ACiQ

R32 MULTI-ZONE CONDENSER & WALL MOUNTED AIR HANDLER

SERVICE & TECHNICAL MANUAL

Models Covered:

ACiQ-09W-E-M
ACiQ-12W-E-M
ACiQ-18W-E-M
ACiQ-18Z-E-M2
ACiQ-24Z-E-M3

WARNING: DO NOT destroy or lose this manual. Please read the manual thoroughly. Also, store the manual in a place that allows for easy retrieval and future reference. As a result of continuous product improvement, the specification and design of this product are subject to change without advanced notice. Consult your manufacturer or your dealer for further details regarding this product. The images and illustrations within this this manual are for reference only. The actual shape and size of your product may vary.

VERSION DATE: 10-30-25

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Section 1: Safety Precautions

※ FCC WARNING

WARNING: Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

※ FCC STATEMENT

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:
(1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.
NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.
However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment of and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

※ IC STATEMENT

This device complies with Industry Canada licence exempt RSS standard(s).
Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

※ IC STATEMENT

This equipment complies with FCC's and IC's RF radiation exposure limits set forth for an uncontrolled environment. The antenna(s) used for this transmitter must be installed and operated to provide a separation distance of at least 20cm from all persons and must not be collocated or operating in conjunction with any other antenna or transmitter. Installers must ensure that 20cm separation distance will be maintained between the device (excluding its handset) and users.

WARNING: This air conditioner uses R32 flammable refrigerant.

Notes: Air conditioner with R32 refrigerant, if roughly treated, may cause serious harm to the human body or surrounding things.

∗The room space and refrigerant maximum charge requirements are shown below:

Refrigerant Type	Allowable Refrigerant Charge Amount(kg)	Min.Floor Area For Installation(m^2)
R32	＜1.84	7
	1.841~2.34	9
	2.341~2.84	10.5
	2.841~3.34	12.5
	3.341~3.84	14
	3.841~4.34	18

∗ Do not use means to accelerate the defrosting process or to clean, other than those recommended by the manufacturer.

∗Not pierce or burn air conditioner, and check the refrigerant pipeline whether be damaged.

∗The appliance shall be stored in a room without continuously operating ignition sources (for example: open flames, an operating gas appliance or an operating electric heater.

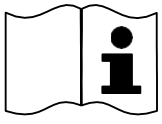
∗Notice that the refrigerant may be tasteless.

∗The storage of air conditioner should be able to prevent mechanical damage caused by accident.

∗Maintenance or repair of air conditioners using R32 refrigerant must be carried out after security check to minimize risk of incidents.

∗Air conditioner must be installed with stop valve cover.

∗Please read the instruction carefully before installing, using and maintaining.

Symbol	Note	Explanation
	WARNING	This symbol shows that this appliance uses a flammable refrigerant. If the refrigerant is leaked and exposed to an external ignition source, there is a risk of fire. (Only for the AC with UL or ETL-MARKING,UL60335-2-40)
	WARNING	This symbol shows that this appliance uses a flammable refrigerant. If the refrigerant is leaked and exposed to an external ignition source, there is a risk of fire. (Only for the AC with UL or ETL-MARKING,UL60335-2-40)
	CAUTION	This symbol shows that the operation manual should be read carefully.
	CAUTION	This symbol shows that a service personnel should be handling this equipment with reference to the installation manual.
	CAUTION	This symbol shows that information is available such as the operating manual or installation manual.

Incorrect installation or operation by not following these instructions may cause harm or damage to people, properties, etc.
The seriousness is classified by the following indications：

⚠ WARNING

This symbol indicates the possibility of death or serious injury.

⚠ CAUTION

This symbol indicates the possibility of injury or damage to properties.

⚠WARNING

This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety. Children should be supervised to ensure that they do not play with the appliance.
(Except for the AC with CE-MARKING)

This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved. Children shall not play with the appliance. Cleaning and user maintenance shall not be made by children without supervision.
(Only for the AC with CE-MARKING)

1. **Do not** connect the earth wire to the gas pipeline, water pipeline, lightning rod, or telephone earth wire.
   The air conditioner must be grounded. Incomplete grounding may result in electric shocks.
2. If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard.
3. **Don't** pull the power cable. The damage of pulling power cord will cause serious electric shock.
4. Always switch off the device and cut the power supply when the unit is not in use for long time so as to ensure safety.
5. **Don't** cut off main power switch during operating or with wet hands. It may cause electric shock.
6. **Don't** share the socket with other electric appliance.
   Otherwise, it may cause electric shock even fire and explosion.
7. Always switch off the device and cut the power supply before performing any maintenance or cleaning.
   Otherwise, it may cause electric shock or damage.

⚠ WARNING

8. **Don't** let the remote control and the indoor unit watered or being too wet.
   Otherwise, it may cause short circuit.
9. A warning that ducts connected to an appliance shall not contain an ignition source.
10. **Don't** install air conditioner in a place where there is flammable gas or liquid. The distance between them should be above 1m. Otherwise, it may cause fire even explosion.
11. **Don't** use liquid or corrosive cleaning agent wipe the air conditioner and sprinkle water or other liquid either. Otherwise, it may cause electric shock or damage to the unit.
12. **Don't** attempt to repair the air conditioner by yourself.
    Incorrect repairs may cause fire or explosion. Contact a qualified service technician for all service requirement.
13. **Don't** use air conditioner in lightning storm weather. Power supply should be cut in time to prevent the occurrence of danger.
14. **Don't** put hands or any objects into the air inlets or outlets.
    This may cause personal injury or damage to the unit.
15. Please note whether the installed stand is firm enough or not. If it is damaged, it may lead to the fall of the unit and cause the injury.
16. **Don't** block air inlet or air outlet.
    Otherwise, the cooling or heating capacity will be weakened, even cause system stop operating.
17. **Don't** let the air conditioner blow against the heater appliance.
    Otherwise it will lead to incomplete combustion, thus causing poisoning.
18. An earth leakage breaker with rated capacity must be installed to avoid possible electric shocks.
19. The appliance shall be installed in accordance with national wiring regulations.

⚠ WARNING

This product contains fluorinated greenhouse gases.

1. Refrigerant leakage contributes to climate change.
2. Refrigerant with lower global warming potential (GWP) would contribute less to global warming than a refrigerant with higher GWP, if leaked to the atmosphere. This appliance contains a refrigerant fluid with a GWP equal to [675]. This means that if 1 kg of this refrigerant fluid would be leaked to the atmosphere, the impact on global warming would be [675] times higher than 1kg of CO_2 , over a period of 100 years.
3. Never try to interfere with the refrigerant circuit yourself or disassemble the product yourself and always ask a professional.

Ensure no following objects under the indoor unit:

1. microwaves, ovens and other hot objects.
2. computers and other high electrostatic appliances.
3. sockets that plug frequently.

The joints between indoor and outdoor unit shall not be reused, unless after re-flaring the pipe.

The specifications of the fuse are printed on the circuit board, such as: 3.15A/250V AC, etc.

WEEE Warning

Disposal requirements:

Do not dispose of electrical appliances as unsorted municipal waste, use separate collection facilities.

Contact you local government for information regarding the collection systems available.

If electrical appliances are disposed of in landfills or dumps, hazardous substances can leak into the groundwater and get into the food chain, damaging your health and well-being.

When replacing old appliances with new ones, the retailer is legally obligated to take back your old appliance for disposals at least free of charge.

⚠ CAUTION

1. Don’t open the windows and doors for long time when the air conditioner is running. Otherwise, the cooling or heating capacity will be weakened
2. Don’t stand on the top of the outdoor unit or place heavy things on it. This could cause personal injuries or damage the unit.
3. Don’t use the air conditioner for other purposes, such as drying clothes, preserving foods, etc.
4. Don't apply the cold air to the body for a long time. It will deteriorate your physical conditions and cause health problems.
5. Set the suitable temperature.It is recommended that the temperature difference between indoor and outdoor temperature should not be too large.

Appropriate adjustments of the setting temperature can prevent the waste of electricity.

If your air conditioner is not fitted with a supply cord and a plug, an anti-explosion all-pole switch must be installed in the fixed wiring and the distance between contacts should be no less than 3.0mm (0.12in).

If your air conditioner is permanently connected to the fixed wiring, a anti-explosion residual current device (RCD) having rated residual operating current not exceeding 30mA should be installed in the fixed wiring.

The power supply circuit should have leakage protector and air switch of which the capacity should be more than1.5 times of the maximum current.

Regarding the installation of the air conditioners, please refer to the below paragraphs in this manual.

Section 2: General Information

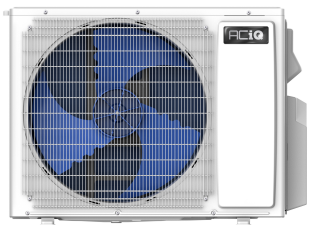
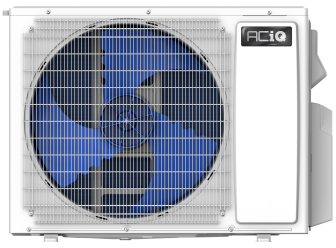
1. Model Reference

1.1 Indoor Unit

Wall- Mounted Air Handler M-Series

Series	Picture	Capacity	Model
M		09K	ACiQ-09W-E-M
		12K	ACiQ-12W-E-M
		18K	ACiQ-18W-E-M

1.2 Outdoor Unit

Standard Series Multi-Zone Condenser		
Capacity (Btu/h)	18k (2-Zone)	24K (3-Zone)
	ACiQ-18Z-E-M2	ACiQ-24Z-E-M3
Picture		

2. Multi-Zone Condenser/Air Handler Compatibility Tables

18K：

	Suggested Combination	
2-Zone	Two Units	
	9+9	—
	9+12	—
	12+12	—

24K：

	Suggested Combination			
3-Zone	Two Units		Three Units	
	9+9	18+18	9+9+9	—
	9+12	—	9+9+12	—
	12+12	—	9+9+18	—
	9+18	—	9+12+12	—
	12+18	—	12+12+12	—

Note：

All above indoor units can be freely matched and combined, but must be installed strictly according to the above table or the cooling capacity and stability would be decreased.

3. Functions Overview

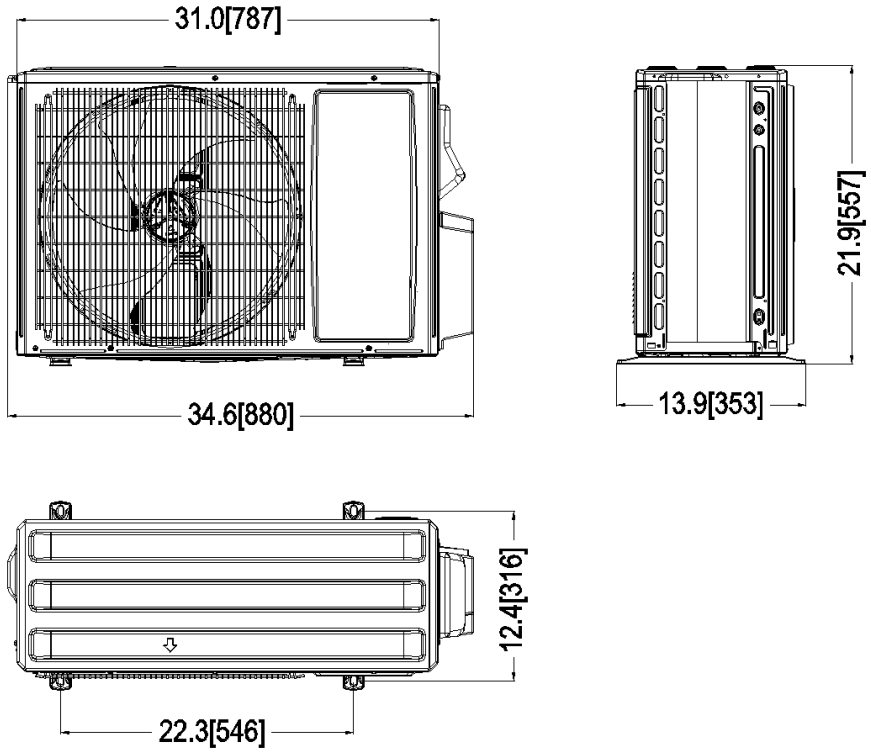
Function Overview				
No	Category	Functions \ IDU Type	● Default function x Invalid ◎ Optional function	
			Wall Mounted Air Handler M Series	Refer to section
1	BASIC CONTROL	On/Off	●	
2		Cooling Mode	●	Section 7→2.2
3		Heating Mode	●	Section 7→2.3
4		Fan Mode	●	Section 7→2.5
5		Auto-Fan Speed	●	
6		Turbo Mode	●	
7		Auto Mode	●	Section 7→2.6
8		Auto Mode(temperature settable)	X	
9		Dehumidification	●	
10		Auto-Restart	●	Section 7→2.15
11		Auto-Swing（up & down）	●	Section 7→2.13
12		Auto-Swing（left & right）	◎	Section 7→2.14
13		Child Lock	X	
14	EFFICIENCY	Inverter	●	
15		Eco Mode	X	
16	COMFORTABLE	Intelligent preheating	X	
17		Intelligent defrosting	●	Section 7→2.10
18		Anti-Cold Air Function	●	Section 7→2.8
19		Temperature Control	●	
20		Quiet Mode	●	Section 7→2.4
21		Sleep Mode	●	Section 7→2.11
22		Auto-constant Air Volume	X	
23		Manual Constant Air Volume	X	
24		Breezeless sensation	X	
25		iFeel	●	Section 7→2.16
26	HEALTH	Self-Cleaning	X	
27		Filter Indicator	◎	
28		Fresh Air Intake	X	
29		Dust Filter（PM2.5）	◎	
30		Activated carbon filter	◎	
31		UVC	X	
32		Positive and negative ion generator	X	
33	INTELLIGEANT CONTROL	Timer	●	Section 7→2.12
34		Weekly Timer	●	Section 7→1.1
35		Centralized Control	X	
36		BMS (Modbus-RTU Protocol)	X	
37		BMS (Modbus-TCP Protocol)	X	
38		BMS (BACnet-IP Protocol)	X	
39		Integrated Wi-Fi	X	
40		Integrated Wi-Fi& support	X	
41		WIFI Control	X	
42		Voice panel/voice control	●	

43	STABLE	Forced defrosting	X	
44		Self-diagnosis	●	
45		8°C Heating Mode	X	
46		Dry Contact Fire Alarm	X	
47		Dry Contact Window Open Detection	X	
48		Dry Contact Remote Control	X	
49		Real-Time Monitoring	●	
50		Anti-Corrosion Coating Fin	●	
51		Golden fin	◎	
52		Chassis electrical heating(ODU)	●	
53		Oil Heater Band	X	
54		Drain Pump	X	
55		Float Switch	X	
56	DIVERSIFYING SELECTION	Switch to ambient temperature	●	
57		℉/℃ Switch	●	
58		Screen display	●	
59		Stationary swing wind	●	
60		Independent Swing Control	X	
61		Mute remote control	◎	
62		Auxiliary Electric Heating	X	
63		Jewish during Sabbath's Day	●	
64		Room Card Control	X	
65		Power Limit	X	
66		RS485 Communication	X	
67		24V Communication	X	
68		LNS Communication	●	

