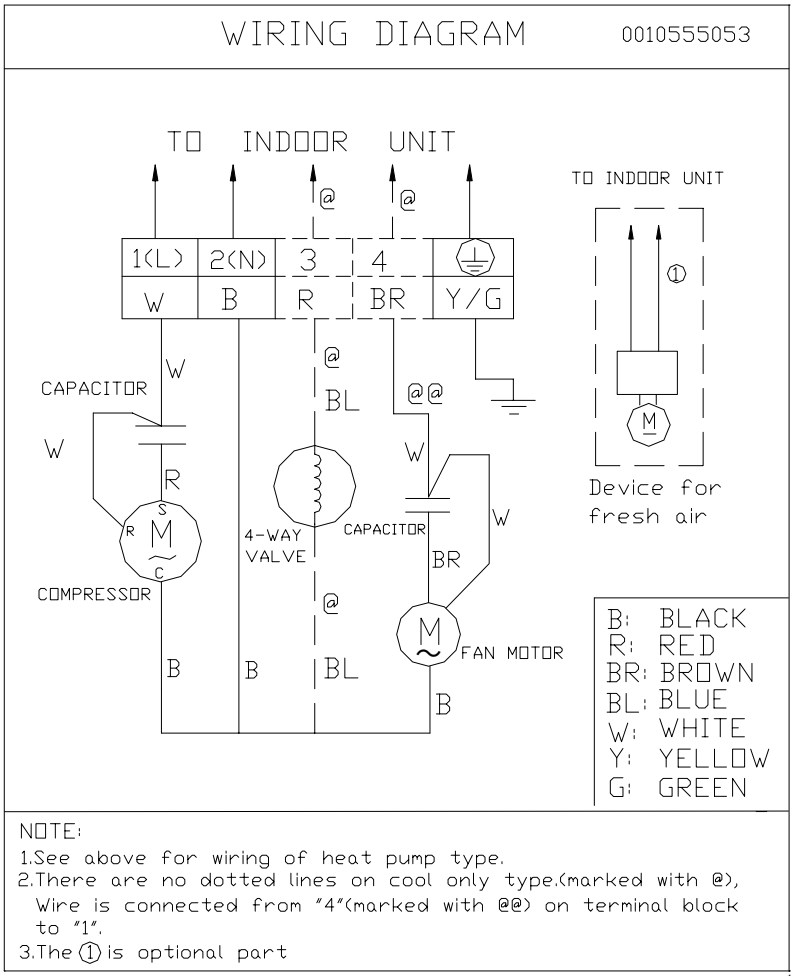
WIRING DIAGRAM FOR OUTDOOR □ HSU-09HV03/R2