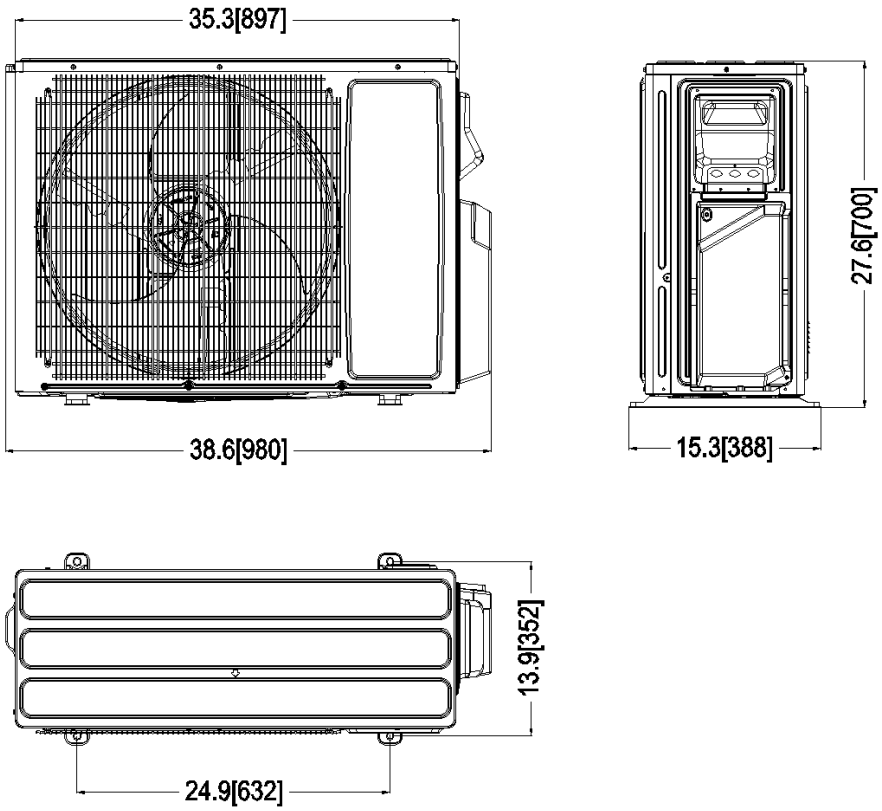
Section 3: Unit Dimensions

1. Outdoor Unit (unit:In.[mm])

18k ACiQ-18Z-E-M2



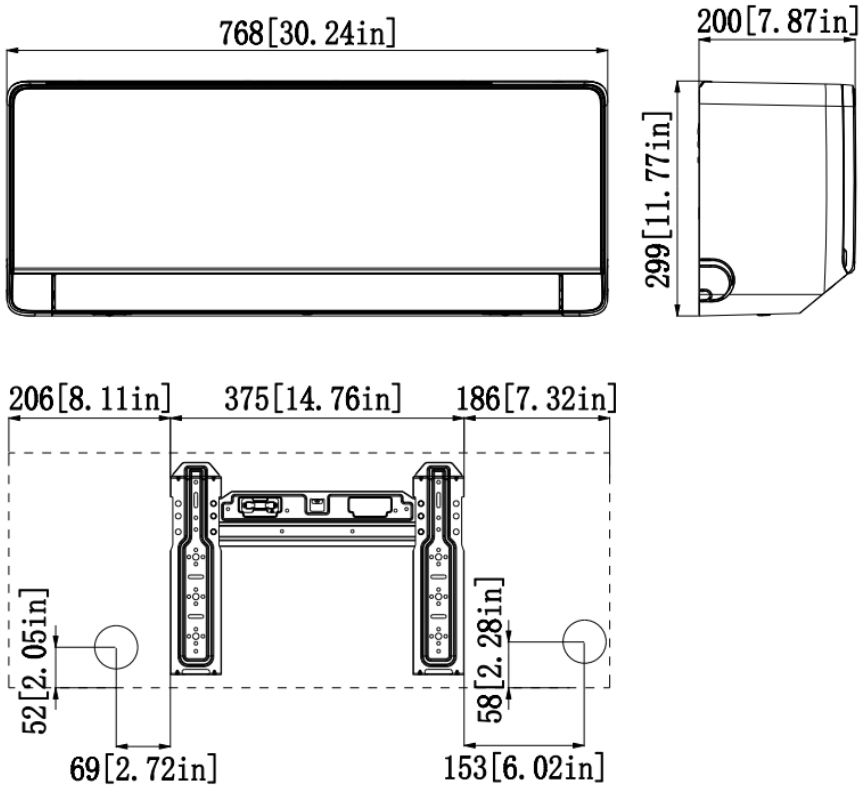
24K ACiQ-24Z-E-M3



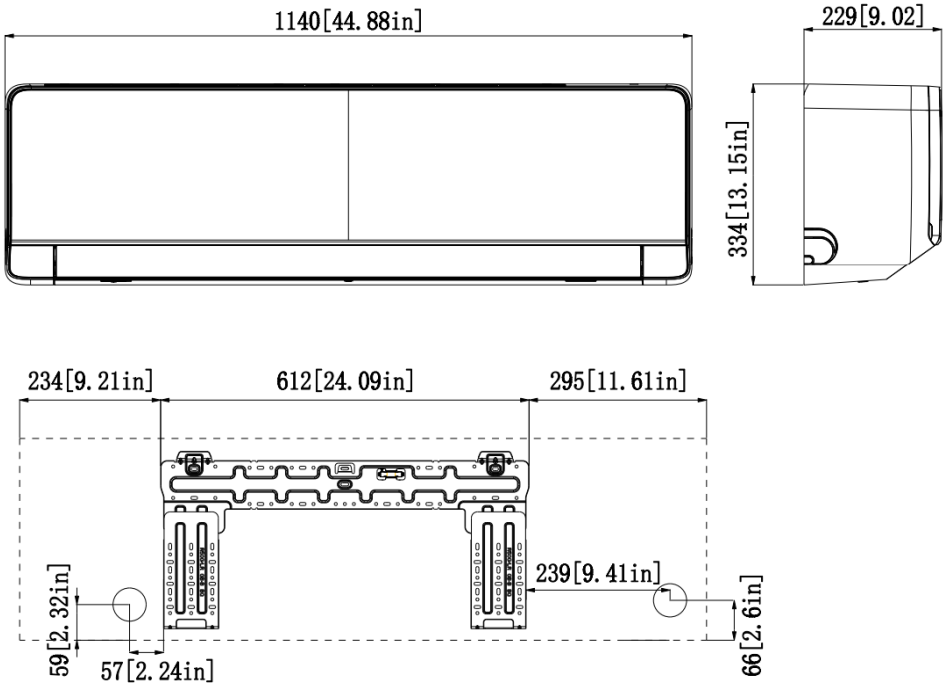
2. Indoor Unit

9K ACiQ-09W-E-M

12K ACiQ-12W-E-M

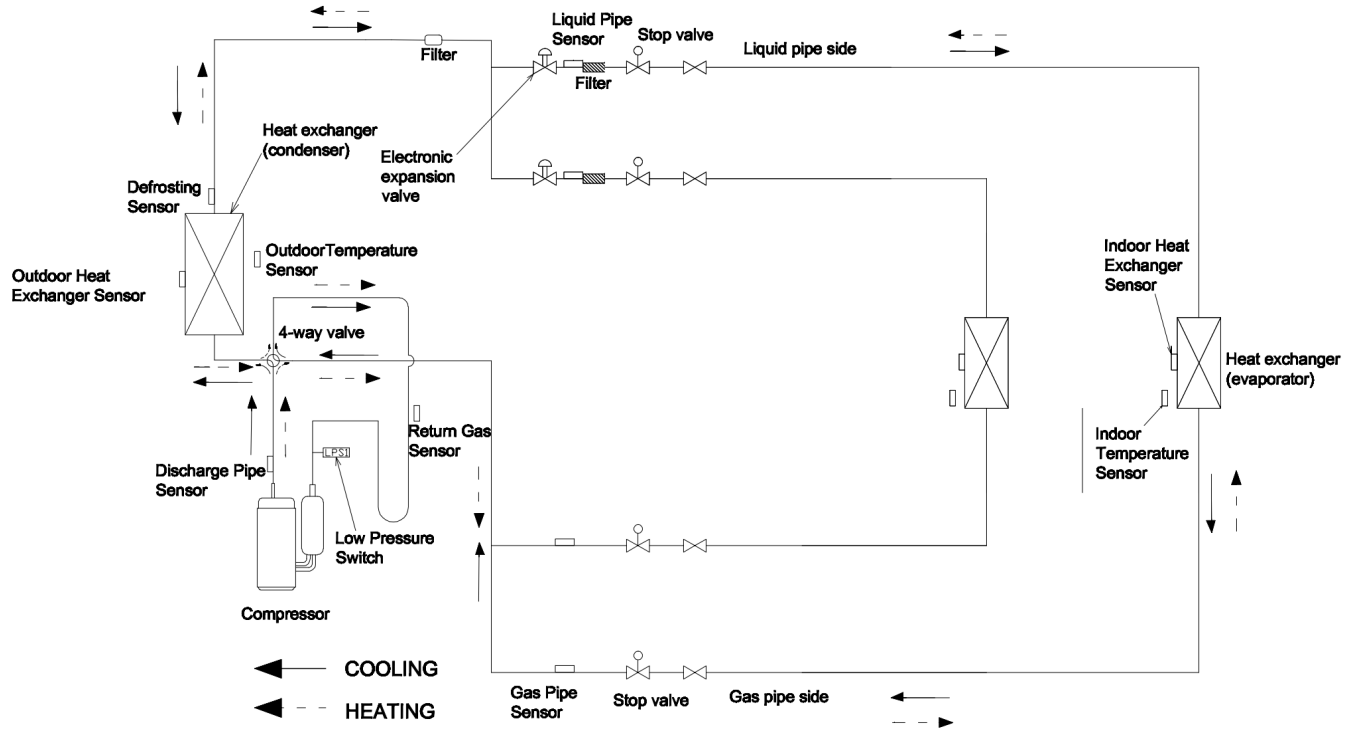


18K ACiQ-18W-E-M

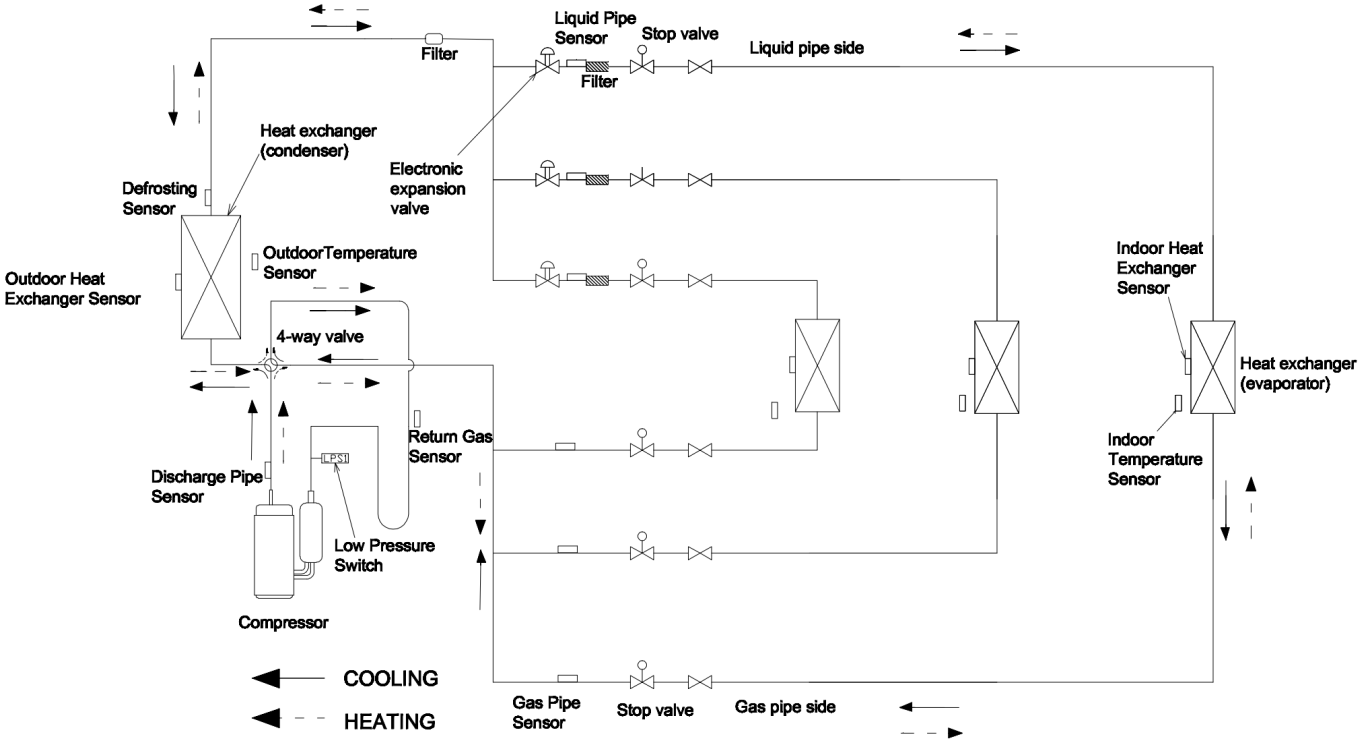


Section 4: Refrigerant System Diagrams

18K (2-Zone) ACiQ-18Z-E-M2



24K (3-Zone) ACiQ-24Z-E-M3



Section 5: Operational Specifications

1. Operating Temperature Range

Cooling capacity (KBtu/h)		18K	24K
Power supply		208~230V,50&60Hz,1Ph	
Ambient temperature	Cooling	-25~52℃（-13-125°F）	
	Heating	-25~24℃（-13-75°F）	

2. Refrigerant Piping Length

Cooling capacity (Btu/h)		18K	24K
Connection Pipe(inch/mm)	Liquid pipe	0.250/6.35*2	0.250/6.35*3
	Gas pipe	0.375/9.52*2	0.375/9.52*3
Max. length for all rooms (ft/m)		131/40	197/60
Max. length for one IU (ft/m)		82/25	98/30
Max. height difference between IU and OU (ft/m)		49/15	
Max. height difference between IUs (ft/m)		33/10	

Cautions:

1) The standard pipe length is 24.6ft(7.5m), if the pipe length is less than this then no additional charging is necessary. If the pipe length is more than this then you should charge more refrigerant into the system according to the above charging data

2) The thickness of the pipe is 0.6-1.0, bearing pressure is 4.2MPa;

3) If the connection pipe is too long, the cooling capacity and stability would be decreased. And the more bend quantity, the resistance in the piping system would be bigger, then the cooling and heating capacity would be decreased even lead to compressor broken. We suggest you to use the shortest connection pipe according to the pipe length parameter in this manual. If the height difference between outdoor and indoor unit is more than 16.4ft (5m), an oil trap should be installed in the gas pipe for every 32.8ft (10m).

3. Equivalent Pipe Length Conversion

Equivalent pipe length means converting pipe elbow to straight pipe length after considerate the pressure loss.

Bend and Oil Loop conversion tablet

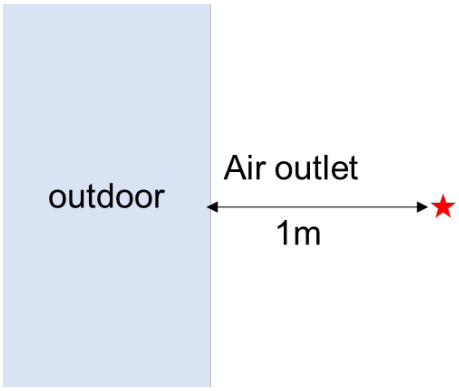
	Bend（ft/m）	Oil Loop(ft/m)
Type / Pipe Dia.(inch/mm)		
0.250/6.35	0.328/0.10	2.297/0.7
0.375/9.52	0.5910.18	4.265/1.3
0.50012.70	0.656/0.20	4.921/1.5
0.62515.88	0.820/0.25	6.562/2.0
0.75019.05	1.148/0.35	7.874/2.4
0.867/22.02	1.312/0.40	9.843/3.0

Equivalent pipe length L＝Actual pipe length L+ Bend Qty× Equivalent pipe bend length+ Oil Loop Qty × Equivalent Oil Loop length

Note: If there is relatively level difference of indoor and outdoor unit, S-shaped oil trap must be installed every 8~10m (26.2~32.8ft) for vertical pipe.

Section 6: Noise Spectrum Diagrams

1. Outdoor Unit

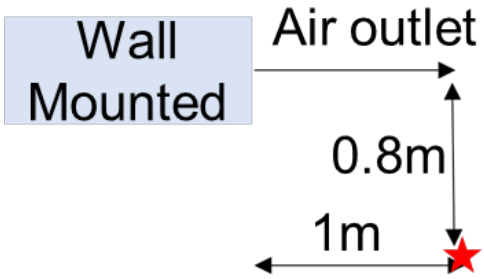


Test site：1m directly in front of the center of the air outlet

Model	Sound pressure dB(A)
ACiQ-18Z-E-M2	54
ACiQ-24Z-E-M3	57

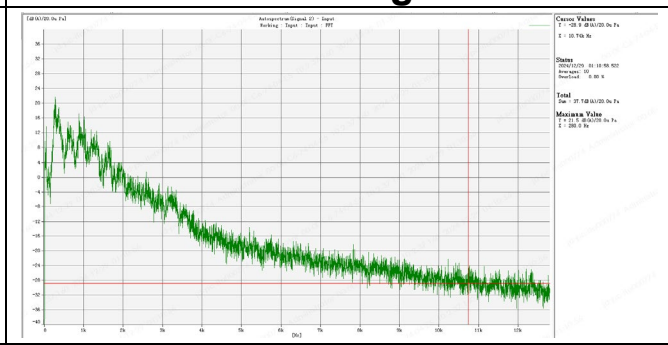
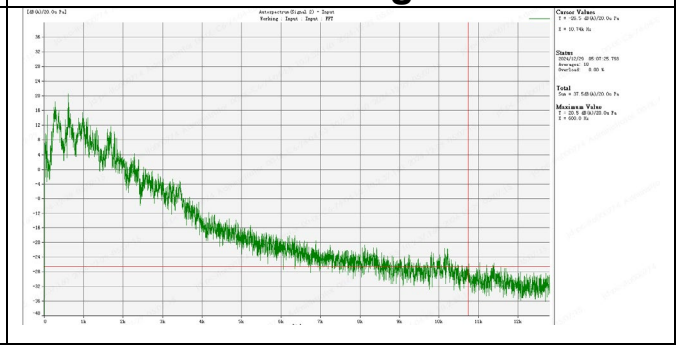
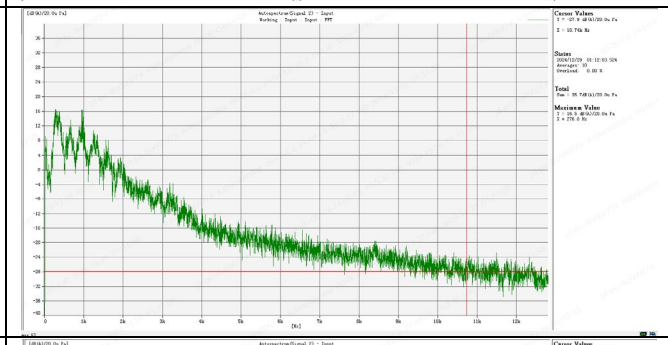
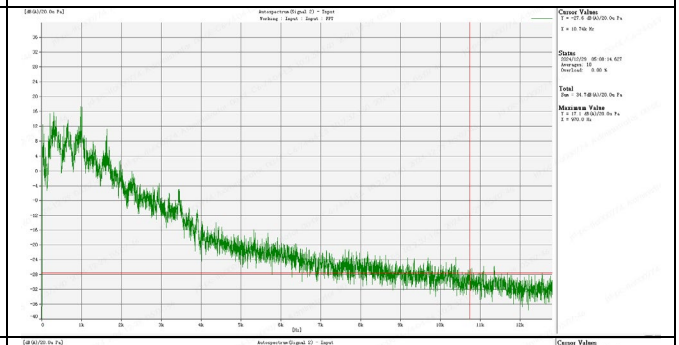
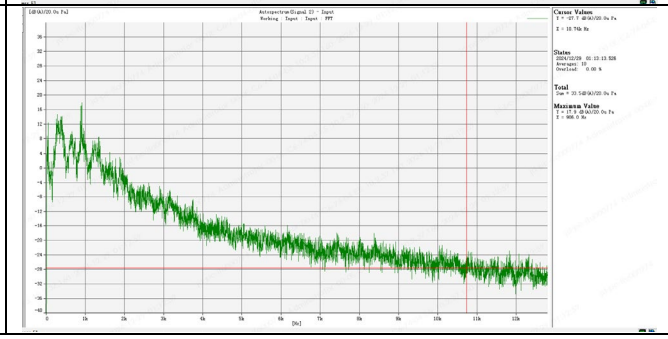
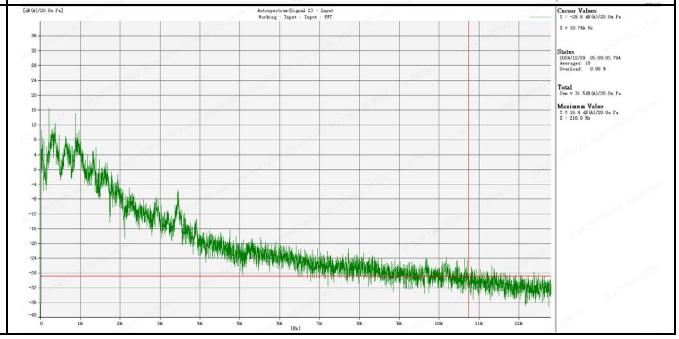
2. Indoor Unit

Wall Mounted Air Handler M Series

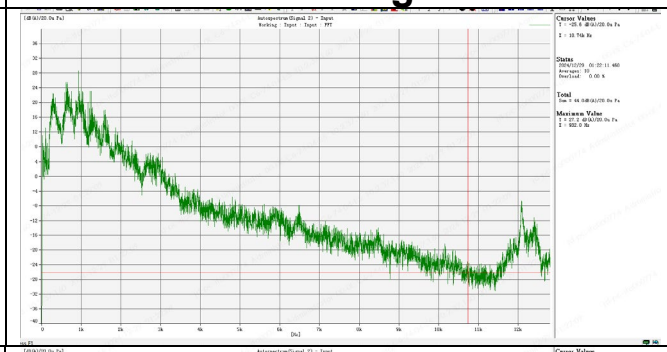
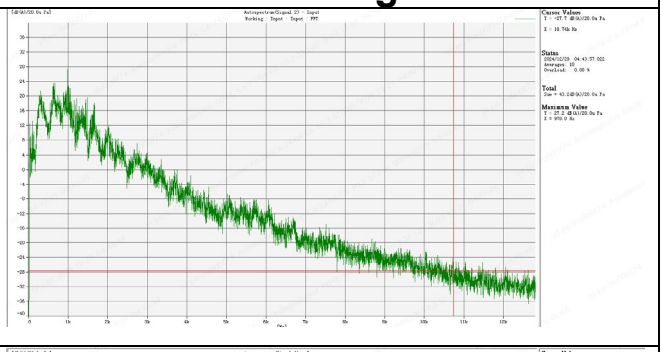
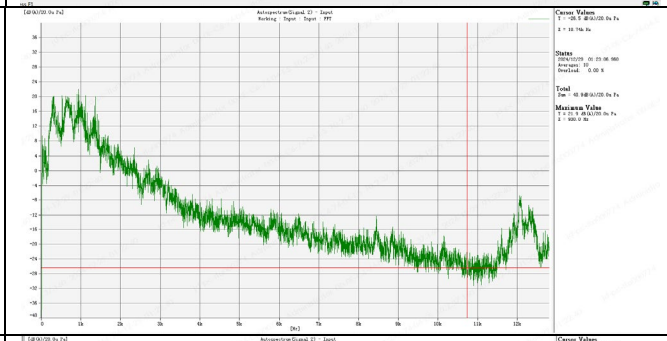
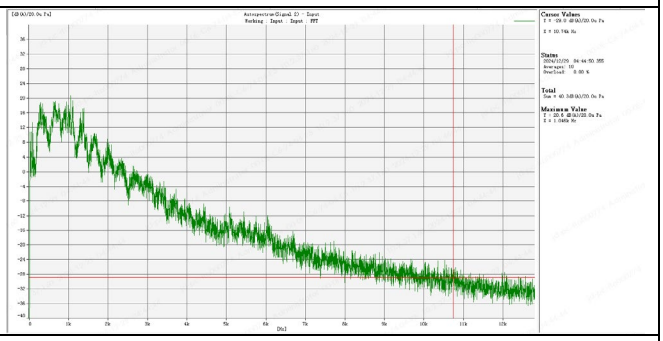
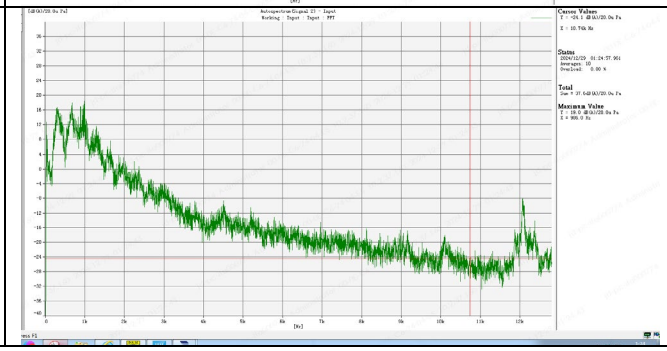
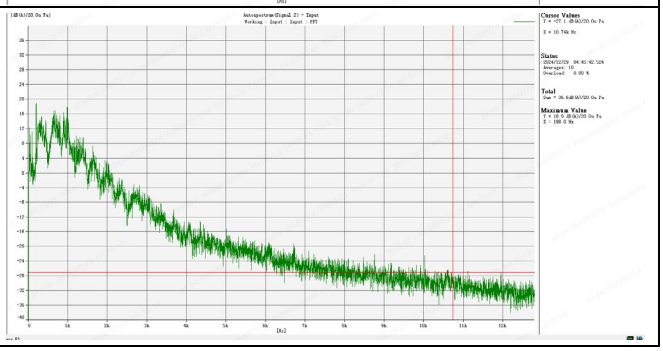


Test site：1m directly in front of the air outlet and 0.8m below the air outlet

09K ACiQ-09W-E-M & 12K ACiQ-12W-E-M

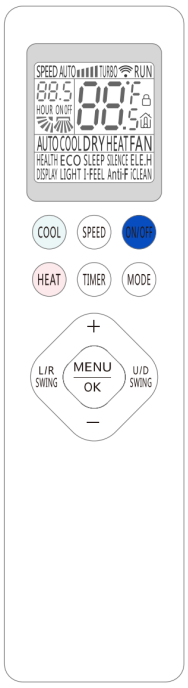
	Cooling	Heating
High Speed Setting		
Medium Speed Setting		
Low Speed Setting		

18K ACiQ-18W-E-M

	Cooling	Heating
High Speed Setting		
Medium Speed Setting		
Low Speed Setting		

Section 7: Functions and Control

1. Wall Mount Air Handler Remote Controller



Remote Controller: YKR-T/121E

NOTE: Functions dependent upon model the remote is being used with. Some of the remote controller functions listed below and described in this section may not to apply to your unit.

NO	Function	Instructions
1	ON/OFF	Press this button to turn on/off the unit. This will clear the existing timer and SLEEP settings.
2	MODE	Which enables you to select different operation mode, after each pressing, the operation mode will be changed. It shows in the following display: AUTO→COOL→DRY→HEAT→FAN **Note:** Heat mode is not available for cool only units. Please read the Usage for Mode for a detailed description.
3	TIMER	With the unit on, press this button to set off timer or with it off to set on timer. Press this button once, the “ON(OFF)” will flash. Press “+” or “-” to set the number of hours in which the unit will be turned on/off, with an interval of 0.5 hour, and a range of 0.5-24 hours. Press it again to confirm the setting, the “ON (OFF)” will stop flashing. If the “TIMER” button is not pressed within 10 seconds after the “ON (OFF)” start flashing, the timer setting will be exited. If a timer setting is confirmed, press this button again will cancel it.
4	Heat	Press this button to enter “HEAT” mode
5	COOL	Press this button to enter “COOL” mode
6	SPEED	Press this button, you can select fan speed as follows: Low → Mid → High → Turbo → Auto ( ) ( ) ( ) (TURBO) (AUTO) Note: Auto air speed is not available in fan mode. Turbo air speed is not available in auto mode. this button is invalid in dry mode.
7	“+” &” “-”	Each time the “ + ” is pressed, the temperature setting will increase by 1℃(1℉) and each time the “ - ” is pressed, it will decrease by 1℃(1℉). The temperature setting range: 16℃ (60℉) ~ 32℃(90℉). **Note:** The temperature cannot be set in auto or fan mode.

NO	Function	Instructions
8	MENU & OK	Press the “MENU” button to enter the function selection mode. Then press (+), (-), (L/R SWING) and (U/D SWING) to choose the function which you want. After, press the “OK” button, turn on this function. In function selection mode, press (+), (-), (L/R SWING) and (U/D SWING), the character in LCD will be flashing if the function can be selected.
9	L/R SWING	Press this button to activate left/right swing and press it again to turn off the swing function.
10	U/D SWING	Press this button to activate up/down swing and press it again to turn off the swing function. **Note:** When the unit is on, press the “U/D SWING” button and hold for 3 seconds, the button will shift to be the functional button of “Rated swinging”, and then press the “U/D SWING” button to select the positions of Rated swinging. Only by pressing the “U/D SWING” button again and hold for 3 seconds or reinstall the battery of the remote control, can the “U/D SWING” button resume its original function. The power on/off button of the remote control cannot enable the exit of the “Rated swinging” function.
11	HEALTH	When the unit is on, press the “MENU” button ,then press △(+), ▽(-), (L/R SWING) and ▹ (U/D SWING) to choose “HEALTH” character, when the “HEALTH” character will blink, and press the “OK” button to highlight (not highlight) the “HEALTH” character, which will activate (deactivate) the health function.
12	ELE.H	In heating mode, press this button, the mode of operation is shifted into supplementary electric heating.
13	Anti-FUNGUS	The purpose of this function is to dry the inside of the evaporator and to prevent the evaporator from going moldy due to water deposition and thus dispersing strange smell. This function is controlled by the remote controller under cooling, dry and auto (cooling and dry) modes, the horizontal wind guiding bars are at the initial position for cooling. The A/C runs under heating mode (the cooling only A/C only runs under fan mode), the internal fan runs for 3 minutes with weak wind before stop. This function has not been set in the factory. You may freely set and cancel this function. The setting method is: under “off” status of the A/C and the remote controller, point the remote controller toward the A/C and continuously press “Anti-FUNGUS” button for one time, the buzzer keep beeping five times again after five times beep, indicating that this function is ready. In case this function has been set, unless the whole A/C is powered off or the function is manually canceled, the A/C then has this function as default. To cancel the function: a. Under “off” status of the A/C and the remote controller, point the remote controller toward the A/C and continuously press “Anti-FUNGUS” button for one time, the buzzer keeps beeping three times again after five times beep, indicating that this function has been canceled; b. Power off the whole A/C. When this function is on, it is suggested not to restart the A/C before it is completely stop.This function will not run in case of time stop.
14	SPOT SWING	Press this button, the horizontal wind direction vanes can swing automatically, when you have the desired vertical wind direction. Press it again, the horizontal wind direction vanes will be stopped at the situation of your choice.
15	ECO	In cooling mode, press this button, the unit will run “ECO” economic operation mode which costs the least power consumption. After running for 8h, it will automatically exit, otherwise, press this button once again to quit it. **Note:** The unit will turn off automatically if the timing mode are running out of time.
16	Automatic operation mode	Press the ON/OFF button, the air-conditioner starts to operate. Press the MODE button, select the automatic operation mode. Press the SPEED button, you can select fan speed. You can select fan speed from LOW, MID, HIGH, AUTO. Press the button again, the air-conditioner stops.

NO	Function	Instructions
17	**iFavor**	The button is a shortcut button, users could reserve the data of mode, wind speed, set temperature, swing and when pressing on it, it could operate in the mode users set before. **Method:** **a.** Turn on the air conditioner, make adjustment to the ideal mode you wanted. **b.** Keep pressing the shortcut button for three seconds, till the display screen give the signal that represents the shortcut button and glitter for three times, then reserve the operation mode in the remote controller, it's done. To take place of the previous operation mode, just do it as show above. **Note:** This function just for remote controller YKR-L/201E & YKR-L/202E
18	Cooling/Heating operation mode	Press the ON/OFF button, the air-conditioner starts to operate. Press the MODE button, select the Cooling or Heating operation mode. Press the "▲" or "▼" button, set the temperature, temperature can be set at 1℃ difference range from 16-32℃. Press the SPEED button, you can select fan speed. You can select fan speed from LOW, MID, HIGH, AUTO. Press the button again, the air-conditioner stops.
19	Fan operation mode	Press the ON/OFF button, the air-conditioner starts to operate. Press the MODE button, select the Cooling or Heating operation mode. Press the SPEED button, you can select fan speed. You can select fan speed from LOW, MID, HIGH. Press the button again, the air-conditioner stops. **Remark:** In the circulation operation mode, to set the temperature is noneffective.
20	Drying operation mode	Press the ON/OFF button, the air-conditioner starts to operate. Press the MODE button, select the Dry operation mode. Press the "▲" or "▼" button, set the temperature, temperature can be set at 1 ℃ difference range from 16-32℃. Press the SPEED button, you can select fan speed. You can select fan speed from LOW, MID, HIGH, AUTO. Press the button again, the air-conditioner stops. **Note:** This manual introduces function for all of the remote control, maybe you press one button without any reaction, well, the air-conditioner you bought hasn't this function.

2. Functions & Control Descriptions

2.1 Abbreviation and Meaning

TA: Indoor ambient temperature (compensated indoor ambient temperature (rounded))

T: Indoor ambient temperature (uncompensated indoor ambient temperature (rounded)

TE: Indoor evaporator temperature

TS: Set temperature (after sleep compensation and strong compensation)

TAO: Outdoor ambient temperature

TDEF: Defrosting temperature

TCM: Outdoor coil middle temperature

TD: Exhaust temperature

TS: Suction temperature

2.2 Cooling mode

1) The temperature control range is 60.8℉~89.6℉(16℃~32℃), and the swing air operates according to the set state;

2)Wind speed range: strong wind, high-speed wind, medium speed wind, low-speed wind, silent wind, automatic wind;

3)In this mode, there are timer, sleep PM2.5 health/negative ion function (if any), power-off memory, portable sensing function ECO function;

4)Compressor start: any one or more IDU be turned on, and the temperature meets the T room -T setting >= 32.9℉(0.5℃）;

5)Compressor shutdown: All IDUs shut down or all temperatures meet the T room - T setting<=28.4℉(-2℃）;

6)Compressor operating frequency: Within 5 minutes of starting the compressor, it is the initial frequency control stage. After 5 minutes, it enters the evaporator temperature closed-loop control stage. The frequency is adjusted according to the cooling capacity requirements of the IDU, and the upper limit of operating frequency is affected by the outdoor environmental temperature;

7)Electronic expansion valve: The opening of the expansion valve is determined by the overheating of the IDU coil. The operating range of the IDU expansion valve is 60PLS-480PLS when turned on, and 0PLS when turned off;

8)Four way valve: Keep closed;

9)Outdoor fan: Determine the starting speed of the outdoor fan based on the outdoor ambient temperature. After 30 seconds, the outdoor fan enters the closed-loop speed control.

2.3 Heating mode

1)The temperature control range is 60.8℉~89.6℉(16℃~32℃), and the swing air operates according to the set state;

2) Wind speed range: strong wind, high-speed wind, medium speed wind, low-speed wind, silent wind, automatic wind;

3)In this mode, there are timer, sleep PM2.5 health/negative ion function (if any), power-off memory, and portable sensing function;

4)Compressor start: Any one or more IDUs are turned on, and the temperature meets the T setting - T inner ring>=32.9℉(0.5℃）;

5)Compressor shutdown: All IDUs or temperatures meet the T setting - T inner ring<=28.4℉(-2℃）;

6)Compressor operating frequency: the compressor starts within 5 minutes for the initial frequency control stage, 5 minutes after entering the condenser temperature closed-loop control stage, the frequency is adjusted with the IDU thermal capacity requirements, the upper limit of the operating frequency is affected by the outdoor environment temperature;

7)Electronic expansion valve: Control according to the initial opening within 5 minutes of startup, and enter the closed-loop control of the subcooling of the IDU coil after 5 minutes;

8)Four-way valve: The compressor is closed after starting;

9)Outdoor fan: The starting speed of the outdoor fan is determined based on the outdoor ambient temperature. After 30 seconds, it enters the speed closed-loop control and adjusts the speed according to the temperature of the indoor unit coil.

2.4 Silent mode

1)The temperature control range is 60.8℉~89.6℉(16℃~32℃), and the swing air operates according to the set state, swinging in the same cooling mode;

2)The wind speed is forced to blow low. Some users of certain models can choose the wind speed range below low wind (i.e. silent mode), regardless of whether the compressor is running;

3)In this mode, there are timer, sleep PM2.5 health/negative ion function (if any), power-off memory , and portable sensing function;

2.5 Ventilation mode

1)The compressor and external fan are shut down, while the indoor unit is running with air supply;

2)Wind speed in four levels: high-speed wind, medium speed wind, low-speed wind, and silent wind;

3)In this mode, there is a timer, PM2.5 health/negative ion function (if any), power-off

memory, and portable sensing function;

2.6 Automatic mode

After the air conditioner enters automatic mode, according to TA's judgment, the operating mode will continue to display the remote control set temperature after turning on. Within 20 seconds, it will be forced to blow low air in ventilation mode, and then the air conditioner will run in the selected mode. After selecting the mode, it will not change with changes in indoor temperature. After turning off, the operating mode will be re selected when turning on. The rules for determining the operating mode are as follows:

1) When TA ≥75.2℉(24℃), operate in refrigeration mode, set the temperature to75.2℉(24℃), and the wind speed is set by the remote control;

2) When TA<75.2℉(24℃), operate in heating mode (for single cooling models, operate in air supply mode), set the temperature to 75.2℉(24℃), and the wind speed is set by the remote control;

3) In this mode, there are timer, sleep, and power-off memory, PM2.5 health/negative ion function (reserved), portable function.

Note: During the 20s mode selection period, the air guide door stops at the anti cold air position.

2.7 Temperature compensation function

7.1 Conditions for using temperature compensation:

1) The temperature obtained through the temperature sensor of the indoor unit needs to be compensated for its indoor temperature (T-return air) for control and related display.

2) There is no temperature compensation when the remote control's sense of touch function is turned on.

7.2 Temperature compensation mode:

When displaying and controlling indoor temperature, the target is the compensated indoor temperature TA.

TA (after compensation)=T+A (compensation value).

The compensation value A varies with the mode and operating phase. Specifically, as follows:

1) In refrigeration and dehumidification operation modes: A=32℉(0℃).

2) In heating operation mode: A=26.6℉(-3℃).

3) In ventilation mode: A=32℉(0℃).

2.8 Anti cold air control mode

When starting the heating system, stopping the machine at the temperature point to resume heating, and defrosting, when the compressor starts running, blow low-speed air for a maximum of 3 minutes and 30 seconds to prevent blowing cold air and affecting user

comfort. When preventing cold air, the air guide door stops at the minimum heating angle.

2.9 Blowing waste heat control mode

Stop heating at the temperature point, stop heating, and stop the compressor. After the compressor stops running, the IDU fan can blow low or weak air for a maximum of 30 seconds. After that, the IDU fan stops running, allowing excess heat in the air conditioner to be blown out to prevent safety issues. When blowing waste heat, the air guide valve stops at the minimum heating angle.

2.10 Intelligent defrosting control mode

1. Defrosting entry conditions:

After the heating compressor runs continuously for 5 minutes and meets the cumulative running time for defrosting, it is judged based on the exhaust temperature and ODU coil temperature. Meet one of the following criteria to enter:

① When the defrost correction temperature or ODU coil correction temperature is reached for 5 minutes and the average temperature of the IDU coil in the system is ≤ the average temperature of the IDU coil entering the defrost process, the defrost operation will begin;

②The continuous operation of the compressor meets the requirement of entering the defrosting compressor continuous operation time and reaching the defrosting correction temperature for 5 minutes;

③The continuous operation of the compressor meets the requirement of entering the defrosting compressor continuous operation time and reaching the ODU coil correction temperature for 5 minutes;

2. Defrosting operation process

① During defrosting, the ODU and IDU fans will stop and resume operation after defrosting is completed;

② Stop the compressor first, then increase the frequency to a fixed defrosting frequency. After defrosting is completed, stop the machine and restart the heating process

③ The four-way valve switches from ON to OFF and returns to ON after defrosting is complete.

3. End conditions for defrosting

Exit defrosting as long as any of the following conditions are met.

① Switch to cooling or dehumidification mode to exit defrosting;

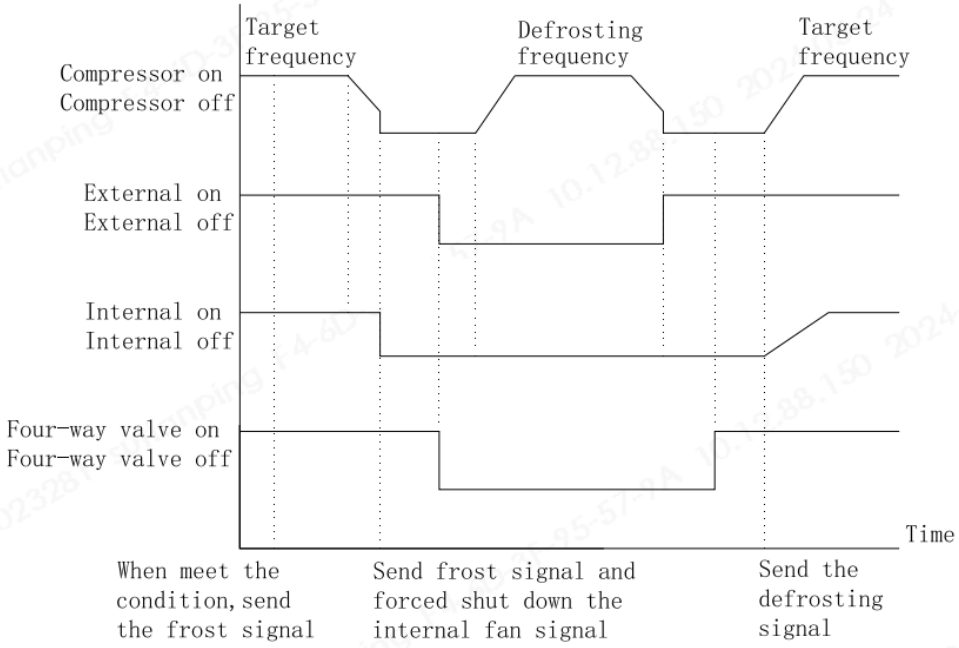
② The defrosting temperature≥the defrosting coil temperature judgment temperature and lasts for more than 60 seconds;

③ Defrosting operation time≥Maximum defrosting time ,end of operation;

④ Outer disk temperature≥Exit defrosting outer tube temperature;

⑤ Exhaust temperature≥Exit defrosting exhaust temperature;

⑥ Malfunction encountered during defrosting process.



Note:Due to the communication time difference, the switch time point of the fan is only for reference.

2.11 Sleep function

1. Sleep function can be set during automatic, cooling, dehumidification, and heating operation.

2. After entering the sleep function, the air conditioner automatically adjusts the operating temperature and wind speed, and turns off the lights. After exiting sleep, run in normal mode.

2.12 Timer function

When turned on, the timer can be set to turn off, and when turned off, the timer can be set to turn on.

After the scheduled time, it will automatically shut down or turn on.

Set the timing interval based on the remote control.

2.13 Up and down swing function

13.1 Power on, operate the air guide door in the closed direction, and control the air guide door to close.

13.2 Turn on the machine and open the air guide door.

1) When heating, the air guide door first runs to the minimum position, and stops at the default position when exiting the anti cold air. When the heating compressor stops, the air guide valve runs to the minimum position.

2) In other operating modes, the air guide door runs to the memory position or is set to a positioning or default position.

3) When opening the up and down swing wind, the air guide door swings between the

corresponding minimum and maximum positions.

4) When setting the grid position, the heating mode will run directly to the grid position after exiting the anti cold air mode; After booting up in other modes, it runs directly to the fixed position.

5) During the first 20 seconds of automatic mode, the air guide door stops at the minimum heating position.

13.3 Turn off, run the air guide door in the closed direction, and control the air guide door to close.

2.14 Left and right swing function

Power on, after the IDU fan runs, the left and right air guide doors first run to the limit position, and then run to the minimum gap position.

When setting the left and right swing of the remote control, the left and right air guide doors swing back and forth between the leftmost and rightmost positions.

When the remote control stops swinging, the left and right air guide doors stop at the current position.

After shutting down, the left and right air guide doors stop in the neutral position.

2.15 Power failure memory control function

15.1 Method for setting the power-off memory function: After the controller is powered on, use the remote control to face the controller. If the time interval between the two buttons is not more than 2 seconds, press the sleep button continuously for 10 times. If the power-off memory function is successfully set, the buzzer can be heard to beep continuously for 4 times. If you want to cancel the power-off memory function, also use the remote control to face the controller. If the time interval between the two buttons is not more than 2 seconds, press the sleep button continuously for 10 times. If the power-off memory function is successfully canceled, you can hear the buzzer beeping twice in a row. Otherwise, there is no beeping sound;

15.2 The contents remembered in power failure memory include operating mode, set wind speed, set temperature, health function, idle state, and on/off state.

15.3 The power-off memory function has been successfully set. After power-off, the compressor may need to wait for 3 minutes before being allowed to start when it runs in the state before power-off.

2.16 Portable function

16.1 When the controller receives the remote control's portable sensing function, it enters the portable sensing function and processes the temperature of the sensor on the remote control as TA;

16.2 Exit method for the sense of touch function:

1) Received signal to cancel the sense of presence function;

2) The controller did not receive a remote control signal within 10 minutes;

16.3 When the carry on function is enabled, the main control board only synchronizes the ambient temperature and does not perform any other control when automatic code sending occurs every 3 minutes.

16.4 When the portable button signal on the remote control is first received, the buzzer will sound once. When receiving the self sensing signal automatically emitted by the remote control, the set temperature does not flash and the buzzer does not sound.

2.17 Emergency switch function

17.1 When turned on, press the emergency switch button briefly, beep once, and the air conditioning will shut down.

17.2 In the shutdown state, short press the emergency switch button and a beep will sound:

17.3 The air conditioner operates in automatic mode when turned on, with a default temperature of 75.2℉(24℃) and a set wind speed of automatic wind. The up and down wind and left and right wind are fixed and do not swing.

17.4 If the forced switch is held down for more than 20 seconds, it is considered that the button is invalid.

2.18 Reaching the setting temperature function

① Cooling mode

On: Any one or more IDUs are turned on, and the temperature meets the T(room temperature) - T(setting)≥32.9℉(0.5℃)

Off: All IDUs are turned off or all temperatures meet the T(room temperature) - T(setting)≤28.4℉（-2℃）

② Heating mode

On: Any one or more IDUs are turned on, and the temperature meets the T(setting) - T(room temperature)≥32.9 ℉(0.5℃)

Off: All IDUs or temperatures meet the T(setting) - T(room temperature)≤28.4 ℉（-2℃）

2.19.Protection function

19.1 Indoor sensor on/short circuit protection

1)When a short circuit of the indoor temperature sensor is detected for 3 consecutive seconds, a short circuit fault of the temperature sensor is reported.

2)When the temperature sensor is detected to be restored, clear the fault.

3)The fault codes can be found in the fault code table for each model.

19.2 Indoor fan fault feedback protection

1)When the indoor motor is started and no pulse signal feedback from the indoor motor is detected or the speed is less than 100rpm for a period of time, a fan fault is reported, and the controller enters standby mode. At the same time, the digital tube indicates the corresponding fault code.

2)After the fault is reported, the shutdown command is received. After the air conditioning is turned off for a period of time, the fault is resolved.

3)The fault codes can be found in the fault code table for each model.

19.3 Communication fault protection

IDU and ODU communication fault detection: When there is an IDU and ODU communication fault, it lasts for 90 seconds and the display light board reports "E5" fault code;

Short circuit the signal line and zero line of the IDU and ODU connection lines through the ODU terminal board, or short circuit the lead out zero line and signal line of the IDU board on the IDU terminal board. If the communication circuit of the IDU board is normal, the light board will display fault code "5E"; If the communication circuit of the IDU board is faulty, it still displays "E5".

Ventilation mode does not report faults that occur outdoors.

19.4 Sensor fault handling

When there is a malfunction of the inner ring temperature sensor or the inner evaporator temperature sensing package, the inner machine may not stop and some functions can continue to operate, but a fault code will be displayed to notify after-sales maintenance.

19.5 Query function

19.5.1 In normal operation mode, the remote control is set to a temperature of 60.8°F（16℃）, and the interval between two consecutive buttons is not more than 2 seconds. Press the temperature "-" button 10 times to enter the fault query mode. The digital tube displays a fault code, the buzzer sounds 4 times, the electric heating symbol light flashes, and the access to the query function is disabled when the computer is turned off and the screen display is turned off;

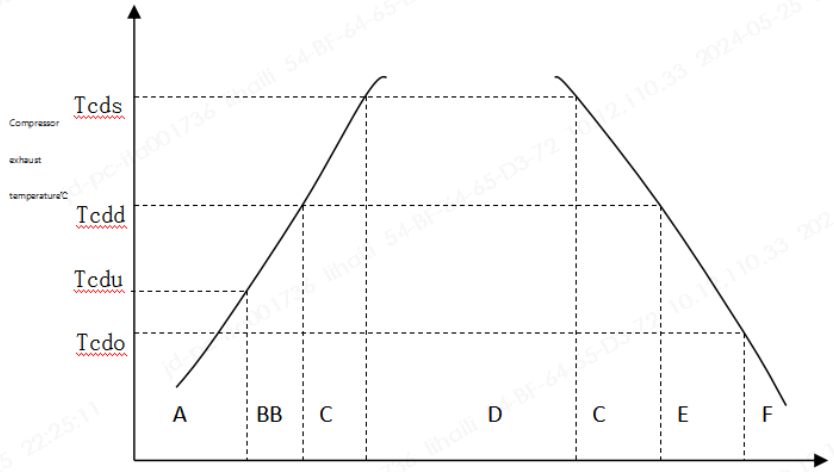
19.5.2 In query mode, except for the "On/Off" and "-" and "+" keys that are valid, all other keys are invalid;

19.5.3 Exit method for query function:

In query mode, the remote control is set to a temperature of 60.8℉(16℃). If the interval between two consecutive buttons is not more than 2 seconds, press the temperature "-" button 10 times to exit parameter query mode, the buzzer will sound 3 times, and the normal display will be restored;

After entering the query mode, if the button is pressed to shut down, or if there is no query operation within 1 hour, the query mode will automatically exit (the buzzer will not sound).

19.6 Exhaust temperature protection



When the exhaust temperature is in the A and F zone, the compressor frequency is automatically controller.

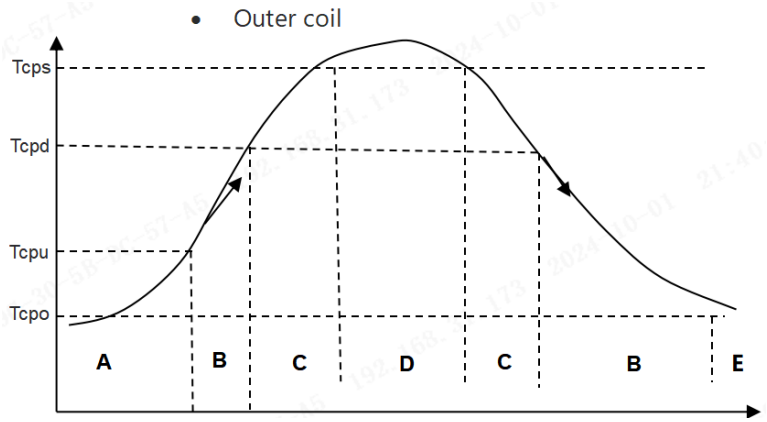
When the exhaust temperature is in area B and E, do not increase the compressor frequency, and the compressor runs at the current frequency.

When the exhaust temperature is in the C zone, reduce the frequency to protect the compressor.

When the exhaust temperature is in area D, and the compressor runs continuously for more than 1 minute, immediately stop the compressor.

When the exhaust temperature is in the F zone, remove the protection.

19.7 Refrigeration outdoor overload protection



A zone: No restrictions

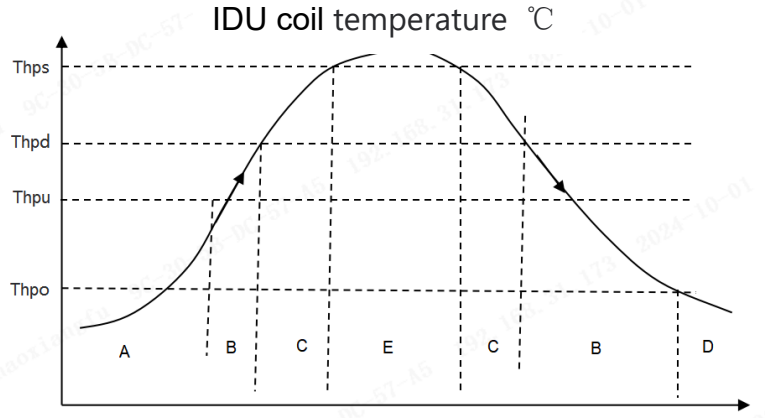
B zone：When the temperature of the outdoor heat exchanger rises by greater than or equal to Tcpu, the compressor frequency cannot rise

C zone：When the temperature of the outdoor heat exchanger rises by greater than or equal to Tcpd, reduce the frequency to protect the compressor.

D zone：When the temperature of the outdoor heat exchanger rises by greater than or equal to Tcps, and the compressor is shut down immediately after continuous operation for a period of time，Compressor frequency reduction and shutdown.

E zone：Exit the protected program.

19.8 Refrigeration room overheat protection



A zone: No restrictions.

B zone：When the temperature of the indoor heat exchanger rises by greater than or equal to Thpu, the compressor frequency cannot rise.

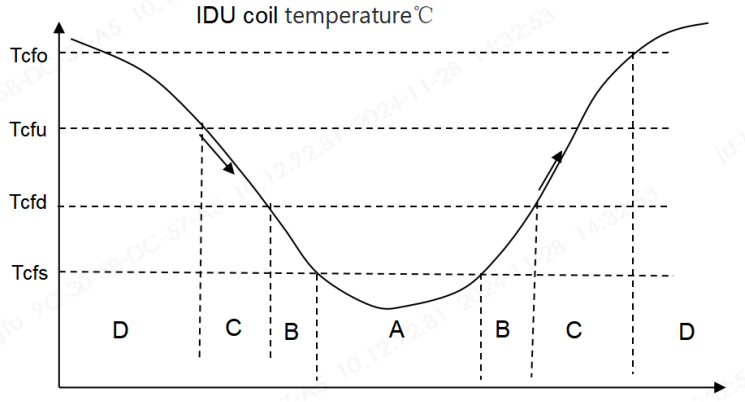
C zone：When the temperature of the indoor heat exchanger rises by greater than or equal to Thpd, reduce the frequency to protect the compressor

When the heat exchanger temperature is below Thpo, remove the protection.

When the compressor runs continuously for a period of time，and the temperature of the indoor heat exchanger rises by greater than or equal to Thps, the compressor is immediately

shutdown.

19.9 Indoor coil anti-freezing protection



A zone：When the compressor runs continuously for a period of time and the temperature of the indoor heat exchanger is less than Tcfs, shut down the compressor to anti-freeze.

Anti-freeze shutdown procedure: the compressor stops, the outdoor fan stops, and the indoor fan runs as usual.

B zone: When the indoor heat exchanger temperature is less than Tcfd, reduce the frequency to protect the compressor.

C zone：When the indoor heat exchanger temperature is less than Tcfd, the compressor frequency cannot rise.

When the indoor heat exchanger temperature is greater than Tcfo, exit the protected program.