WIRING DIAGRAM FOR INDOOR □ HSU-12HV03/R2

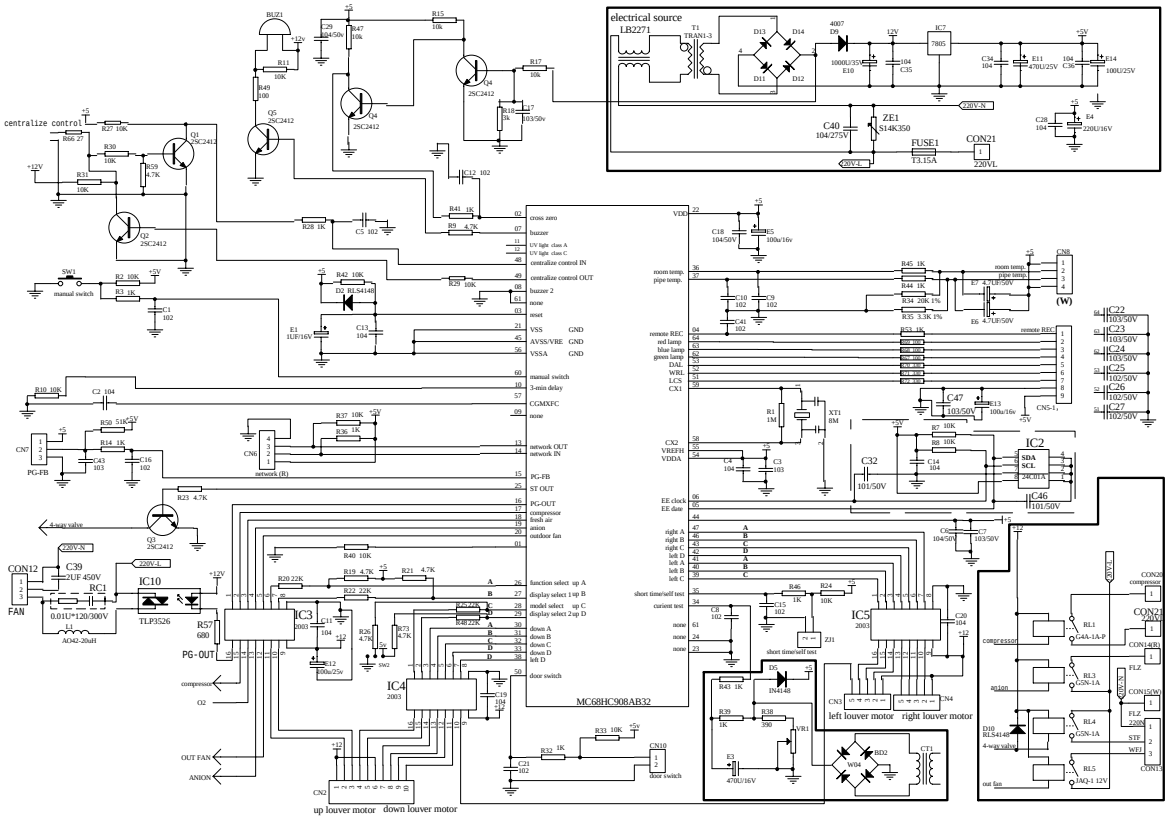


WIRING DIAGRAM FOR OUTDOOR □ HSU-12HV03/R2

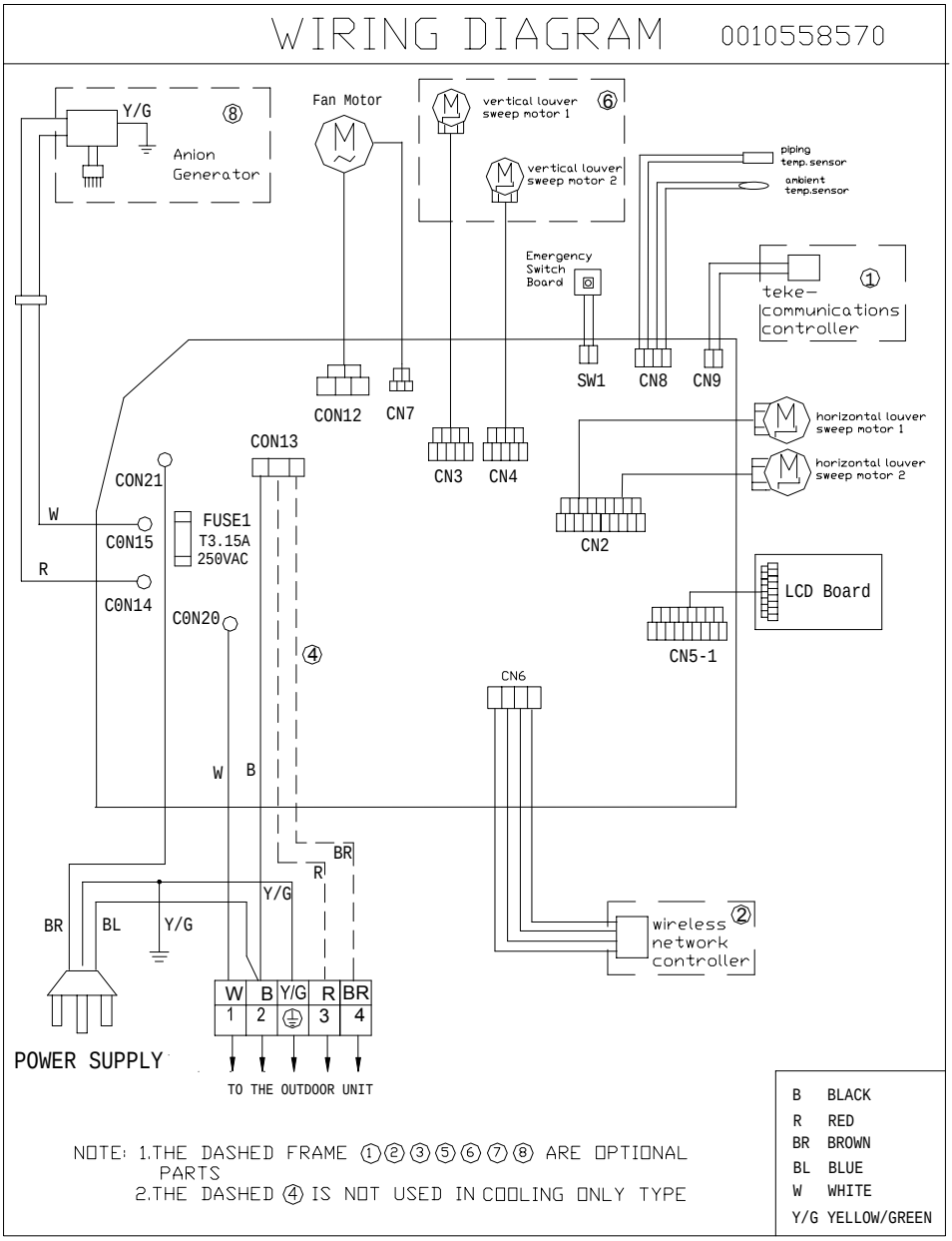


CIRCUIT DIAGRAM

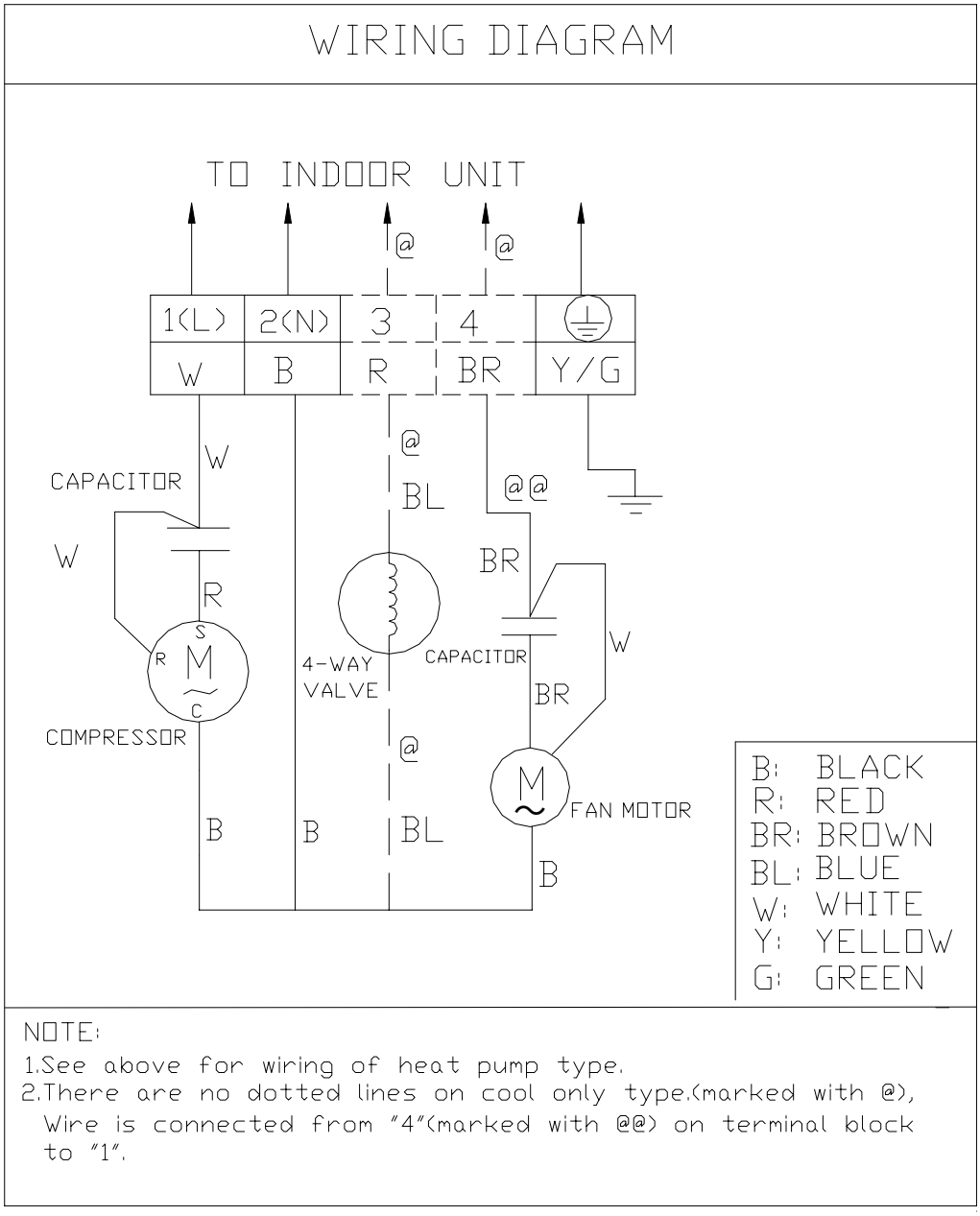
HSU-18HV03/R2



WIRING DIAGRAM FOR INDOOR UNIT HSU-18HV03/R2

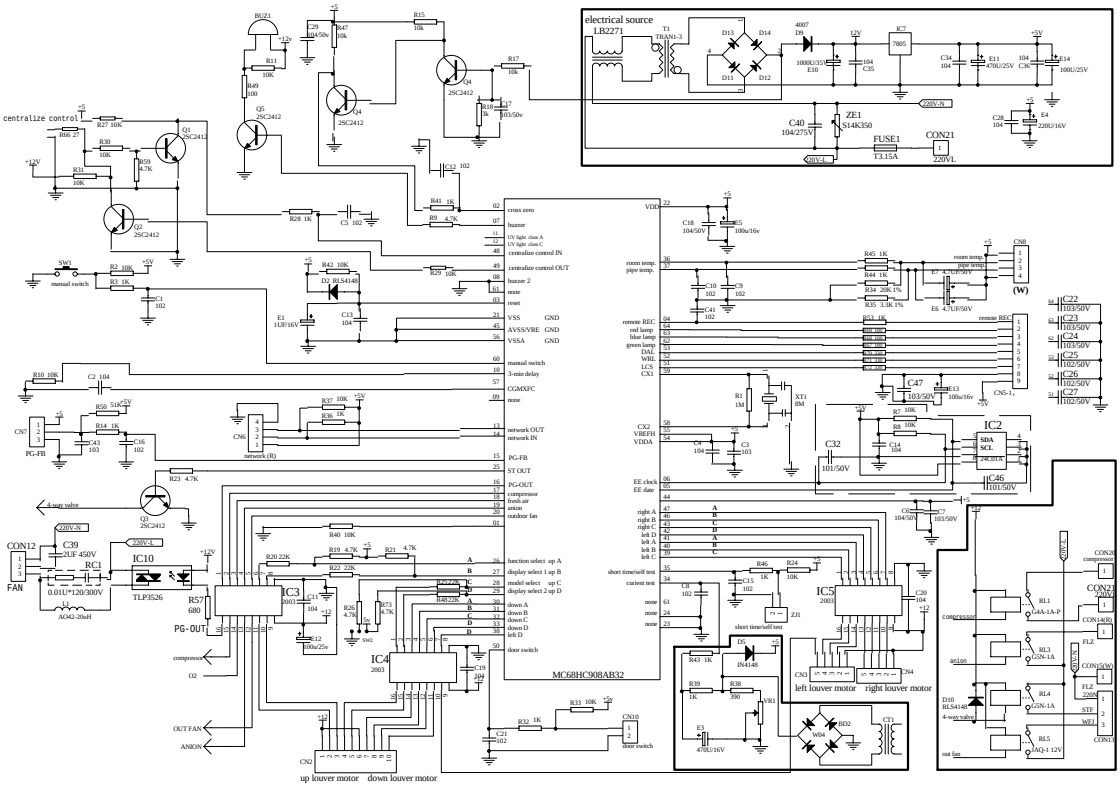