19.10 Pressure switch protection

1. High pressure switch protection

When the high-pressure pressure switch is detected to be disconnected for 5 seconds, the protection shuts down;

Note: Disconnect: 4.2MPa ± 0.05Mpa, connect: 3.3MPa ± 0.05Mpa.

2.Low pressure switch protection

After 5 minutes of starting the compressor, or during the compressor shutdown process, if the low-pressure pressure switch is detected to be disconnected for 60 seconds, the protection shutdown will occur.

Section 8: Troubleshooting

1. Wall Mounted Air Handler IDU Error Codes & Descriptions

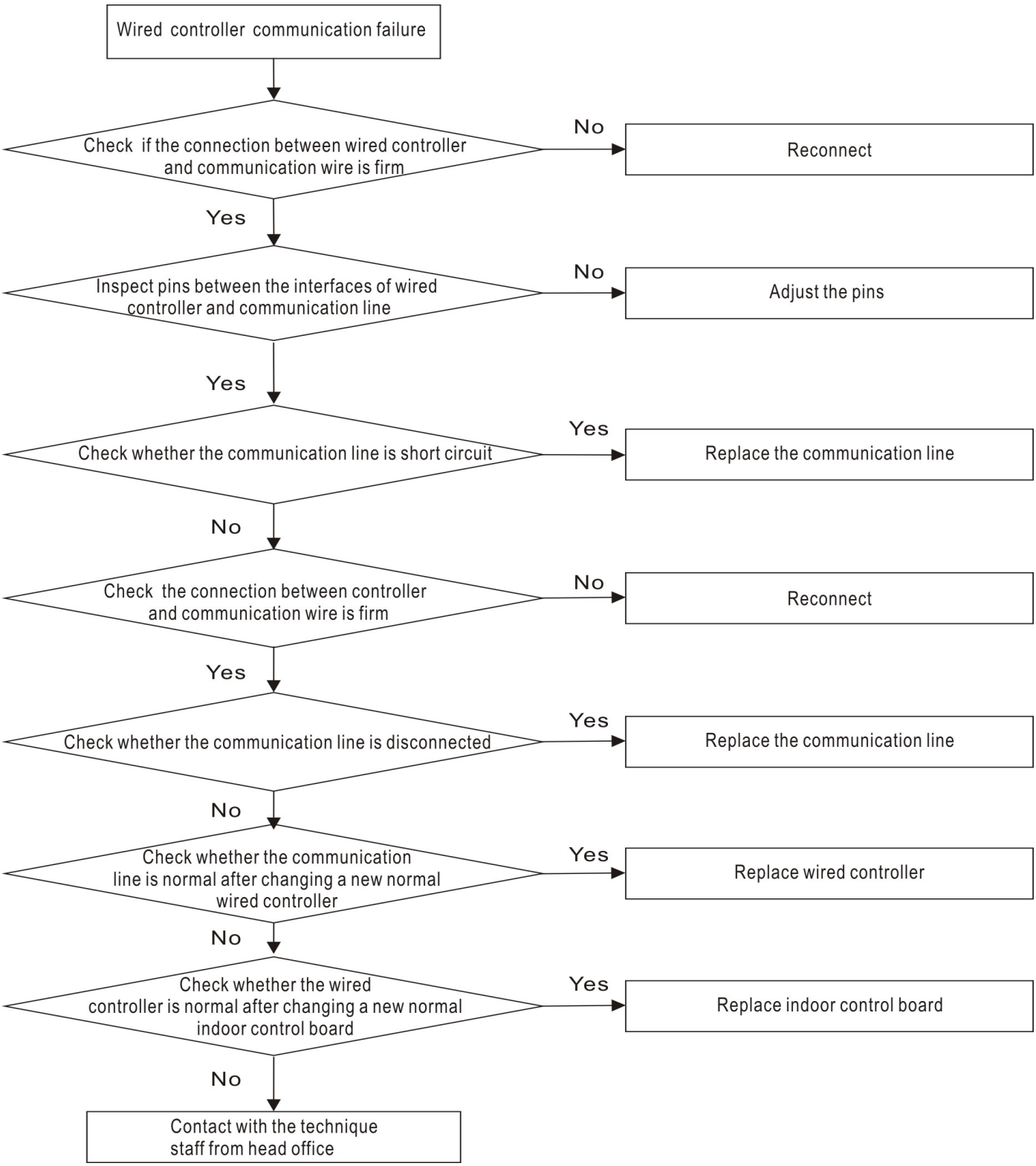
Fault code	Fault description	Causes of possible failure
E1	Fault with the room temperature sensor on the N # indoor unit	●Damage of the room temperature sensor on the indoor unit ●Poor contact of the room temperature sensor on the indoor unit ●Damage of wiring of the room temperature sensor on the indoor unit ●Damage of the main PCB on the indoor unit
E2	Fault with the Defrosting condenser Temperature Sensor in outdoor	●Damage of the temperature sensor on the outdoor unit ●Poor contact of the temperature sensor on the outdoor unit ●Damage of wiring of the temperature sensor on the outdoor unit ●Damage of the main PCB on the outdoor unit
E3	Fault with the temperature sensor in the Middle of N # indoor evaporator	●Damage of the temperature sensor on the indoor unit ●Poor contact of the temperature sensor on the indoor unit ●Damage of wiring of the temperature sensor on the indoor unit ●Damage of the main PCB on the indoor unit
E4	Fault with the Fan motor of N # indoor unit	●Low voltage ●Poor wiring ●Damage of the main PCB on the indoor unit ●Damage of the motor
E5	Communication error between the outdoor unit and the N# indoor unit	●Damage of the main PCB on the indoor unit ●Damage of the main PCB on the outdoor unit ●Poor wiring
E8	communication error between the display board and main PCB of the indoor unit	●Damage of the main PCB on the indoor unit ●Damage of the main PCB on the outdoor unit ●Poor wiring
F0	Fault with the Fan motor of outdoor unit	●Damage of motor
F1	Module protection failure	●Compressor damage ●Compressor IPM Module damage ●System blockage
F2	Compressor drive PFC protection	●Damage of the PFC circuit components ●Reactor damage
F3	Compressor protection failure	●Compressor power line not connected ●Compressor sequence connection error ●Damage of compressor ●System blockage
F4	Fault with the discharge temperature sensor	●Damage of the discharge temperature sensor on the outdoor unit ●Poor contact of the discharge temperature sensor on the outdoor unit ●Damage of wiring of the discharge temperature sensor on the outdoor unit ●Damage of the main PCB on the outdoor unit
F5	Temperature protection of compressor top cover	●Damage of compressor top cover switch ●System blockage
F6	Fault with the Environmental temperature sensor on the outdoor unit	●Damage of the Environmental temperature sensor on the outdoor unit ●Poor contact of the Environmental temperature sensor on the outdoor unit ●Damage of wiring of the discharge temperature sensor on the outdoor unit ●Damage of the main PCB on the outdoor unit
F7	Fault with the over-voltage or low voltage protection	●Excessive input voltage ●Lower input voltage
F8	Communication error between the driver PCB and main PCB of the outdoor unit	●Damage of the driver PCB on the outdoor unit ●Damage of the main PCB on the outdoor unit ●Poor wiring
F9	Fault with the outdoor unit EEPROM	●Chip damage
FA	Fault with the suction	●Damage of the suction temperature sensor on the outdoor unit

	temperature sensor	●Poor contact of the suction temperature sensor on the outdoor unit ●Damage of wiring of the suction temperature sensor on the outdoor unit ●Damage of the main PCB on the outdoor unit
H1	Fault with the drainage on N# Indoor unit	●Float switch disconnected or poor wiring ●Error setting of model parameters ●Drain plug ●Damage of the pump
H2	communication error between the wired controller and main PCB of the N# indoor unit	●Poor wiring ●Damage of the wired controller ●Damage of the main PCB on the indoor unit
H3	Fault of temperature sensor at N # evaporator inlet	●Damage of temperature sensor at N# evaporator inlet ●Poor contact of temperature sensor at N# evaporator inlet ●Damage of temperature sensor at N# evaporator inlet ●Damage of the main PCB on the outdoor unit
H4	Fault of temperature sensor at N# evaporator outlet	●Damage of temperature sensor at N# evaporator outlet ●Poor contact of temperature sensor at N# evaporator outlet ●Damage of wiring of temperature sensor at N evaporator outlet ●Damage of the main PCB on the outdoor unit
H5	Protection lower temperature discharge	●Temperature sensor shedding ●Damage of the main PCB on the outdoor unit
H6	Low pressure switch protection	●Lack of the refrigerant ●Stop valve unopened ●Damage of low pressure switch
H7	Low pressure protection	●Lack of the refrigerant ●Heat exchanger viscera
H8	Fault of four way valve	●Damage of four-way valve ●Damage to coil of four-Way valve
H9	Inter-computer communication line connection fault	/
L0	Over voltage and under voltage protection of indoor DC motor	●Excessive input voltage ●Lower input voltage
L1	Over voltage protection of compressor	●Damage of compressor ●System viscera
L2	Compressor operation failure	●Damage of compressor ●System viscera
L3	Phase-absence protection of compressor	●Damage of compressor ●Compressor power line not connected
L4	IPM Fault of compressor Drive module	●Compressor drive module damage
L5	Compressor drive PFC hardware protection	●Damage of the PFC circuit components ●Reactor damage
L6	Compressor drive PFC software protection	●Excessive running current of the unit ●Voltage drops abruptly in operation
L7	AD Abnormal protection for compressor current detection	●Sensor damage of compressor IPM module
L8	Compressor superpower protection	●Sampling resistance damage ●Excessive operating power of compressor
L9	IPM Temperature sensor fault	●Compressor IPM Module sensor damage ●Poor contact between compressor IPM module and radiator
LA	Compressor start failure	●Compressor power line not connected
LC	PFC Current Detection AD	●Failure of PFC Module Circuit Device

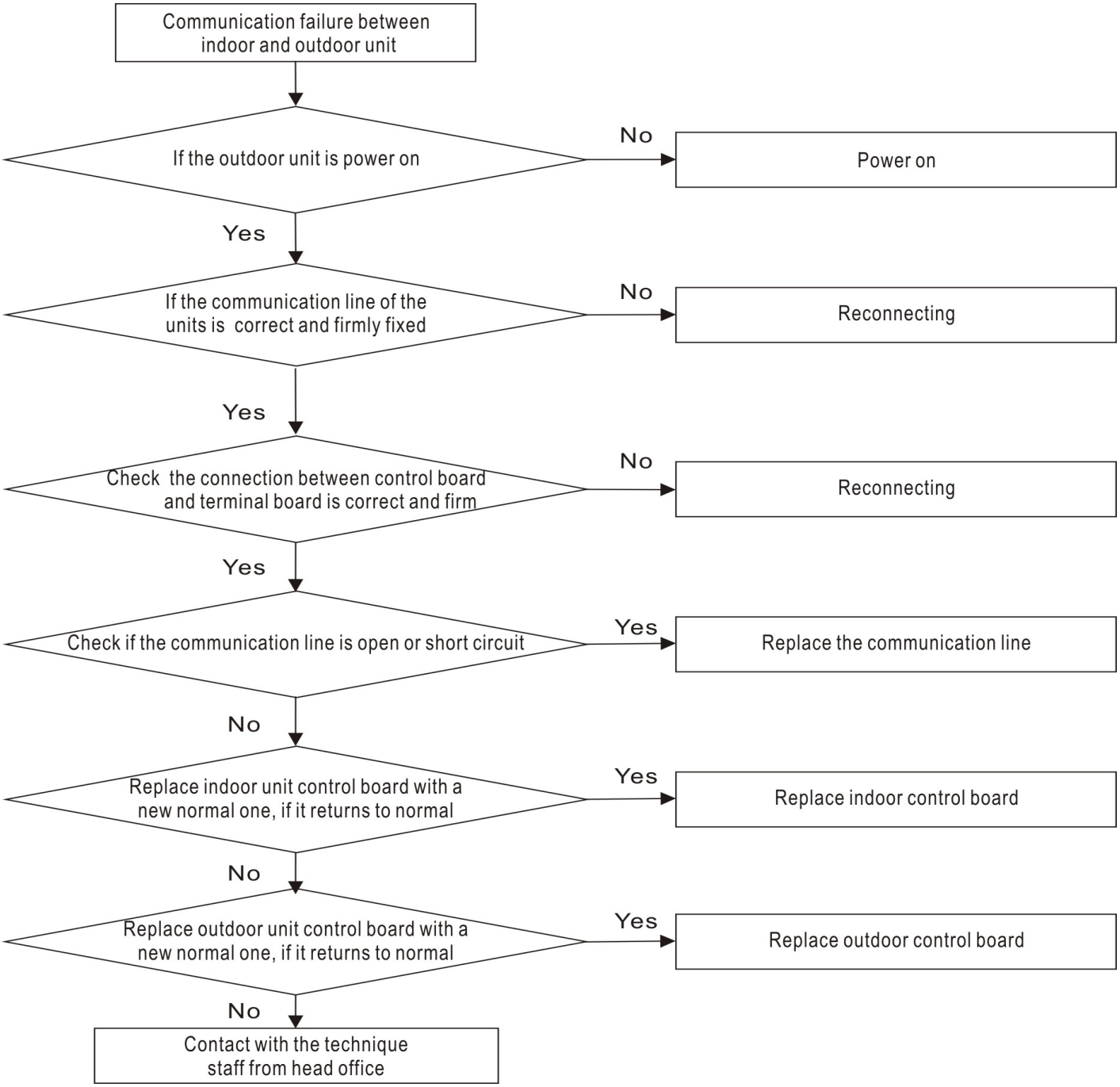
	Abnormal Protection	
LD	AD Abnormal Protection for Outdoor DC Fan Current Detection	●Failure of DC Fan Module Circuit Device
LE	Phase-lacking protection of outdoor DC fans	●DC fan line not connected ●Three wires of DC fan are disconnected
LF	Outdoor DC Fan Out-of-step Protection	●DC motor failure ●High Speed of DC Fan ●System dirty blocking
LH	IPM Protection of Outdoor DC Fan	●The IPM Device of DC Motor is Bad
P2	High Pressure Switch Protection	●System dirty blocking ●Damage of High Pressure Switch
P3	Protection of System Lack of Fluid	●Lack of refrigerant ●Globe Valve Not Opened
P4	High Temperature Protection for Refrigeration Outdoor	●Poor outdoor heat transfer
P5	Protection high temperature discharge	●Lack of the refrigerant ●Stop valve unopened ●Damage of the main PCB on the outdoor unit
P6	High Temperature Protection in heating room	●Poor indoor heat transfer
P7	Indoor anti-freezing protection	●Dirty Blockage of Heat Exchanger in Refrigeration Indoor Unit ●Blockage of Internal Fan
P8	AC Over-current Protection of the whole Machine	●Excessive running current of the unit ●Voltage drops abruptly in operation
5E	Communication error between the outdoor unit and the indoor unit	●Damage of the main PCB on the indoor unit ●Damage of the main PCB on the outdoor unit ●Poor wiring

2. Failure Analysis

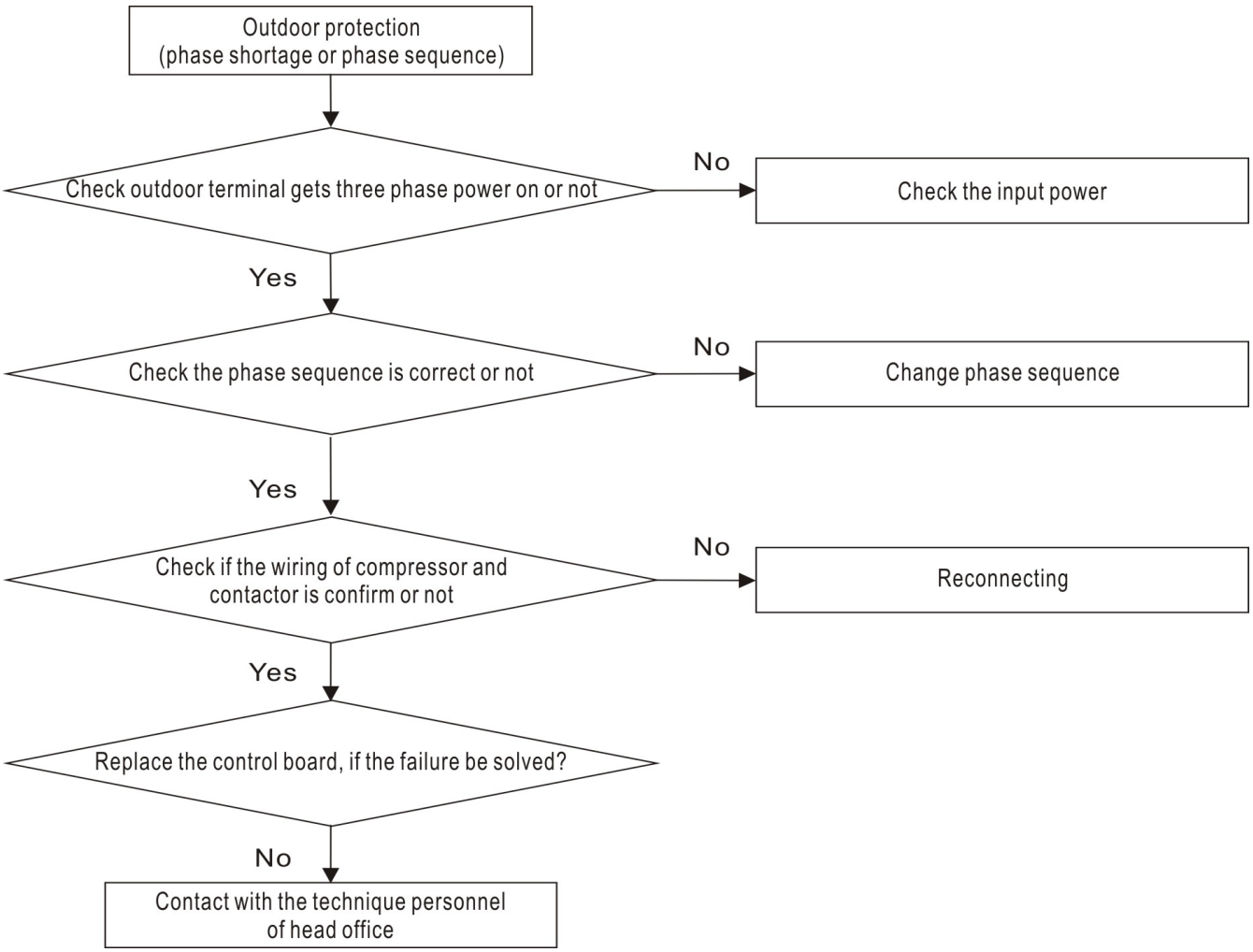
2.1【AA】【H2】Wired controller communication failure



2.2【A9】【E5】Communication failure between indoor and outdoor unit

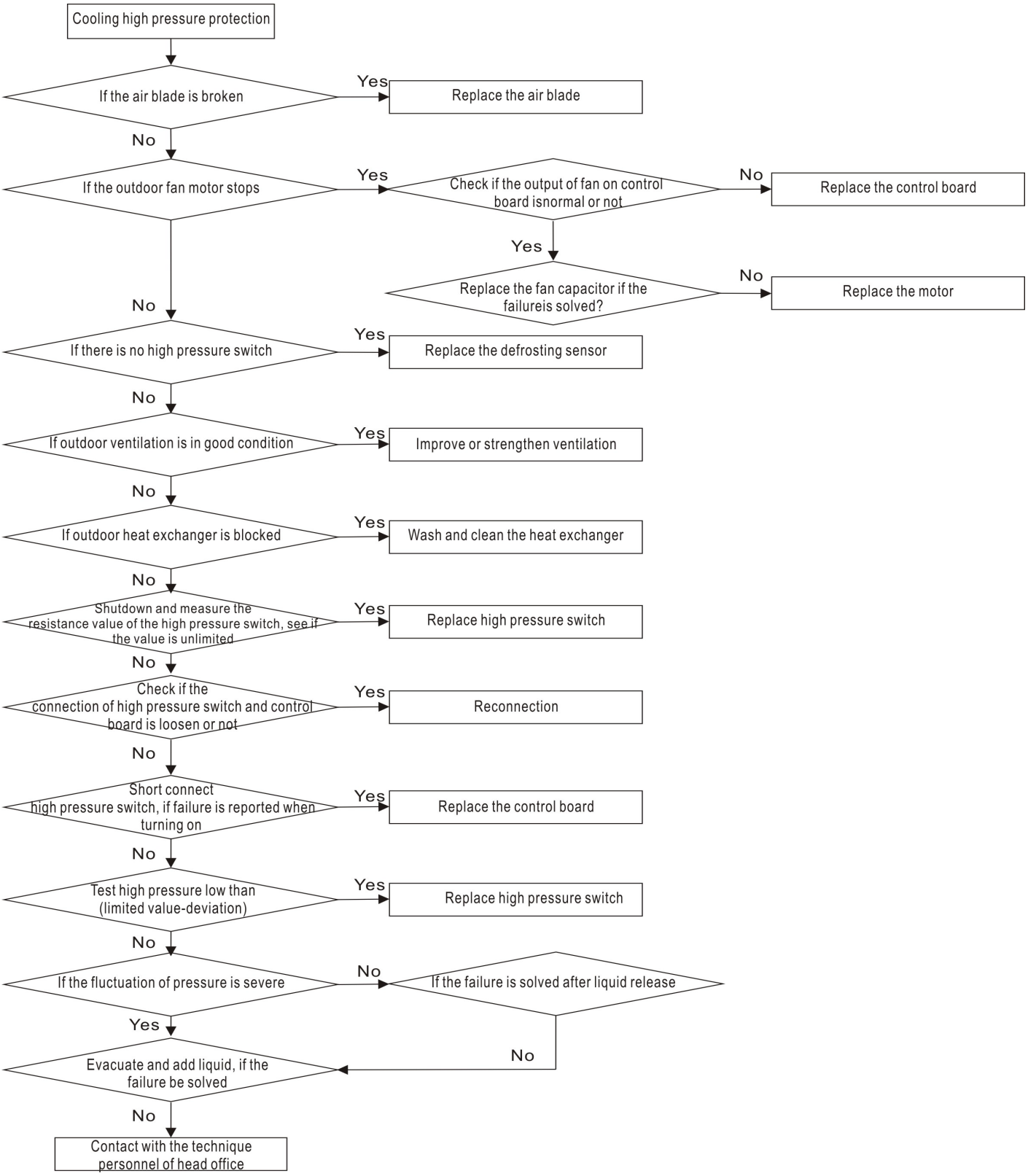


Outdoor protection (phase sequence)