WIRING DIAGRAM FOR OUTDOOR UNIT HSU-18HV03/R2

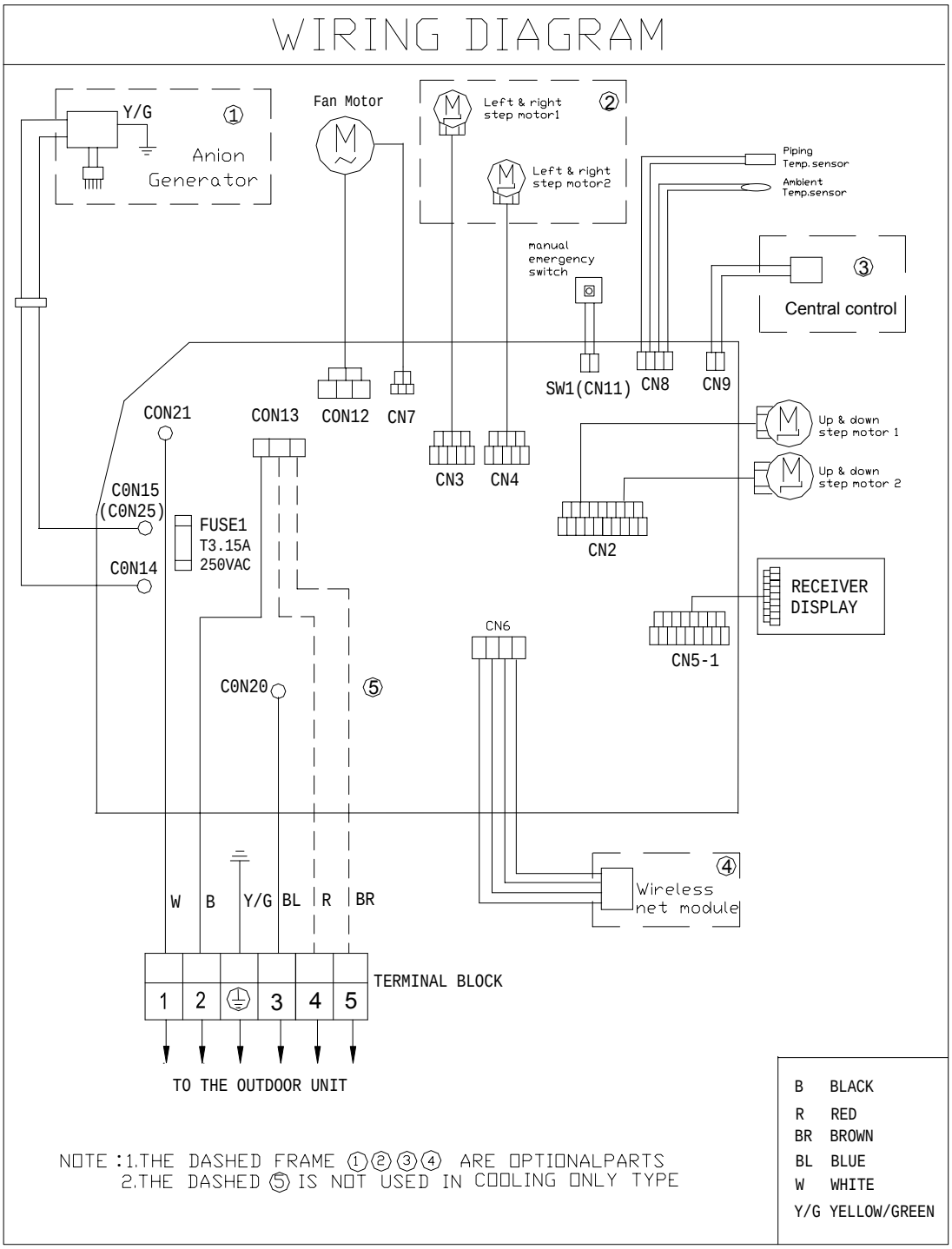


NOTE:
1.See above for wiring of heat pump type.