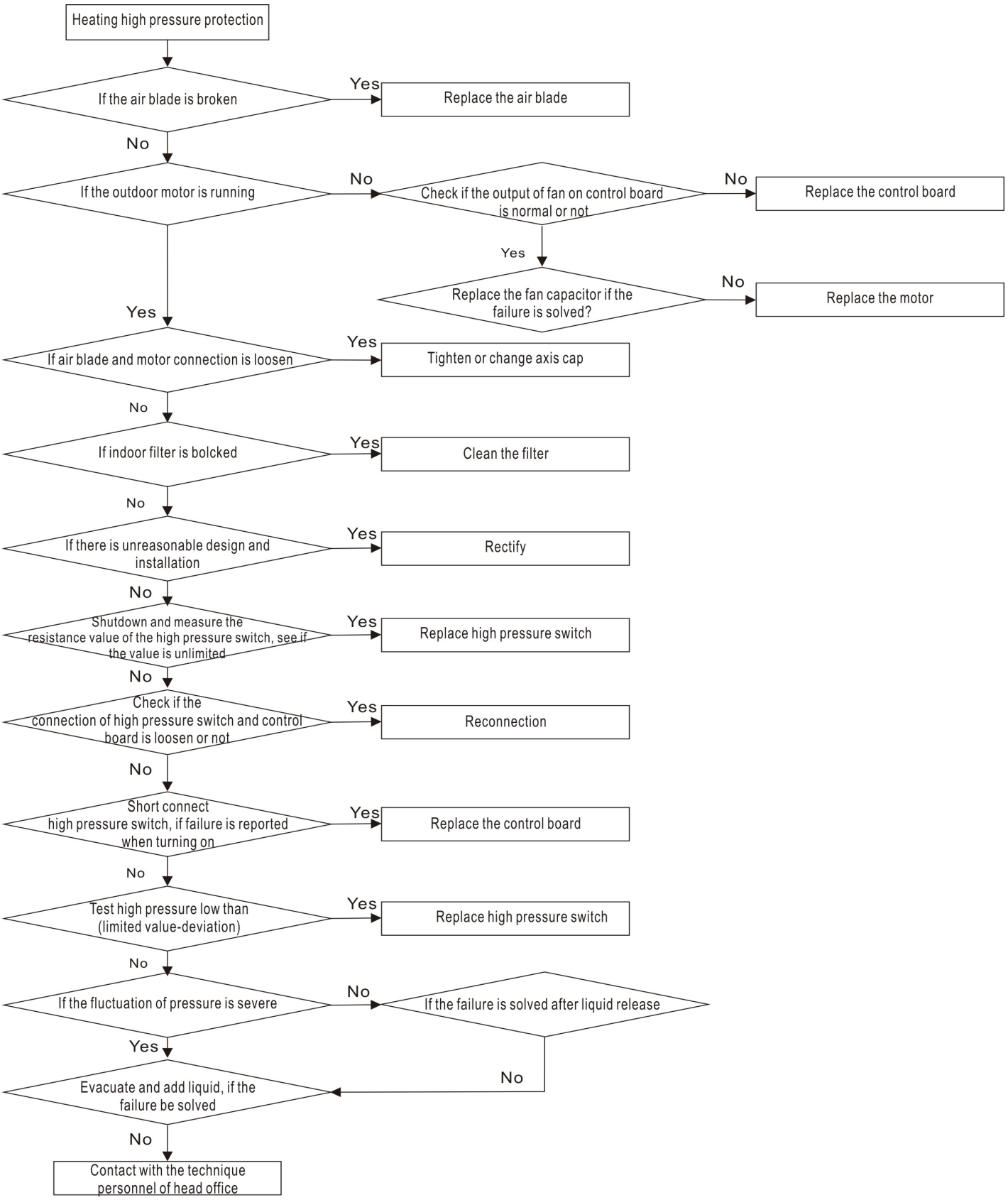


2.3【H1】【P2】High pressure switch protection

Cooling high pressure switch protection

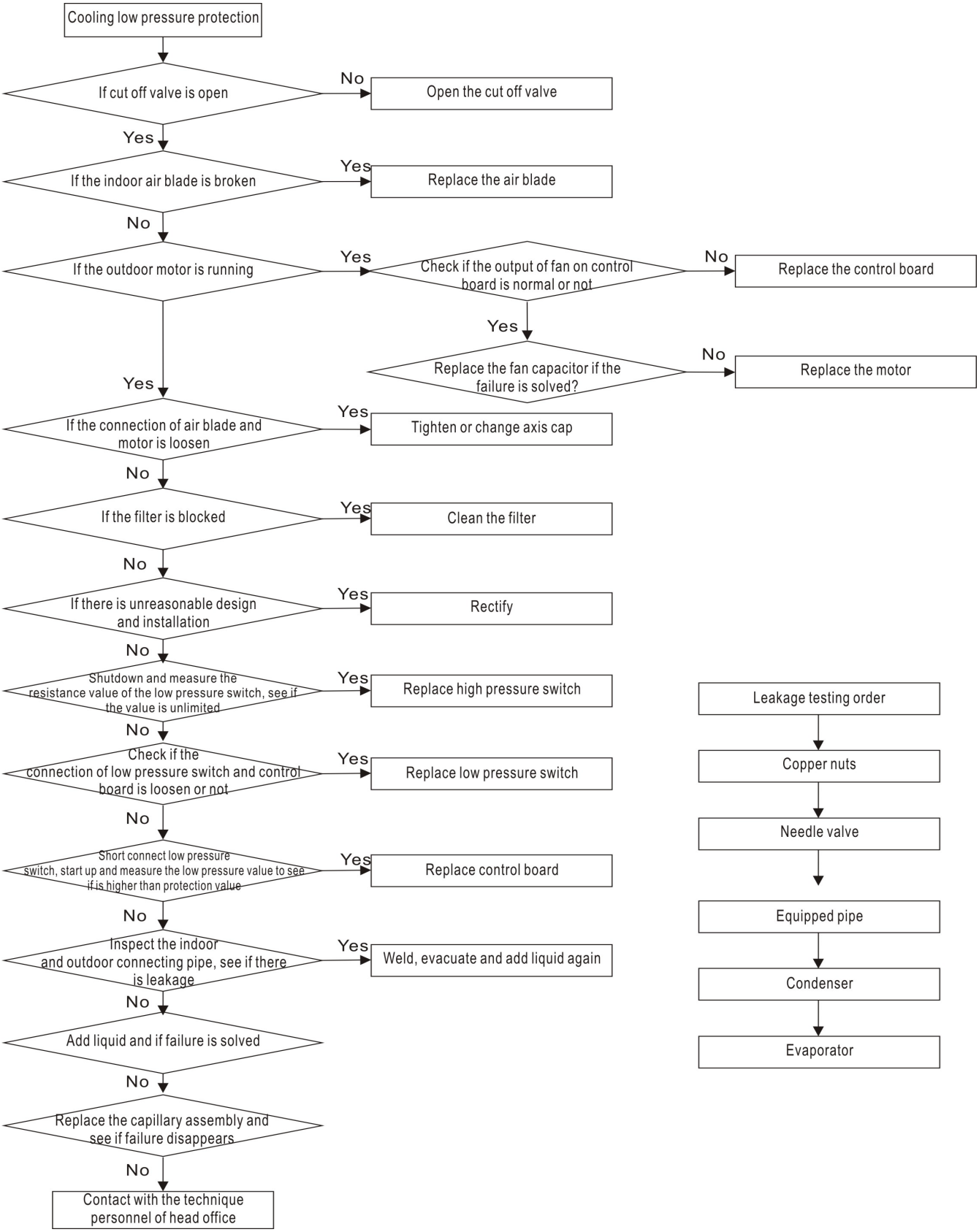


Heating high pressure protection

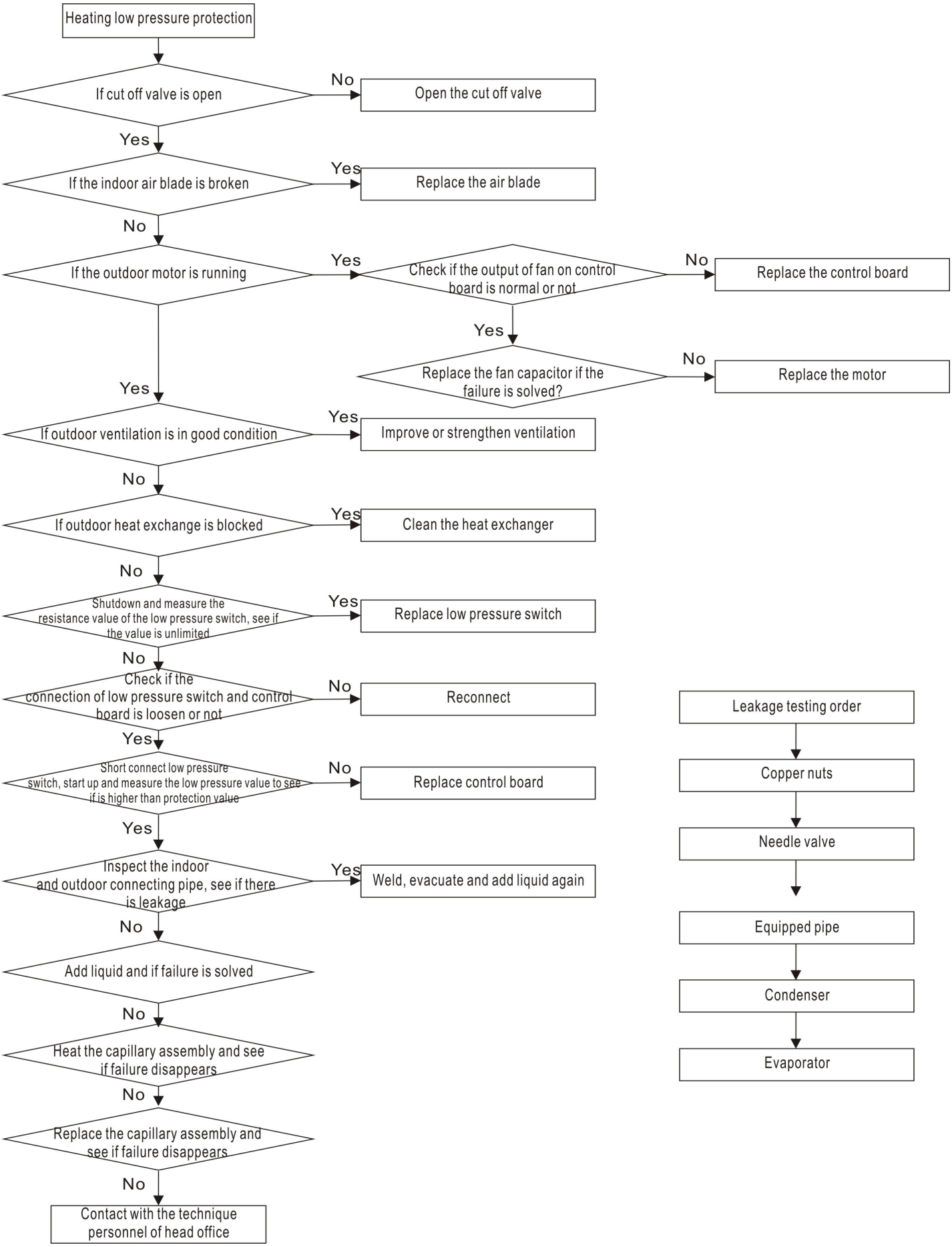


2.4【H4】【H6】Low pressure switch protection

Cooling low pressure switch protection

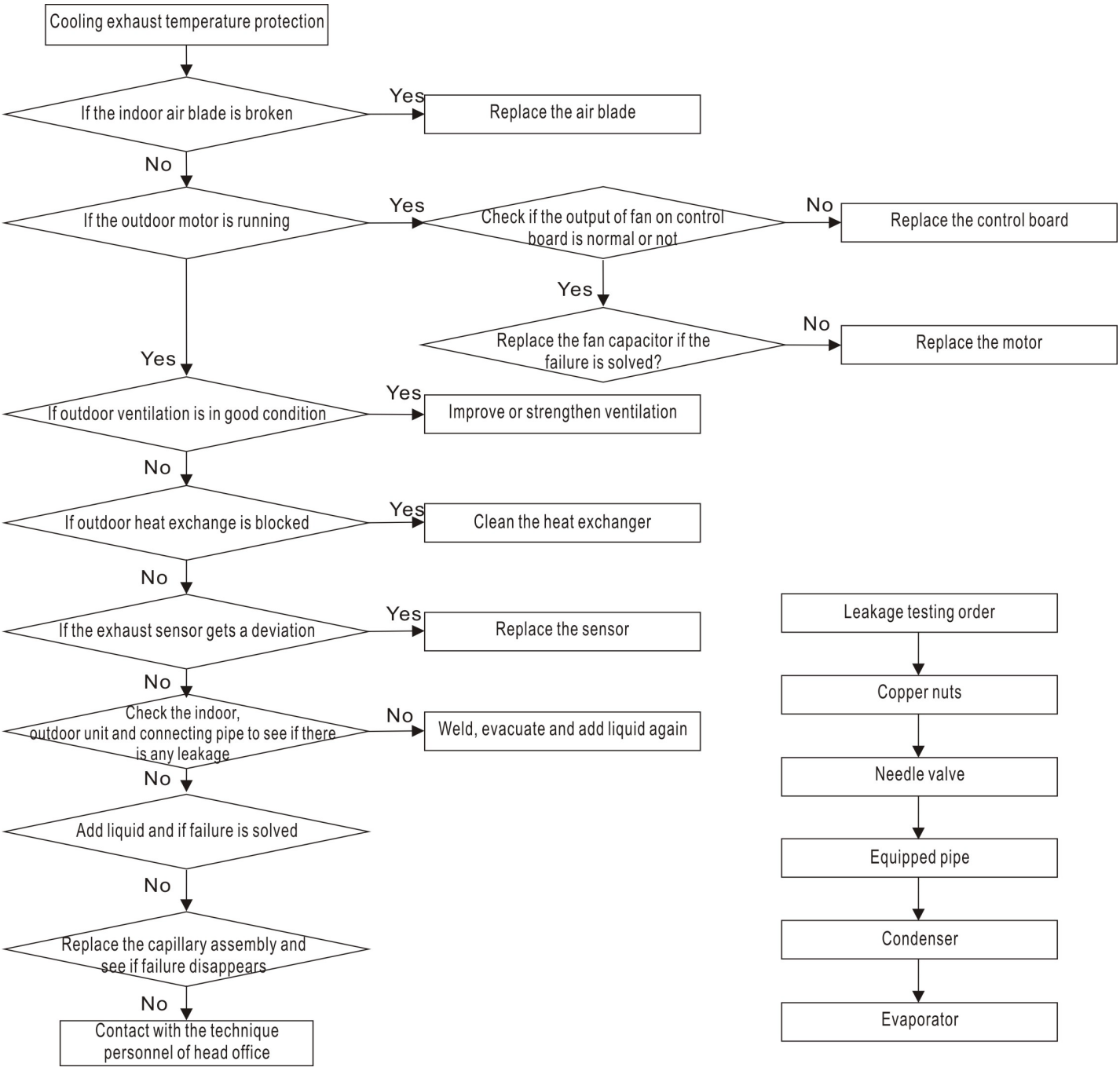


Heating low pressure protection

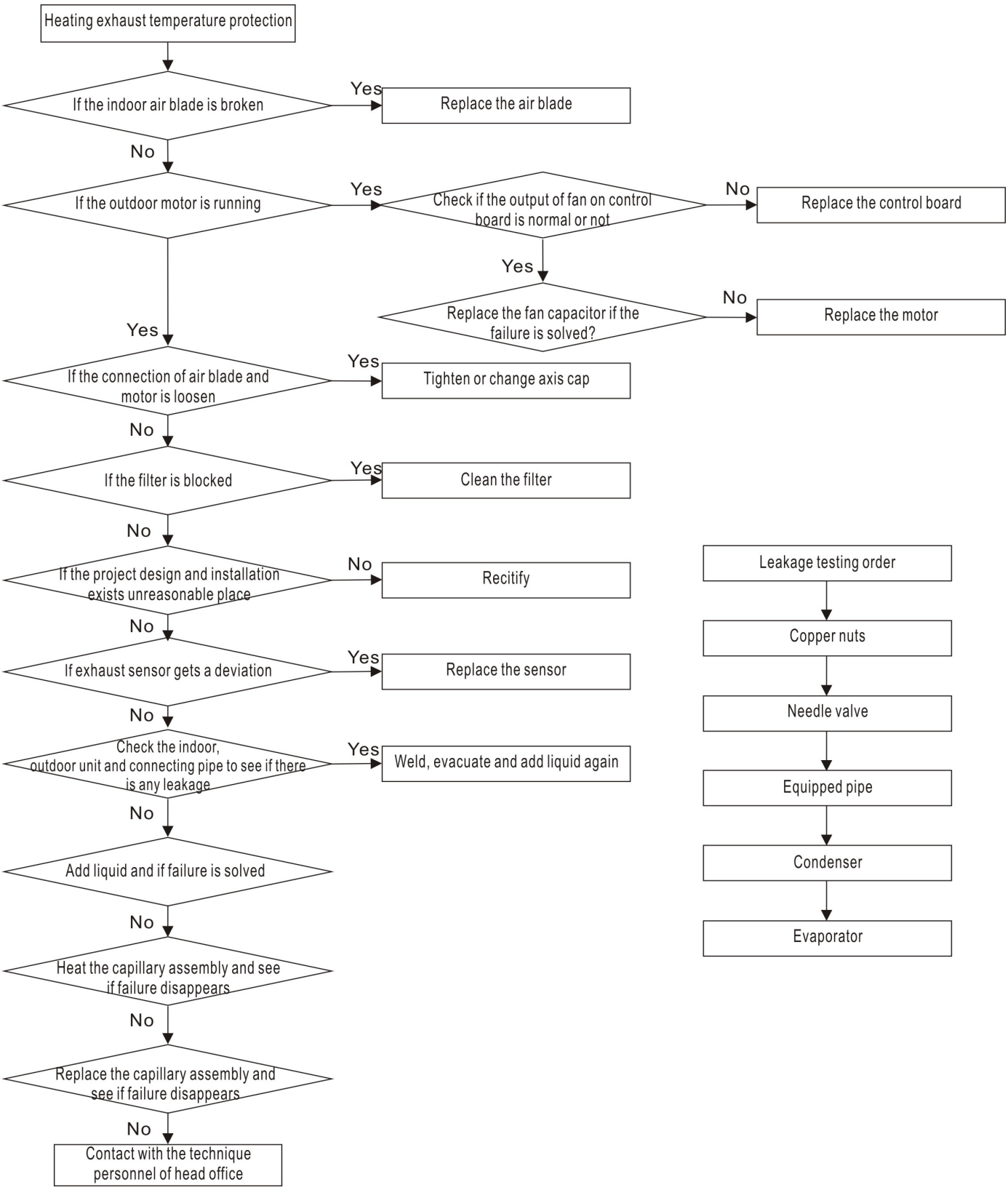


2.5【E3】【P5】High exhaust temperature protection

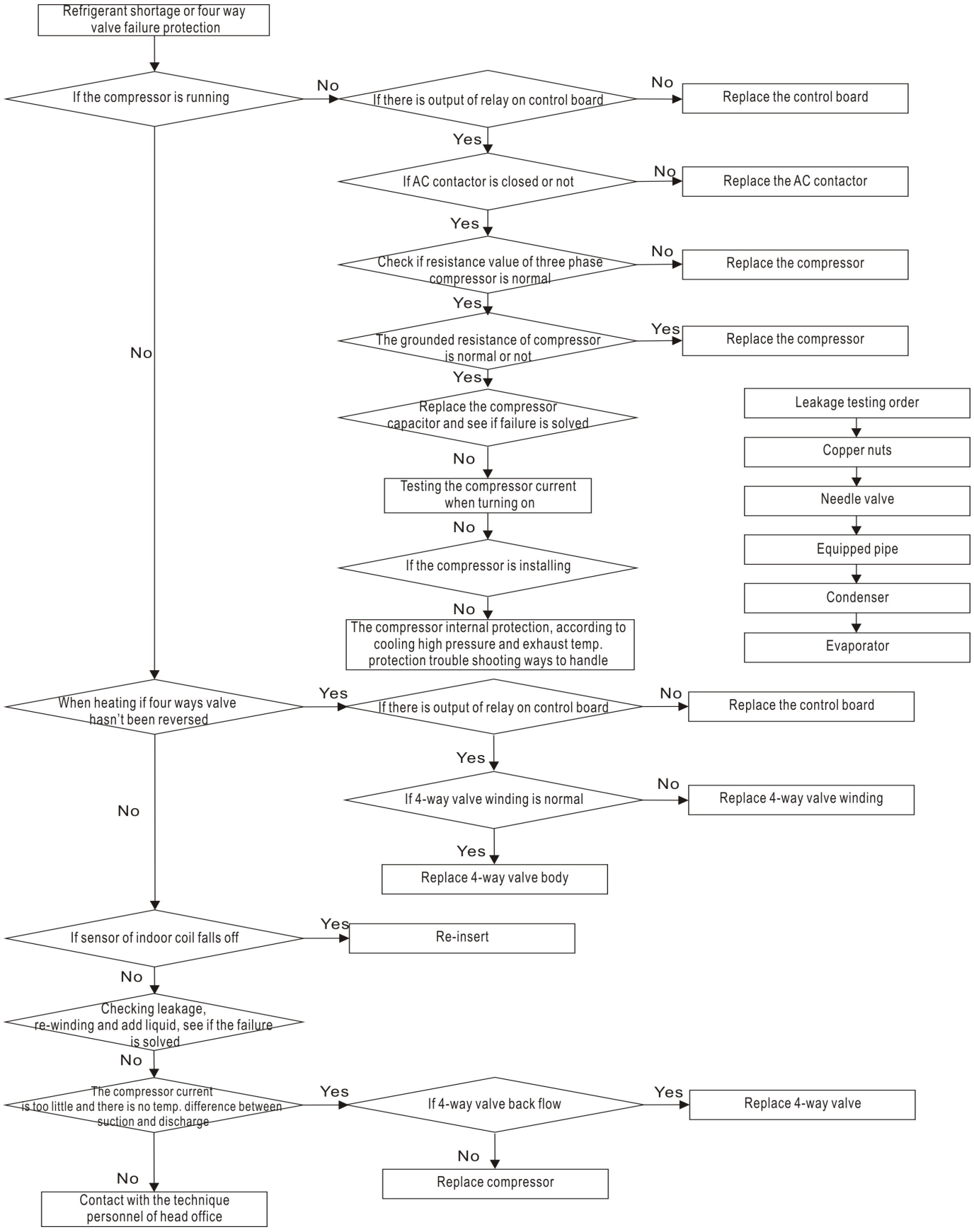
Cooling exhaust temperature protection



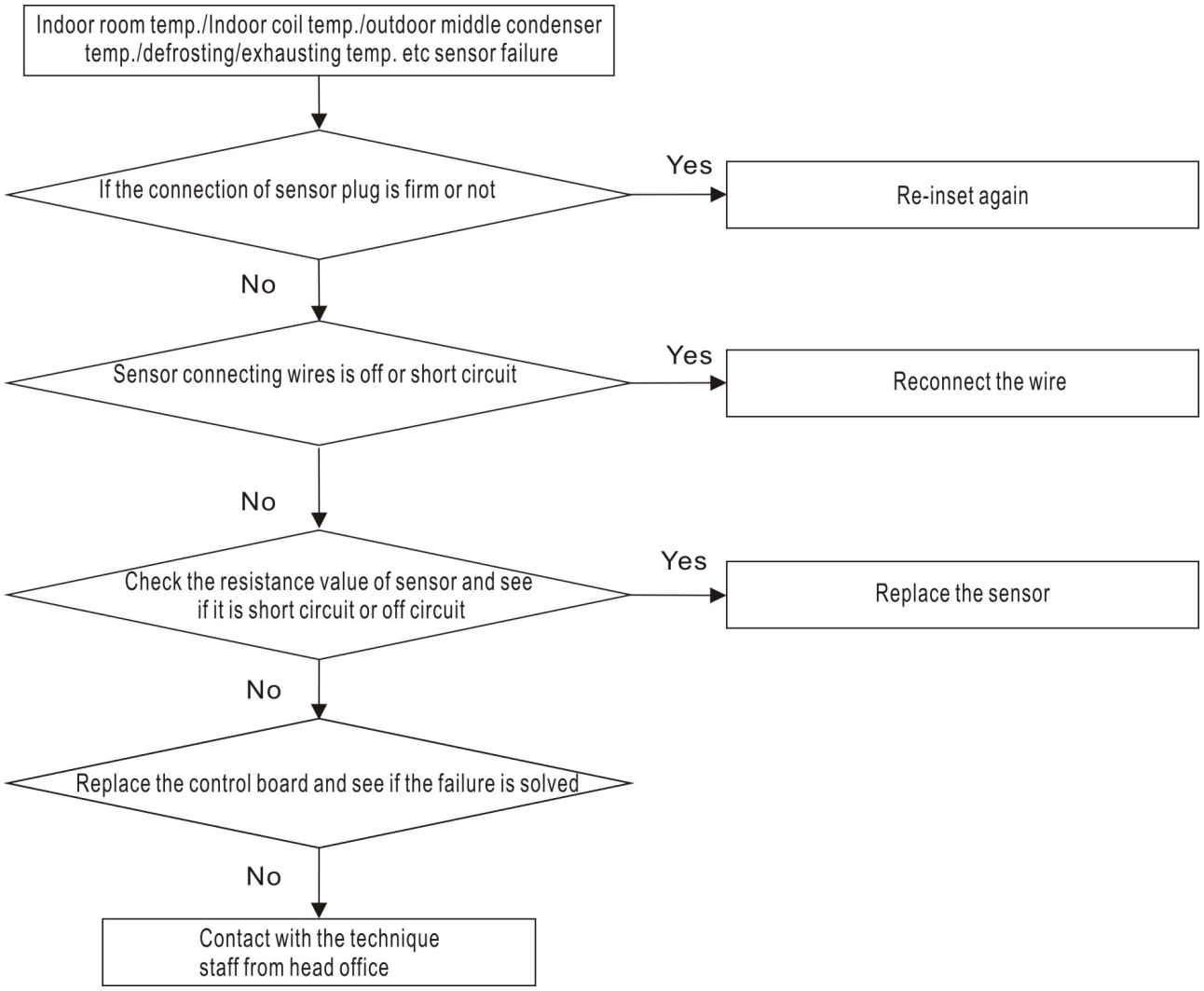
Heating exhaust temperature protection



2.6【E1】【H8】Four way valve failure protection



2.7 Sensor failure protection

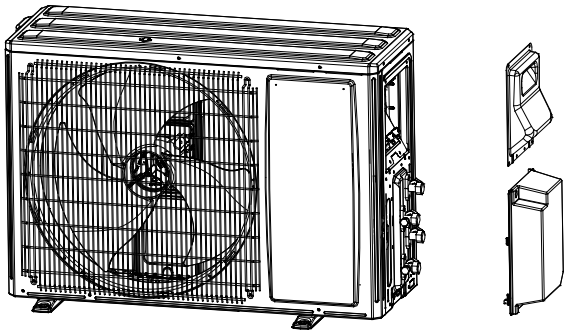
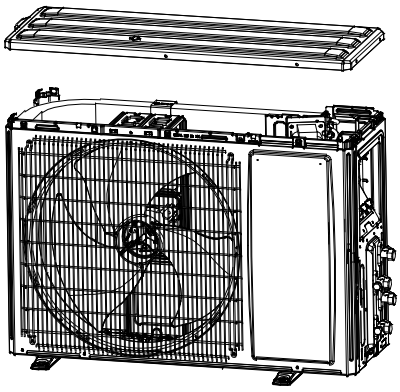
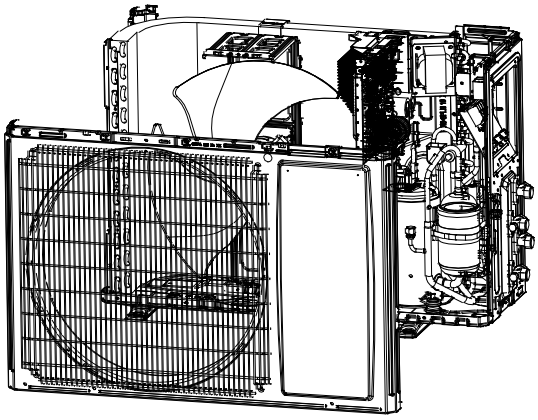


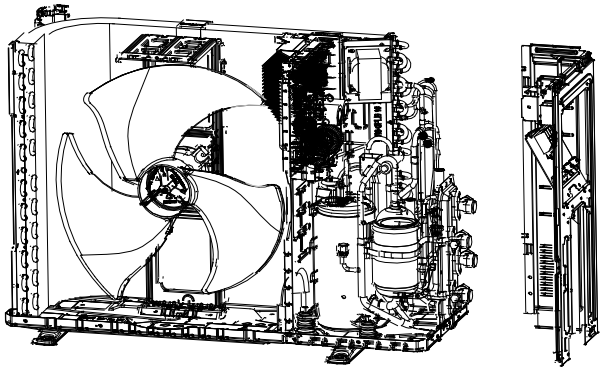
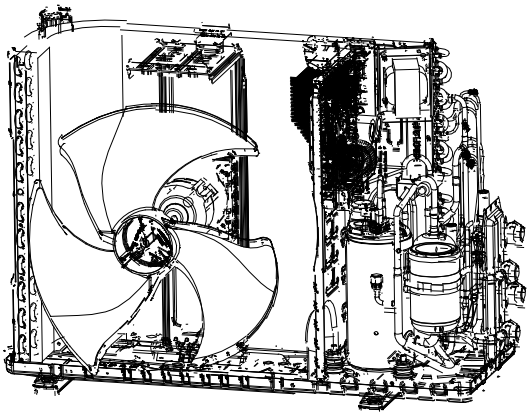
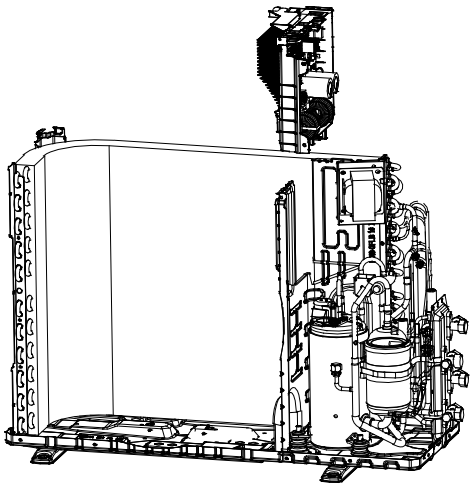
Section 9: Installation & Disassembly Information

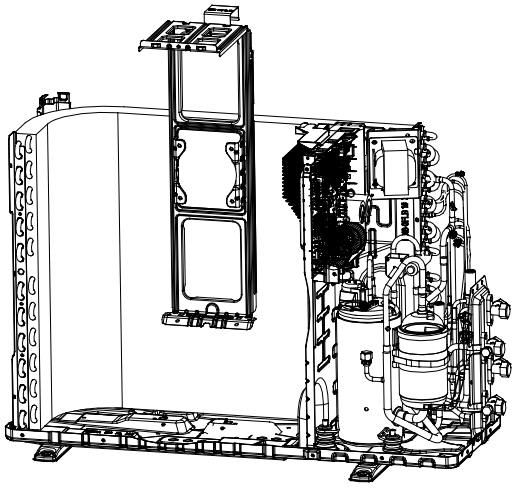
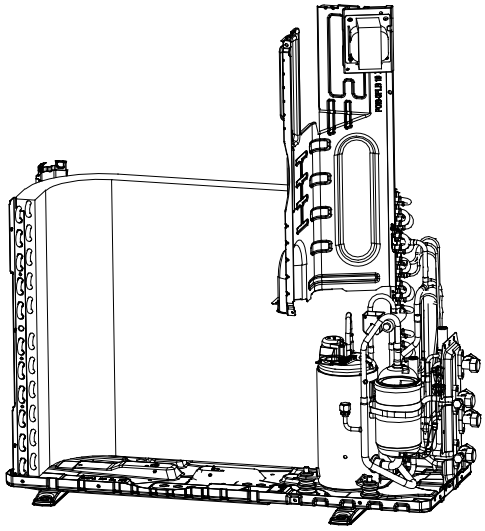
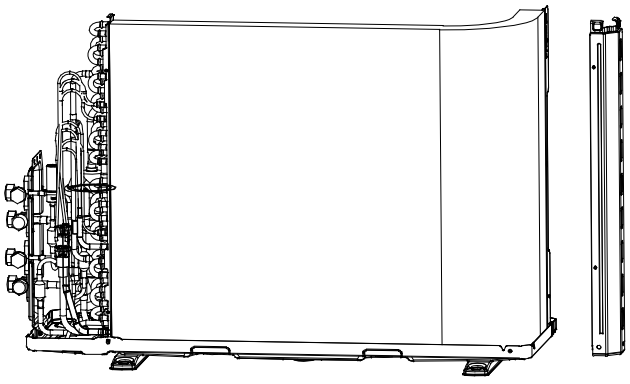
1. Installation Guide

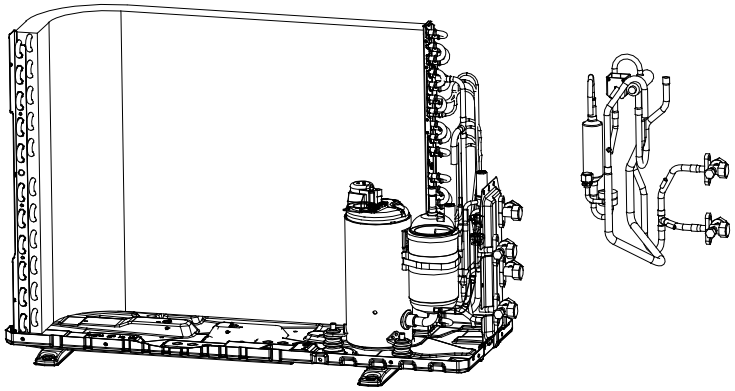
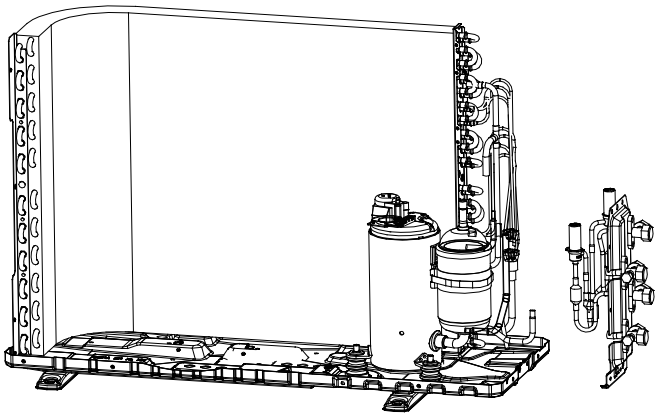
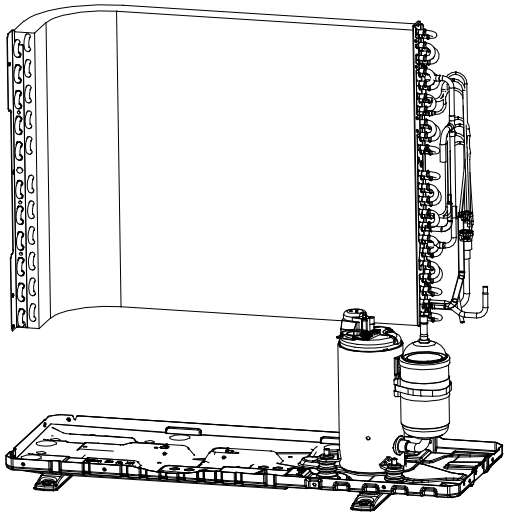
（Refer to installation manuals for details）

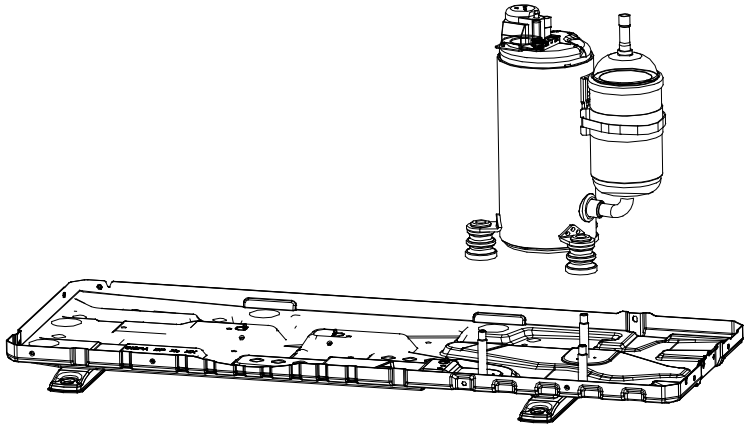
2. Condenser Disassembly Guide

Steps	Procedure	Diagram
1	Remove E-part cover and stop valve cover	
2	Remove top cover	
3	Remove front panel and panel grille	

4	Remove right side panel	
5	Remove axial flow blade and outer motor	
6	Remove electric box assembly	

7	Remove motor support	
8	Remove partition board	
9	Remove left side support plate	

10	Remove pipeline assembly	
11	Remove stop valve assembly	
12	Remove condenser	

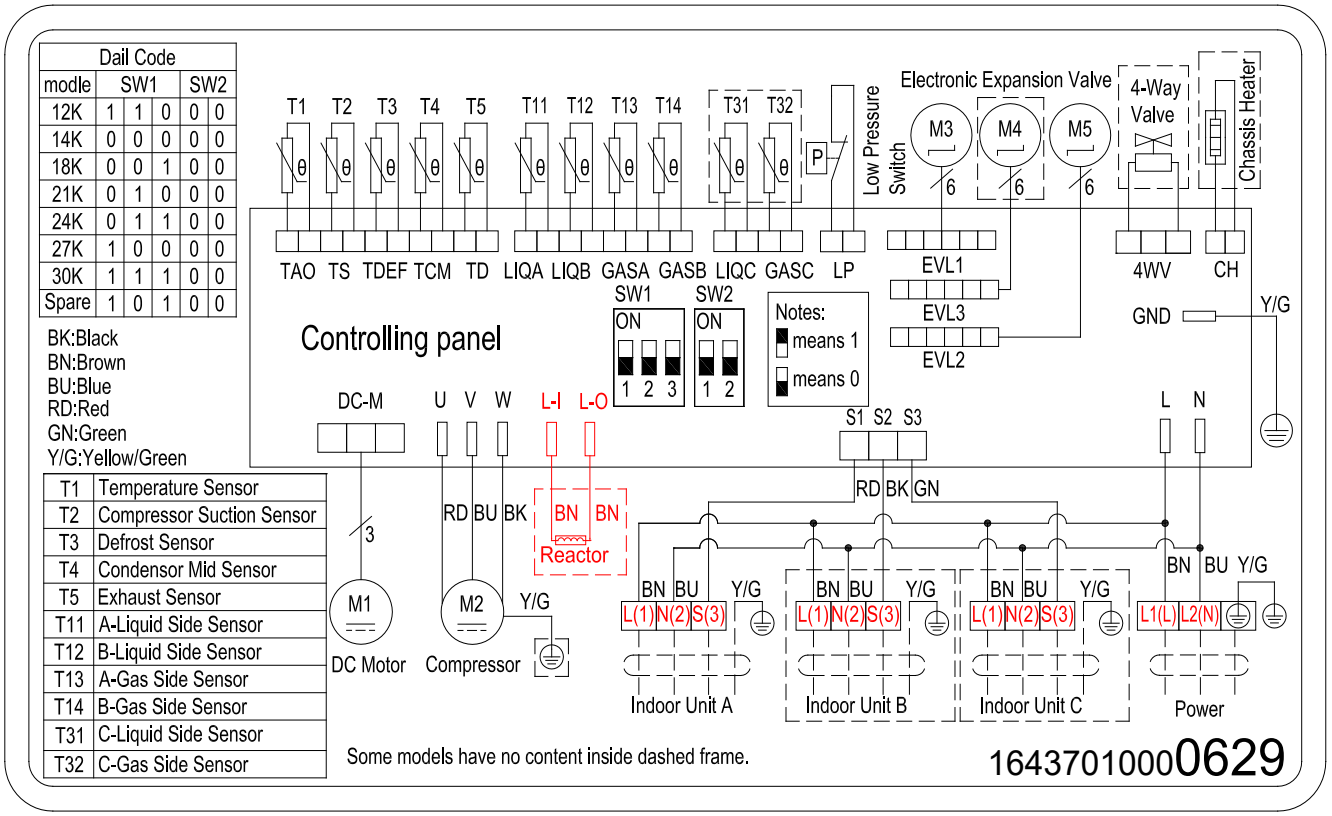
13	Remove compressor	

Section 10: Appendix

1. Electrical Principle Diagram

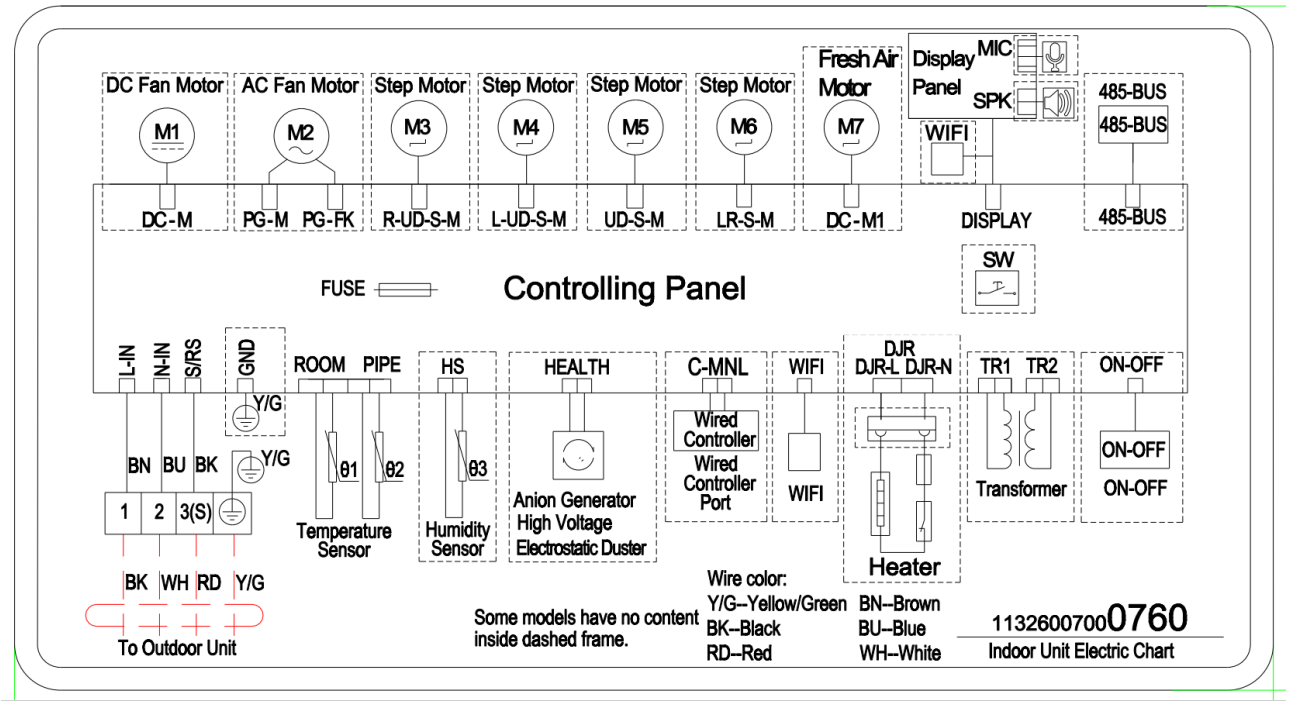
1.1 Outdoor Unit (Standard Series)

18K / 24K



1.2 Wall Mounted Air Handler M-Series

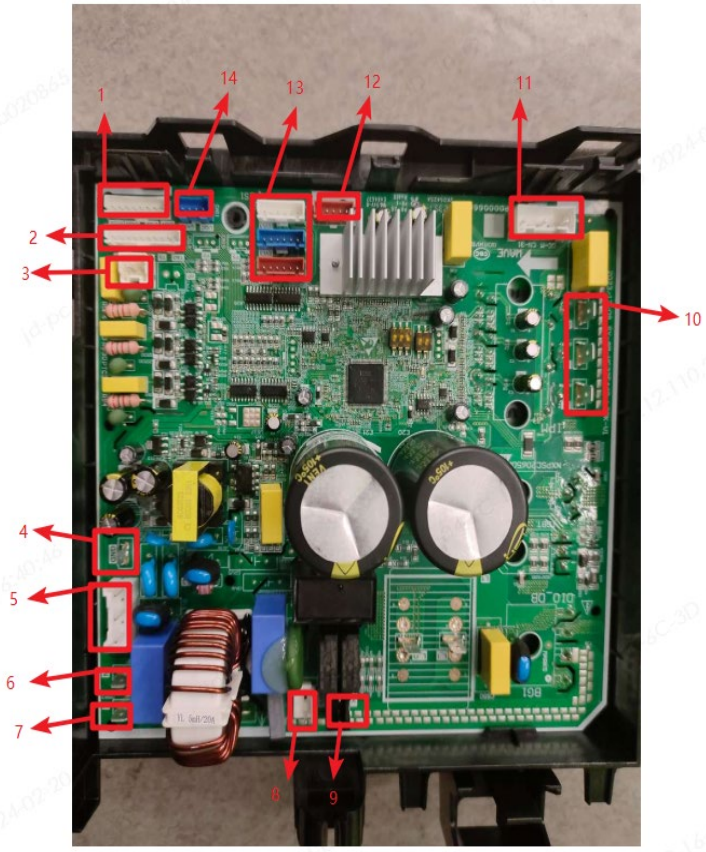
09K / 12K / 18K



2. PCB Diagrams

2.1 Outdoor Unit PCB

18K 11222550000086 Main control PCB R AM-BP-DC4-1T2-18K(R32)-E1(SY)
24K 11222550000087 Main control PCB R AM-BP-DC2-1T3-24K(R32)-E1(SY)

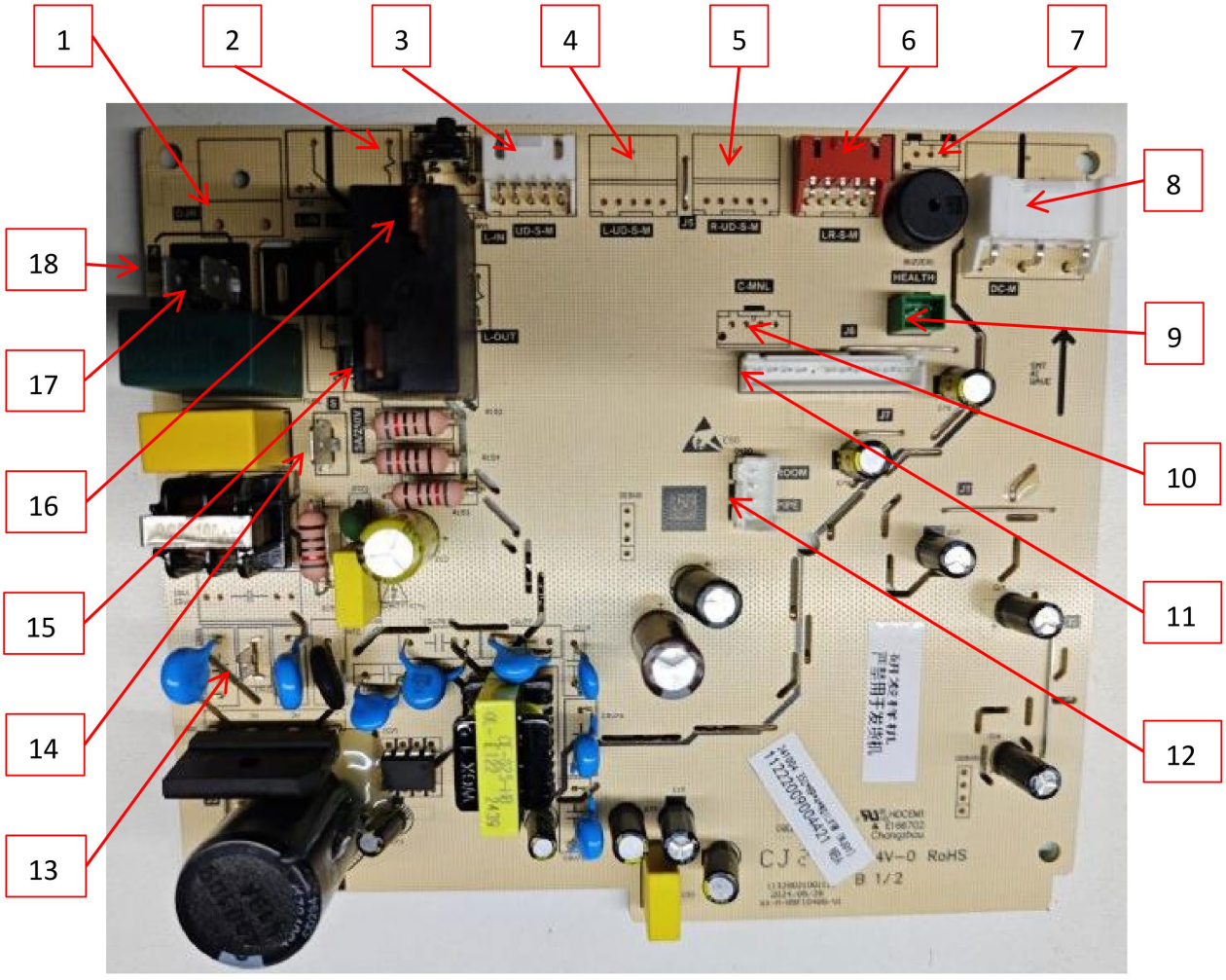


NO	Remark	No	Remark
1	Temperature sensor(A/B)	8	Four-way valve(white)
2	Temperature Sensor	9	Electric heating(black)
3	Pressure Switch	10	Compressor cable(U/V/W)(red/l blue,black)
4	Main Controller Ground wire(Yellow/Green)	11	fan
5	Signal line (white)	12	Monitoring
6	Power Neutral Line(Blue)	13	Electronic expansion valve(A/C/B)
7	Power live wire (brown)	14	Temperature Sensor