2.There are no dotted lines on cool only type.(marked with @), Wire is connected from "4"(marked with @@) on terminal block to "1".

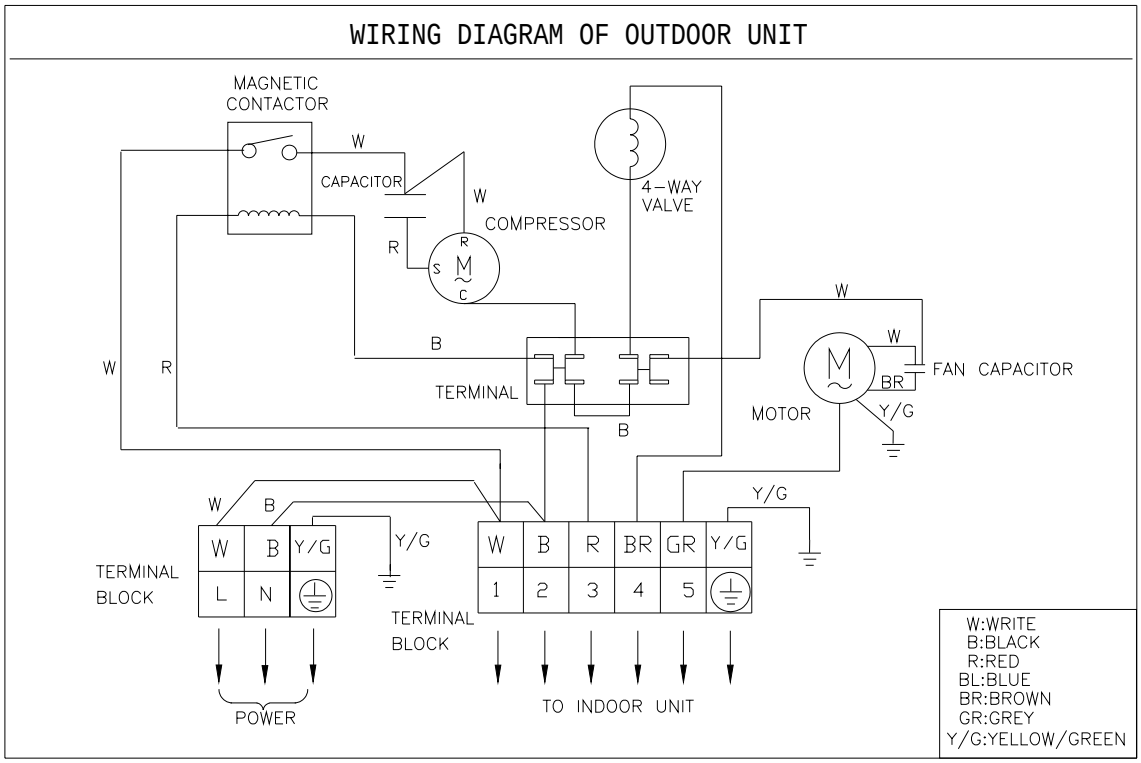
CIRCUIT DIAGRAM HSU-22HV03/R2



WIRING DIAGRAM FOR INDOOR UNIT HSU-22HV03/R2



WIRING DIAGRAM FOR OUTDOOR UNIT HSU-22HV03/R2



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