2.2 Indoor Unit PCB

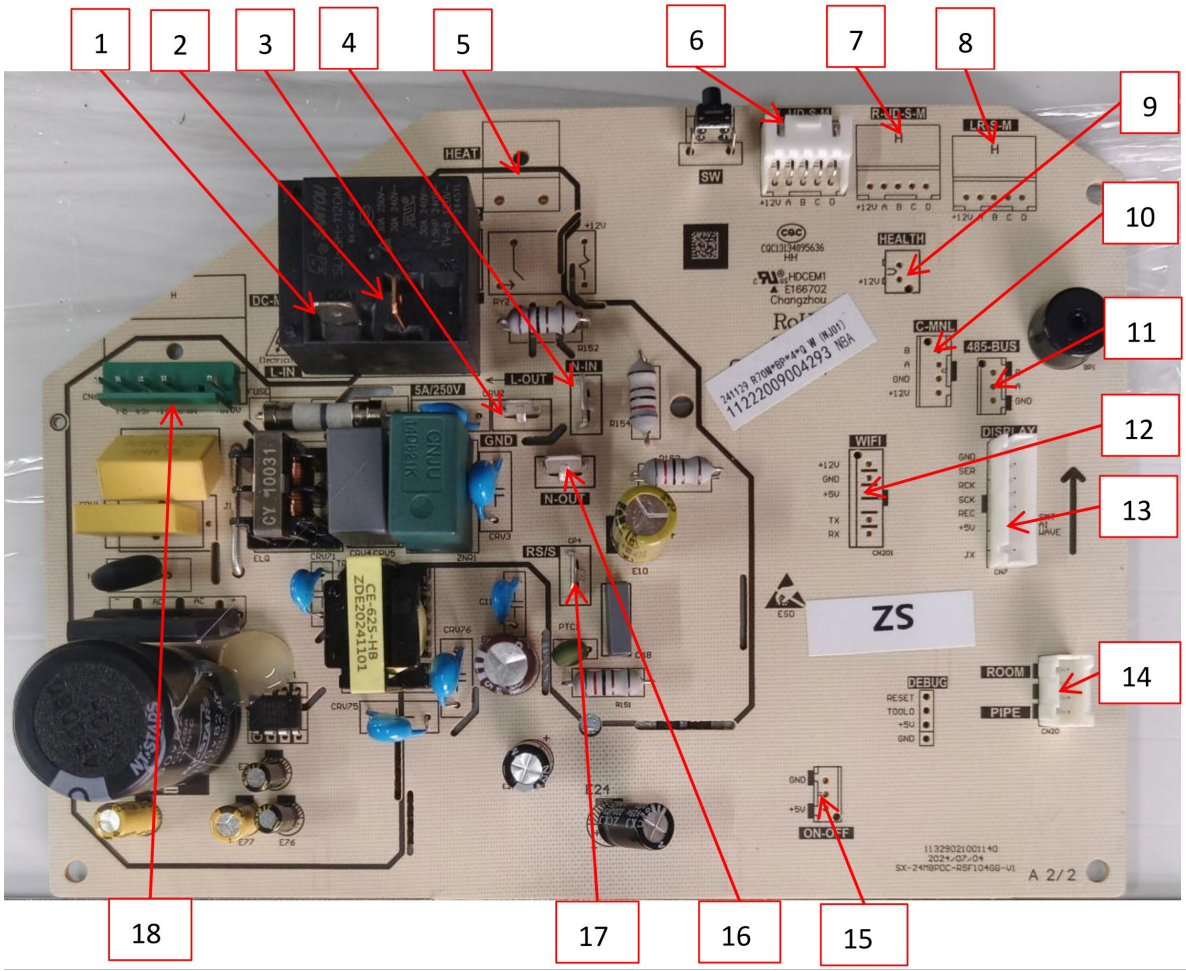
Wall Mounted Air Handler M-Series

09K / 12K 11222009004284 CJ R26M*BP*4*QBP-W-S _EE



No	Port	No	Port
1	DJR	10	C-MNL
2	SW HS	11	DISPLAY
3	UD-S-M	12	ROOM、PIPE
4	L-UD-S-M	13	GND
5	R-UD-S-M	14	S
6	LR-S-M	15	L-OUT
7	ON-OFF	16	L-IN
8	DC-M	17	N-IN
9	HEALTH	18	N-OUT

18K 11222009004293 CJ R70M*BP*4*Q-W _EE



No	Port
1	L-IN
2	L-OUT
3	GND
4	N-IN
5	DJR
6	L-UD-S-M
7	R-UD-S-M
8	LR-S-M
9	HEALTH

No	Port
10	C-MNL
11	485-BUS
12	WIFI
13	DISPLAY
14	ROOM、PIPE
15	ON-OFF
16	N-OUT
17	RS/S
18	DC-M

3. Temperature Sensor R-T Analysis Tables

Table 1:

Temperature sensor R-T analysis table （15K ）										
Sensor standard resistance：15KΩ±3%　　B:B(25/50)=3950K±2%Reference temperature：25（℃）										
MCU_A/D exchange　±3LSB（at10bit）										
Series (sampling) resistor：10（KΩ）±1%　(except disk sensor)										
Single chip (A/D reference voltage) supply voltage：5V										
Temp		Resistance（KΩ）			MCU Input voltage（V）			A/D Exchange value		
（℃）	（℉）	MIN	TYP	MAX	MIN	TYP	MAX	MIN	TYP	MAX
-25.0	-13	183.4	199.1	216.0	0.219	0.239	0.261	42	49	56
-24.0	-11.2	172.8	187.4	203.0	0.233	0.253	0.276	45	52	60
-23.0	-9.4	162.9	176.5	190.9	0.247	0.268	0.292	47	55	63
-22.0	-7.6	153.7	166.2	179.6	0.261	0.284	0.308	50	58	66
-21.0	-5.8	145.0	156.7	169.1	0.277	0.300	0.326	54	61	70
-20.0	-4	136.9	147.7	159.2	0.293	0.317	0.344	57	65	73
-19.0	-2.2	129.2	139.3	150.0	0.310	0.335	0.363	60	69	77
-18.0	-0.4	122.1	131.4	141.4	0.327	0.354	0.382	64	72	81
-17.0	1.4	115.4	124.1	133.3	0.346	0.373	0.402	68	76	85
-16.0	3.2	109.1	117.2	125.7	0.365	0.393	0.424	72	81	90
-15.0	5	103.1	110.7	118.6	0.385	0.414	0.446	76	85	94
-14.0	6.8	97.59	104.6	112.0	0.406	0.436	0.469	80	89	99
-13.0	8.6	92.37	98.88	105.8	0.428	0.459	0.493	85	94	104
-12.0	10.4	87.45	93.52	99.92	0.451	0.483	0.518	89	99	109
-11.0	12.2	82.83	88.48	94.43	0.474	0.508	0.543	94	104	114
-10.0	14	78.48	83.74	89.27	0.499	0.533	0.570	99	109	120
-9.0	15.8	74.39	79.29	84.43	0.525	0.560	0.598	104	115	125
-8.0	17.6	70.54	75.10	79.88	0.551	0.588	0.626	110	120	131
-7.0	19.4	66.90	71.15	75.61	0.579	0.616	0.656	116	126	137
-6.0	21.2	63.48	67.44	71.59	0.607	0.646	0.686	121	132	144
-5.0	23	60.25	63.95	67.80	0.637	0.676	0.718	127	138	150
-4.0	24.8	57.21	60.65	64.24	0.668	0.708	0.750	134	145	157
-3.0	26.6	54.34	57.55	60.89	0.699	0.740	0.784	140	152	163
-2.0	28.4	51.63	54.62	57.73	0.732	0.774	0.818	147	158	171
-1.0	30.2	49.07	51.86	54.76	0.766	0.808	0.853	154	166	178
0.0	32	46.65	49.25	51.95	0.800	0.844	0.890	161	173	185
1.0	33.8	44.37	46.79	49.31	0.836	0.880	0.927	168	180	193
2.0	35.6	42.21	44.47	46.81	0.873	0.918	0.965	176	188	201
3.0	37.4	40.17	42.28	44.46	0.911	0.956	1.005	183	196	209
4.0	39.2	38.24	40.20	42.24	0.949	0.996	1.045	191	204	217
5.0	41	36.41	38.25	40.14	0.989	1.036	1.086	200	212	225
6.0	42.8	34.68	36.39	38.16	1.030	1.078	1.128	208	221	234
7.0	44.6	33.05	34.64	36.29	1.072	1.120	1.170	216	229	243
8.0	46.4	31.50	32.99	34.52	1.114	1.163	1.214	225	238	252
9.0	48.2	30.03	31.42	32.84	1.158	1.207	1.258	234	247	261
10.0	50	28.64	29.94	31.26	1.203	1.252	1.304	243	256	270
11.0	51.8	27.32	28.53	29.77	1.248	1.298	1.350	253	266	279
12.0	53.6	26.07	27.20	28.35	1.294	1.344	1.396	262	275	289
13.0	55.4	24.89	25.94	27.01	1.341	1.391	1.443	272	285	299

14.0	57.2	23.76	24.74	25.74	1.389	1.439	1.491	281	295	308
15.0	59	22.69	23.61	24.54	1.437	1.488	1.540	291	305	318
16.0	60.8	21.68	22.53	23.40	1.486	1.537	1.589	301	315	328
17.0	62.8	20.72	21.51	22.32	1.536	1.587	1.639	312	325	339
18.0	64.4	19.80	20.55	21.30	1.587	1.637	1.689	322	335	349
19.0	66.2	18.94	19.63	20.33	1.637	1.687	1.739	332	346	359
20.0	68	18.11	18.75	19.40	1.689	1.739	1.790	343	356	370
21.0	69.8	17.33	17.93	18.53	1.741	1.790	1.841	354	367	380
22.0	71.6	16.58	17.14	17.70	1.793	1.842	1.893	364	377	391
23.0	73.4	15.87	16.39	16.91	1.846	1.895	1.945	375	388	401
24.0	75.2	15.19	15.68	16.16	1.899	1.947	1.997	386	399	412
25.0	77	14.55	15.00	15.45	1.953	2.000	2.049	397	410	423
26.0	78.8	13.91	14.36	14.80	2.004	2.053	2.103	407	420	434
27.0	80.6	13.31	13.74	14.18	2.056	2.106	2.157	418	431	445
28.0	82.4	12.73	13.16	13.59	2.107	2.159	2.212	429	442	456
29.0	84.2	12.18	12.60	13.03	2.159	2.212	2.267	439	453	467
30.0	86	11.66	12.08	12.49	2.211	2.264	2.321	450	464	478
31.0	87.8	11.17	11.57	11.98	2.262	2.318	2.374	460	475	489
32.0	89.6	10.69	11.09	11.49	2.314	2.371	2.429	471	486	500
33.0	91.4	10.24	10.63	11.03	2.365	2.424	2.483	481	496	511
34.0	93.2	9.816	10.20	10.59	2.416	2.475	2.536	492	507	522
35.0	95	9.408	9.782	10.16	2.468	2.528	2.589	502	518	533
36.0	96.8	9.019	9.385	9.758	2.518	2.579	2.641	513	528	544
37.0	98.6	8.648	9.007	9.372	2.568	2.631	2.694	523	539	555
38.0	100.4	8.294	8.645	9.003	2.619	2.682	2.745	533	549	565
39.0	102.2	7.957	8.300	8.651	2.668	2.732	2.797	543	560	576
40.0	104	7.635	7.971	8.315	2.718	2.782	2.847	554	570	586
41.0	105.8	7.328	7.657	7.993	2.766	2.832	2.898	564	580	596
42.0	107.6	7.034	7.356	7.686	2.815	2.881	2.947	573	590	607
43.0	109.4	6.755	7.069	7.391	2.863	2.929	2.996	583	600	617
44.0	111.2	6.487	6.795	7.110	2.910	2.977	3.045	593	610	627
45.0	113	6.232	6.532	6.841	2.957	3.024	3.092	603	619	636
46.0	114.8	5.988	6.282	6.584	3.003	3.071	3.139	612	629	646
47.0	116.6	5.755	6.042	6.337	3.049	3.117	3.185	621	638	655
48.0	118.4	5.532	5.812	6.101	3.094	3.162	3.231	631	648	665
49.0	120.2	5.319	5.593	5.875	3.138	3.207	3.275	640	657	674
50.0	122	5.115	5.382	5.659	3.181	3.251	3.319	649	666	683
51.0	123.8	4.919	5.180	5.450	3.225	3.294	3.362	657	675	692
52.0	125.6	4.732	4.987	5.251	3.267	3.336	3.405	666	683	700
53.0	127.4	4.553	4.802	5.060	3.309	3.378	3.446	675	692	709
54.0	129.2	4.382	4.625	4.877	3.350	3.419	3.487	683	700	717
55.0	131	4.219	4.457	4.703	3.390	3.459	3.527	691	708	725
56.0	132.8	4.061	4.293	4.534	3.429	3.498	3.566	699	716	733
57.0	134.6	3.911	4.137	4.373	3.468	3.537	3.604	707	724	741
58.0	136.4	3.767	3.988	4.218	3.506	3.574	3.642	715	732	749
59.0	138.2	3.630	3.845	4.070	3.543	3.611	3.678	723	740	756
60.0	140	3.498	3.708	3.927	3.580	3.648	3.714	730	747	764
61.0	141.8	3.371	3.577	3.791	3.616	3.683	3.749	737	754	771
62.0	143.6	3.250	3.450	3.660	3.650	3.717	3.783	745	761	778

63.0	145.4	3.134	3.329	3.534	3.685	3.751	3.816	752	768	785
64.0	147.2	3.022	3.213	3.413	3.718	3.784	3.848	758	775	791
65.0	149	2.915	3.102	3.297	3.751	3.816	3.880	765	782	798
66.0	150.8	2.813	2.995	3.185	3.783	3.848	3.911	772	788	804
67.0	152.6	2.714	2.892	3.078	3.814	3.878	3.941	778	794	810
68.0	154.4	2.620	2.793	2.975	3.845	3.908	3.970	784	800	816
69.0	156.2	2.529	2.698	2.876	3.874	3.938	3.999	790	806	822
70.0	158	2.442	2.607	2.781	3.903	3.966	4.026	796	812	828
71.0	159.8	2.358	2.519	2.689	3.932	3.994	4.054	802	818	833
72.0	161.6	2.278	2.435	2.601	3.960	4.021	4.080	808	823	839
73.0	163.4	2.200	2.354	2.516	3.987	4.047	4.106	813	829	844
74.0	165.2	2.126	2.276	2.435	4.013	4.073	4.131	819	834	849
75.0	167	2.055	2.201	2.356	4.039	4.098	4.155	824	839	854
76.0	168.8	1.986	2.129	2.280	4.064	4.122	4.178	829	844	859
77.0	170.6	1.920	2.060	2.208	4.088	4.146	4.201	834	849	863
78.0	172.4	1.857	1.993	2.138	4.112	4.169	4.223	839	854	868
79.0	174.2	1.796	1.929	2.070	4.135	4.191	4.245	844	858	872
80.0	176	1.737	1.867	2.005	4.158	4.213	4.266	849	863	877
81.0	177.8	1.681	1.808	1.942	4.180	4.234	4.287	853	867	881
82.0	179.6	1.626	1.750	1.882	4.201	4.255	4.307	857	871	885
83.0	181.4	1.574	1.695	1.824	4.222	4.275	4.326	862	876	889
84.0	183.2	1.524	1.642	1.767	4.243	4.295	4.344	866	880	893
85.0	185	1.475	1.590	1.713	4.262	4.314	4.363	870	884	897
86.0	186.8	1.428	1.541	1.661	4.282	4.332	4.381	874	887	900
87.0	188.6	1.383	1.493	1.611	4.300	4.350	4.398	878	891	904
88.0	190.4	1.340	1.447	1.562	4.319	4.368	4.414	881	895	907
89.0	192.2	1.298	1.403	1.515	4.336	4.385	4.431	885	898	910
90.0	194	1.258	1.360	1.470	4.354	4.401	4.446	889	901	914
91.0	195.8	1.219	1.319	1.426	4.370	4.417	4.462	892	905	917
92.0	197.6	1.181	1.279	1.384	4.387	4.433	4.477	895	908	920
93.0	199.4	1.145	1.241	1.343	4.403	4.448	4.491	899	911	923
94.0	201.2	1.110	1.204	1.304	4.418	4.463	4.505	902	914	926
95.0	203	1.077	1.168	1.266	4.433	4.477	4.518	905	917	928
96.0	204.8	1.044	1.134	1.229	4.448	4.491	4.532	908	920	931
97.0	206.6	1.013	1.100	1.194	4.462	4.505	4.544	911	923	934
98.0	208.4	0.9826	1.068	1.160	4.476	4.518	4.557	914	925	936
99.0	210.2	0.9535	1.037	1.127	4.489	4.530	4.569	916	928	939
100.0	212	0.9252	1.007	1.095	4.502	4.543	4.580	919	930	941
101.0	213.8	0.8981	0.9778	1.064	4.515	4.555	4.592	922	933	943
102.0	215.6	0.8717	0.9497	1.034	4.527	4.566	4.603	924	935	946
103.0	217.4	0.8463	0.9225	1.005	4.539	4.578	4.613	927	938	948
104.0	219.2	0.8218	0.8963	0.9767	4.551	4.589	4.624	929	940	950
105.0	221	0.7981	0.8710	0.9497	4.562	4.599	4.634	931	942	952

Table 2:

Temperature sensor R-T analysis table (20K)										
Sensor standard resistance：20KΩ±3%　B:B(25/50)=3950K±2%　reference temperature：25（℃）										
MCU_A/D exchange　±3LSB（at10bit）										
Series（sampling）resistor：10（KΩ）±1%										
Single chip (A/D reference voltage) supply voltage：5V										
Temp		Resistance（KΩ）			MCU Input voltage（V）			A/D Exchange value		
（℃）	（℉）	MIN	TYP	MAX	MIN	TYP	MAX	MIN	TYP	MAX
-30	-22	318.3	347.0	377.6	0.128	0.140	0.154	23	29	34
-29	-20.2	299.6	326.2	354.6	0.136	0.149	0.163	25	30	36
-28	-18.4	282.2	306.9	333.4	0.144	0.158	0.173	27	32	38
-27	-16.6	265.9	289.0	313.5	0.153	0.167	0.183	28	34	40
-26	-14.8	250.8	272.2	295.1	0.162	0.177	0.194	30	36	43
-25	-13	236.6	256.5	277.9	0.172	0.188	0.205	32	38	45
-24	-11.2	223.3	241.9	261.8	0.182	0.198	0.216	34	41	47
-23	-9.4	210.9	228.2	246.7	0.193	0.210	0.229	37	43	50
-22	-7.6	199.2	215.3	232.6	0.204	0.222	0.241	39	45	52
-21	-5.8	188.3	203.3	219.4	0.216	0.234	0.255	41	48	55
-20	-4	178.0	192.0	207.0	0.228	0.248	0.268	44	51	58
-19	-2.2	168.3	181.4	195.4	0.241	0.261	0.283	46	54	61
-18	-0.4	159.2	171.4	184.4	0.255	0.276	0.298	49	56	64
-17	1.4	150.7	162.0	174.2	0.269	0.291	0.314	52	60	67
-16	3.2	142.6	153.2	164.6	0.284	0.306	0.331	55	63	71
-15	5	135.0	144.9	155.5	0.299	0.323	0.348	58	66	74
-14	6.8	127.9	137.1	147.0	0.315	0.340	0.366	62	70	78
-13	8.6	121.2	129.8	138.9	0.333	0.358	0.385	65	73	82
-12	10.4	114.9	122.9	131.4	0.350	0.376	0.404	69	77	86
-11	12.2	108.9	116.4	124.3	0.369	0.396	0.424	73	81	90
-10	14	103.3	110.3	117.7	0.388	0.416	0.445	76	85	94
-9	15.8	98.00	104.5	111.4	0.408	0.437	0.467	81	89	99
-8	17.6	93.01	99.10	105.6	0.429	0.458	0.490	85	94	103
-7	19.4	88.29	93.98	100.0	0.450	0.481	0.513	89	98	108
-6	21.2	83.84	89.15	94.78	0.473	0.504	0.538	94	103	113
-5	23	79.63	84.60	89.85	0.496	0.529	0.563	99	108	118
-4	24.8	75.67	80.30	85.12	0.521	0.554	0.589	104	113	124
-3	26.6	71.91	76.24	80.75	0.546	0.580	0.616	109	119	129
-2	28.4	68.37	72.41	76.62	0.572	0.607	0.644	114	124	135
-1	30.2	65.02	68.79	72.72	0.599	0.635	0.672	120	130	141
0	32	61.85	65.37	69.04	0.627	0.663	0.702	125	136	147
1	33.8	58.85	62.14	65.56	0.656	0.693	0.732	131	142	153
2	35.6	56.01	59.08	62.28	0.686	0.724	0.764	137	148	159
3	37.4	53.33	56.20	59.18	0.717	0.755	0.796	144	155	166
4	39.2	50.79	53.46	56.25	0.748	0.788	0.829	150	161	173
5	41	48.38	50.88	53.43	0.782	0.821	0.864	157	168	180
6	42.8	46.10	48.43	50.81	0.815	0.856	0.899	164	175	187
7	44.6	43.94	46.12	48.34	0.850	0.891	0.934	171	182	194
8	46.4	41.90	43.92	45.99	0.886	0.927	0.971	178	190	202
9	48.2	39.95	41.85	43.78	0.922	0.964	1.009	186	198	210

10	50	38.11	39.88	41.68	0.960	1.002	1.047	194	205	218
11	51.8	36.37	38.02	39.69	0.998	1.041	1.087	201	213	226
12	53.6	34.71	36.25	37.81	1.038	1.081	1.127	209	221	234
13	55.4	33.14	34.57	36.03	1.078	1.122	1.168	218	230	242
14	57.2	31.65	32.98	34.34	1.119	1.163	1.210	226	238	251
15	59	30.23	31.47	32.74	1.161	1.206	1.252	235	247	259
16	60.8	28.88	30.04	31.22	1.204	1.249	1.295	244	256	268
17	62.8	27.61	28.69	29.78	1.248	1.292	1.339	252	265	277
18	64.4	26.39	27.40	28.41	1.292	1.337	1.384	262	274	286
19	66.2	25.24	26.17	27.12	1.337	1.382	1.429	271	283	296
20	68	24.14	25.01	25.89	1.383	1.428	1.475	280	293	305
21	69.8	23.09	23.90	24.72	1.430	1.475	1.521	290	302	315
22	71.6	22.10	22.85	23.61	1.477	1.522	1.568	300	312	324
23	73.4	21.16	21.85	22.55	1.525	1.570	1.616	309	321	334
24	75.2	20.26	20.90	21.55	1.574	1.618	1.664	319	331	344
25	77	19.40	20.00	20.60	1.623	1.667	1.712	329	341	354
26	78.8	18.55	19.14	19.73	1.670	1.716	1.763	339	351	364
27	80.6	17.74	18.32	18.91	1.718	1.765	1.814	349	362	375
28	82.4	16.97	17.55	18.12	1.766	1.815	1.866	359	372	385
29	84.2	16.24	16.80	17.37	1.815	1.865	1.917	369	382	396
30	86	15.54	16.10	16.66	1.864	1.916	1.970	379	392	406
31	87.8	14.88	15.43	15.98	1.913	1.966	2.022	389	403	417
32	89.6	14.25	14.79	15.33	1.962	2.017	2.074	399	413	428
33	91.4	13.65	14.18	14.71	2.011	2.068	2.127	409	424	439
34	93.2	13.08	13.59	14.12	2.061	2.119	2.179	419	434	449
35	95	12.53	13.04	13.55	2.111	2.170	2.231	429	444	460
36	96.8	12.01	12.51	13.01	2.160	2.221	2.284	439	455	471
37	98.6	11.52	12.00	12.50	2.210	2.272	2.336	450	465	481
38	100.4	11.05	11.52	12.01	2.260	2.323	2.388	460	476	492
39	102.2	10.60	11.06	11.54	2.309	2.374	2.440	470	486	503
40	104	10.17	10.62	11.09	2.358	2.425	2.492	480	497	513
41	105.8	9.757	10.20	10.66	2.408	2.475	2.543	490	507	524
42	107.6	9.367	9.803	10.25	2.457	2.525	2.594	500	517	534
43	109.4	8.994	9.420	9.856	2.506	2.575	2.645	510	527	545
44	111.2	8.638	9.054	9.480	2.554	2.624	2.695	520	537	555
45	113	8.298	8.705	9.121	2.602	2.673	2.745	530	547	565
46	114.8	7.973	8.371	8.778	2.650	2.722	2.794	540	557	575
47	116.6	7.663	8.051	8.449	2.698	2.770	2.843	549	567	585
48	118.4	7.367	7.745	8.134	2.745	2.818	2.891	559	577	595
49	120.2	7.083	7.453	7.832	2.792	2.865	2.939	569	587	605
50	122	6.812	7.176	7.543	2.838	2.911	2.986	578	596	615
51	123.8	6.553	6.905	7.267	2.883	2.958	3.032	588	606	624
52	125.6	6.305	6.649	7.002	2.929	3.003	3.078	597	615	633
53	127.4	6.068	6.403	6.747	2.974	3.048	3.123	606	624	643
54	129.2	5.841	6.168	6.504	3.018	3.093	3.168	615	633	652
55	131	5.623	5.942	6.270	3.061	3.136	3.212	624	642	661
56	132.8	5.415	5.726	6.046	3.104	3.179	3.255	633	651	670
57	134.6	5.216	5.519	5.831	3.147	3.222	3.297	641	660	678
58	136.4	5.025	5.321	5.625	3.188	3.263	3.339	650	668	687
59	138.2	4.842	5.131	5.428	3.229	3.304	3.380	658	677	695
60	140	4.667	4.948	5.238	3.270	3.345	3.420	667	685	703
61	141.8	4.499	4.773	5.055	3.310	3.385	3.459	675	693	711

62	143.6	4.338	4.605	4.880	3.349	3.423	3.498	683	701	719
63	145.4	4.183	4.444	4.712	3.388	3.462	3.536	691	709	727
64	147.2	4.035	4.289	4.551	3.425	3.499	3.573	699	717	735
65	149	3.893	4.140	4.396	3.463	3.536	3.609	706	724	742
66	150.8	3.756	3.998	4.247	3.499	3.572	3.645	714	732	749
67	152.6	3.625	3.861	4.103	3.535	3.607	3.679	721	739	757
68	154.4	3.500	3.729	3.966	3.570	3.642	3.713	728	746	763
69	156.2	3.379	3.603	3.833	3.604	3.676	3.747	735	753	770
70	158	3.263	3.481	3.706	3.638	3.709	3.779	742	760	777
71	159.8	3.152	3.364	3.583	3.671	3.741	3.811	749	766	783
72	161.6	3.045	3.252	3.466	3.703	3.773	3.842	755	773	790
73	163.4	2.942	3.144	3.352	3.735	3.804	3.872	762	779	796
74	165.2	2.843	3.040	3.243	3.766	3.834	3.902	768	785	802
75	167	2.748	2.940	3.138	3.797	3.864	3.931	775	791	808
76	168.8	2.657	2.844	3.037	3.826	3.893	3.959	781	797	814
77	170.6	2.569	2.751	2.940	3.855	3.921	3.986	787	803	819
78	172.4	2.485	2.662	2.846	3.884	3.949	4.013	792	809	825
79	174.2	2.403	2.577	2.756	3.911	3.976	4.039	798	814	830
80	176	2.325	2.494	2.669	3.938	4.002	4.064	804	820	835
81	177.8	2.250	2.415	2.585	3.965	4.027	4.089	809	825	840
82	179.6	2.178	2.338	2.504	3.991	4.053	4.113	814	830	845
83	181.4	2.108	2.264	2.426	4.016	4.077	4.137	819	835	850
84	183.2	2.041	2.193	2.351	4.040	4.101	4.159	824	840	855
85	185	1.976	2.125	2.279	4.064	4.124	4.182	829	845	859
86	186.8	1.914	2.059	2.209	4.088	4.146	4.203	834	849	864
87	188.6	1.854	1.995	2.142	4.111	4.168	4.225	839	854	868
88	190.4	1.796	1.934	2.077	4.133	4.190	4.245	843	858	872
89	192.2	1.740	1.875	2.014	4.155	4.211	4.265	848	862	877
90	194	1.687	1.818	1.954	4.176	4.231	4.284	852	866	880
91	195.8	1.635	1.763	1.895	4.197	4.251	4.303	856	871	884
92	197.6	1.585	1.710	1.839	4.217	4.270	4.322	861	874	888
93	199.4	1.537	1.659	1.785	4.236	4.289	4.340	865	878	892
94	201.2	1.490	1.609	1.732	4.256	4.307	4.357	869	882	895
95	203	1.446	1.561	1.681	4.274	4.325	4.374	872	886	899
96	204.8	1.402	1.515	1.632	4.292	4.342	4.391	876	889	902
97	206.6	1.360	1.471	1.585	4.310	4.359	4.407	880	893	905
98	208.4	1.320	1.428	1.539	4.327	4.375	4.422	883	896	909
99	210.2	1.281	1.386	1.495	4.344	4.391	4.437	887	899	912
100	212	1.243	1.346	1.452	4.360	4.407	4.452	890	903	915
101	213.8	1.207	1.307	1.411	4.376	4.422	4.466	893	906	918
102	215.6	1.172	1.270	1.371	4.392	4.437	4.480	896	909	921
103	217.4	1.137	1.233	1.332	4.407	4.451	4.494	900	912	923
104	219.2	1.104	1.198	1.295	4.422	4.465	4.507	903	914	926
105	221	1.070	1.164	1.258	4.436	4.479	4.521	906	917	929

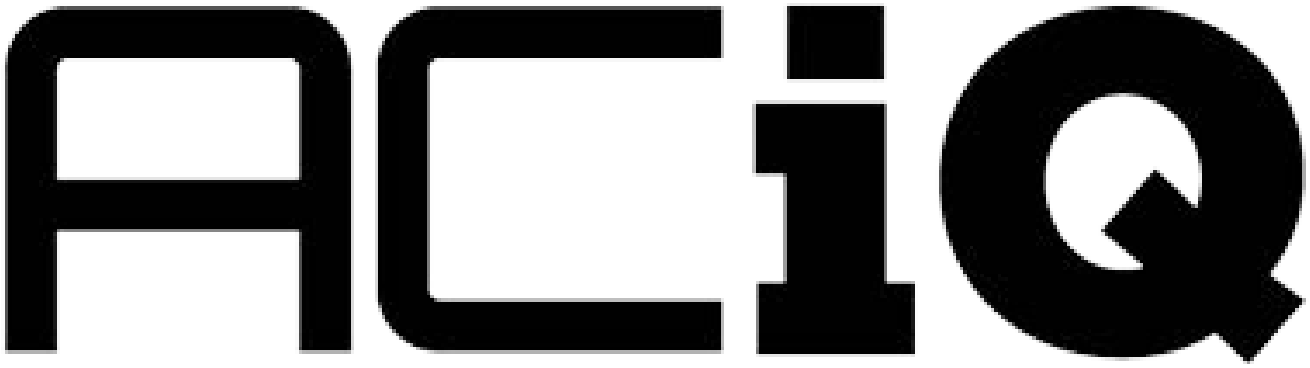
Table 3:

Temperature sensor R-T analysis table (50K)										
Sensor standard resistance：50KΩ±2% B:B(25/50)=3950K±2% reference temperature：25（℃）										
MCU_A/D exchange ±2LSB（at8bit）										
Series（sampling）resistor：5.1（KΩ）±1%										
Single chip (A/D reference voltage) supply voltage：5V										
Temp		Resistance（KΩ）			MCU Input voltage（V）			A/D Exchange value		
（℃）	（℉）	MIN	TYP	MAX	MIN	TYP	MAX	MIN	TYP	MAX
-20	-4	465.7	486.2	507.3	0.049	0.052	0.055	1	3	5
-19	-2.2	439.7	458.7	478.3	0.052	0.055	0.058	1	3	5
-18	-0.4	415.2	432.9	451.2	0.055	0.058	0.061	1	3	5
-17	1.4	392.2	408.8	425.8	0.059	0.062	0.065	1	3	5
-16	3.2	370.7	386.1	402	0.062	0.065	0.069	1	3	6
-15	5	350.5	364.8	379.6	0.066	0.069	0.072	1	4	6
-14	6.8	331.5	344.9	358.6	0.069	0.073	0.077	2	4	6
-13	8.6	313.7	326.2	339	0.073	0.077	0.081	2	4	6
-12	10.4	296.9	308.6	320.5	0.078	0.081	0.085	2	4	6
-11	12.2	281.2	292	303.2	0.082	0.086	0.090	2	4	7
-10	14	266.4	276.5	286.9	0.086	0.091	0.095	2	5	7
-9	15.8	252.4	261.8	271.5	0.091	0.096	0.100	3	5	7
-8	17.6	239.3	248.1	257.1	0.096	0.101	0.105	3	5	7
-7	19.4	226.9	235.1	243.6	0.102	0.106	0.111	3	5	8
-6	21.2	215.2	222.9	230.8	0.107	0.112	0.117	3	6	8
-5	23	204.3	211.5	218.8	0.113	0.118	0.123	4	6	8
-4	24.8	193.9	200.6	207.5	0.119	0.124	0.129	4	6	9
-3	26.6	184.1	190.4	196.8	0.125	0.130	0.136	4	7	9
-2	28.4	174.9	180.8	186.8	0.132	0.137	0.143	5	7	9
-1	30.2	166.2	171.7	177.3	0.138	0.144	0.150	5	7	10
0	32	158	163.1	168.4	0.146	0.152	0.158	5	8	10
1	33.8	150.2	155	159.9	0.153	0.159	0.166	6	8	10
2	35.6	142.9	147.4	152	0.161	0.167	0.174	6	9	11
3	37.4	136	140.2	144.5	0.169	0.175	0.182	7	9	11
4	39.2	129.4	133.3	137.4	0.177	0.184	0.191	7	9	12
5	41	123.2	126.9	130.6	0.186	0.193	0.201	8	10	12
6	42.8	117.3	120.8	124.3	0.195	0.203	0.210	8	10	13
7	44.6	111.8	115	118.3	0.205	0.212	0.220	8	11	13
8	46.4	106.5	109.6	112.6	0.215	0.222	0.231	9	11	14
9	48.2	101.5	104.4	107.2	0.225	0.233	0.241	10	12	14
10	50	96.82	99.47	102.2	0.235	0.244	0.253	10	12	15
11	51.8	92.34	94.83	97.35	0.247	0.255	0.264	11	13	16
12	53.6	88.1	90.43	92.79	0.258	0.267	0.276	11	14	16
13	55.4	84.08	86.26	88.47	0.270	0.279	0.289	12	14	17
14	57.2	80.26	82.31	84.37	0.282	0.292	0.302	12	15	17
15	59	76.64	78.55	80.49	0.295	0.305	0.315	13	16	18
16	60.8	73.2	74.99	76.8	0.308	0.318	0.329	14	16	19
17	62.8	69.93	71.62	73.31	0.322	0.332	0.343	14	17	20
18	64.4	66.83	68.41	69.99	0.336	0.347	0.358	15	18	20
19	66.2	63.88	65.36	66.85	0.351	0.362	0.373	16	19	21

20	68	61.08	62.47	63.86	0.366	0.377	0.389	17	19	22
21	69.8	58.42	59.72	61.02	0.382	0.393	0.405	18	20	23
22	71.6	55.88	57.1	58.32	0.398	0.410	0.422	18	21	24
23	73.4	53.47	54.61	55.76	0.415	0.427	0.439	19	22	24
24	75.2	51.18	52.25	53.32	0.433	0.445	0.457	20	23	25
25	77	49	50	51	0.450	0.463	0.476	21	24	26
26	78.8	46.88	47.86	48.84	0.468	0.481	0.495	22	25	27
27	80.6	44.87	45.82	46.78	0.487	0.501	0.515	23	26	28
28	82.4	42.95	43.88	44.82	0.506	0.521	0.535	24	27	29
29	84.2	41.12	42.03	42.95	0.526	0.541	0.557	25	28	30
30	86	39.38	40.27	41.17	0.546	0.562	0.578	26	29	32
31	87.8	37.73	38.59	39.47	0.567	0.584	0.601	27	30	33
32	89.6	36.15	37	37.85	0.588	0.606	0.624	28	31	34
33	91.4	34.64	35.47	36.3	0.611	0.629	0.647	29	32	35
34	93.2	33.21	34.02	34.83	0.633	0.652	0.671	30	33	36
35	95	31.84	32.63	33.42	0.656	0.676	0.696	32	35	38
36	96.8	30.54	31.31	32.08	0.680	0.700	0.722	33	36	39
37	98.6	29.29	30.04	30.8	0.704	0.726	0.748	34	37	40
38	100.4	28.11	28.84	29.58	0.729	0.751	0.774	35	38	42
39	102.2	26.97	27.69	28.41	0.755	0.778	0.802	37	40	43
40	104	25.89	26.59	27.29	0.781	0.805	0.830	38	41	44
41	105.8	24.86	25.54	26.22	0.807	0.832	0.858	39	43	46
42	107.6	23.87	24.53	25.2	0.835	0.861	0.887	41	44	47
43	109.4	22.93	23.57	24.23	0.862	0.889	0.917	42	46	49
44	111.2	22.03	22.66	23.29	0.891	0.919	0.948	44	47	51
45	113	21.17	21.78	22.4	0.920	0.949	0.978	45	49	52
46	114.8	20.34	20.94	21.54	0.949	0.979	1.010	47	50	54
47	116.6	19.56	20.14	20.73	0.979	1.010	1.042	48	52	55
48	118.4	18.8	19.37	19.94	1.010	1.042	1.075	50	53	57
49	120.2	18.08	18.63	19.2	1.041	1.075	1.109	51	55	59
50	122	17.39	17.93	18.48	1.073	1.107	1.143	53	57	61
51	123.8	16.73	17.26	17.79	1.105	1.140	1.177	55	58	62
52	125.6	16.1	16.61	17.13	1.138	1.175	1.212	56	60	64
53	127.4	15.5	15.99	16.5	1.172	1.209	1.247	58	62	66
54	129.2	14.92	15.4	15.9	1.205	1.244	1.283	60	64	68
55	131	14.36	14.83	15.32	1.239	1.279	1.320	61	66	70
56	132.8	13.83	14.29	14.76	1.274	1.315	1.357	63	67	71
57	134.6	13.32	13.77	14.23	1.309	1.351	1.394	65	69	73
58	136.4	12.83	13.27	13.71	1.346	1.388	1.432	67	71	75
59	138.2	12.36	12.79	13.22	1.382	1.425	1.471	69	73	77
60	140	11.91	12.33	12.75	1.418	1.463	1.510	71	75	79
61	141.8	11.48	11.89	12.3	1.455	1.501	1.549	73	77	81
62	143.6	11.07	11.46	11.87	1.492	1.540	1.588	74	79	83
63	145.4	10.67	11.06	11.45	1.530	1.578	1.628	76	81	85
64	147.2	10.29	10.67	11.05	1.568	1.617	1.668	78	83	87
65	149	9.927	10.29	10.66	1.607	1.657	1.708	80	85	89
66	150.8	9.577	9.931	10.29	1.646	1.696	1.749	82	87	92
67	152.6	9.24	9.585	9.94	1.684	1.736	1.790	84	89	94
68	154.4	8.916	9.253	9.599	1.723	1.777	1.831	86	91	96
69	156.2	8.605	8.934	9.271	1.763	1.817	1.872	88	93	98
70	158	8.307	8.627	8.955	1.803	1.858	1.914	90	95	100
71	159.8	8.02	8.331	8.652	1.843	1.899	1.955	92	97	102

72	161.6	7.744	8.048	8.36	1.883	1.939	1.997	94	99	104
73	163.4	7.479	7.775	8.079	1.923	1.981	2.039	96	101	106
74	165.2	7.224	7.512	7.809	1.963	2.022	2.081	99	104	109
75	167	6.979	7.26	7.549	2.004	2.063	2.123	101	106	111
76	168.8	6.743	7.017	7.299	2.044	2.104	2.165	103	108	113
77	170.6	6.516	6.783	7.059	2.085	2.146	2.208	105	110	115
78	172.4	6.298	6.558	6.827	2.126	2.187	2.250	107	112	117
79	174.2	6.088	6.342	6.603	2.167	2.229	2.292	109	114	119
80	176	5.886	6.133	6.388	2.207	2.270	2.334	111	116	121
81	177.8	5.691	5.932	6.181	2.248	2.311	2.375	113	118	124
82	179.6	5.504	5.739	5.982	2.289	2.353	2.417	115	120	126
83	181.4	5.323	5.552	5.789	2.329	2.394	2.459	117	123	128
84	183.2	5.149	5.373	5.604	2.370	2.435	2.500	119	125	130
85	185	4.982	5.2	5.425	2.410	2.476	2.542	121	127	132
86	186.8	4.82	5.033	5.253	2.450	2.517	2.583	123	129	134
87	188.6	4.665	4.872	5.087	2.491	2.557	2.624	126	131	136
88	190.4	4.515	4.717	4.927	2.531	2.598	2.664	128	133	138
89	192.2	4.371	4.568	4.772	2.571	2.638	2.705	130	135	140
90	194	4.232	4.424	4.623	2.610	2.677	2.745	132	137	143
91	195.8	4.097	4.285	4.479	2.650	2.717	2.785	134	139	145
92	197.6	3.968	4.151	4.341	2.688	2.756	2.824	136	141	147
93	199.4	3.843	4.021	4.207	2.727	2.796	2.864	138	143	149
94	201.2	3.722	3.897	4.077	2.766	2.834	2.903	140	145	151
95	203	3.606	3.776	3.952	2.805	2.873	2.941	142	147	153
96	204.8	3.494	3.66	3.832	2.843	2.911	2.979	144	149	155
97	206.6	3.386	3.548	3.716	2.880	2.949	3.017	145	151	156
98	208.4	3.281	3.439	3.603	2.918	2.986	3.054	147	153	158
99	210.2	3.181	3.335	3.495	2.955	3.023	3.091	149	155	160
100	212	3.083	3.233	3.39	2.991	3.060	3.128	151	157	162
101	213.8	2.989	3.136	3.288	3.028	3.096	3.164	153	159	164
102	215.6	2.898	3.041	3.19	3.064	3.132	3.200	155	160	166
103	217.4	2.811	2.95	3.096	3.099	3.168	3.235	157	162	168
104	219.2	2.726	2.862	3.004	3.135	3.203	3.270	159	164	169
105	221	2.644	2.777	2.916	3.169	3.237	3.304	160	166	171
106	222.8	2.565	2.695	2.83	3.204	3.271	3.338	162	167	173
107	224.6	2.488	2.615	2.748	3.238	3.305	3.372	164	169	175
108	226.4	2.415	2.538	2.667	3.272	3.339	3.404	166	171	176
109	228.2	2.343	2.464	2.59	3.305	3.371	3.437	167	173	178
110	230	2.274	2.392	2.515	3.338	3.404	3.469	169	174	180
111	231.8	2.207	2.323	2.443	3.370	3.435	3.500	171	176	181
112	233.6	2.143	2.255	2.373	3.401	3.467	3.531	172	178	183
113	235.4	2.08	2.19	2.305	3.433	3.498	3.562	174	179	184
114	237.2	2.02	2.127	2.239	3.464	3.528	3.592	175	181	186
115	239	1.961	2.066	2.176	3.494	3.558	3.621	177	182	187
116	240.8	1.905	2.007	2.114	3.524	3.588	3.650	178	184	189
117	242.6	1.85	1.95	2.055	3.554	3.617	3.679	180	185	190
118	244.4	1.797	1.895	1.997	3.583	3.645	3.707	181	187	192
119	246.2	1.746	1.841	1.941	3.612	3.674	3.734	183	188	193
120	248	1.696	1.789	1.887	3.640	3.702	3.762	184	190	195
121	249.8	1.648	1.739	1.834	3.668	3.729	3.788	186	191	196
122	251.6	1.602	1.69	1.784	3.695	3.756	3.814	187	192	197
123	253.4	1.556	1.643	1.734	3.722	3.782	3.840	189	194	199

124	255.2	1.513	1.598	1.687	3.748	3.807	3.865	190	195	200
125	257	1.471	1.554	1.641	3.774	3.832	3.889	191	196	201
126	258.8	1.43	1.511	1.596	3.799	3.857	3.914	193	197	202
127	260.6	1.39	1.469	1.552	3.824	3.882	3.937	194	199	204
128	262.4	1.351	1.429	1.51	3.849	3.906	3.961	195	200	205
129	264.2	1.314	1.39	1.469	3.873	3.929	3.984	196	201	206
130	266	1.278	1.352	1.43	3.896	3.952	4.006	197	202	207
131	267.8	1.243	1.315	1.391	3.920	3.975	4.028	199	204	208
132	269.6	1.209	1.28	1.354	3.943	3.997	4.050	200	205	209
133	271.4	1.176	1.245	1.318	3.965	4.019	4.071	201	206	210
134	273.2	1.144	1.212	1.283	3.987	4.040	4.091	202	207	211
135	275	1.113	1.179	1.249	4.008	4.061	4.112	203	208	213
136	276.8	1.083	1.148	1.216	4.030	4.081	4.131	204	209	214
137	278.6	1.054	1.117	1.184	4.050	4.102	4.151	205	210	215
138	280.4	1.026	1.088	1.153	4.070	4.121	4.169	206	211	215
139	282.2	0.9986	1.059	1.123	4.090	4.140	4.188	207	212	216
140	284	0.9721	1.031	1.093	4.110	4.159	4.206	208	213	217
141	285.8	0.9463	1.004	1.065	4.129	4.178	4.224	209	214	218
142	287.6	0.9213	0.9778	1.037	4.148	4.196	4.241	210	215	219
143	289.4	0.897	0.9523	1.011	4.166	4.213	4.258	211	216	220
144	291.2	0.8734	0.9275	0.9845	4.184	4.231	4.275	212	217	221
145	293	0.8505	0.9034	0.9593	4.202	4.248	4.291	213	217	222
146	294.8	0.8283	0.8801	0.9347	4.219	4.264	4.307	214	218	223
147	296.6	0.8068	0.8574	0.9108	4.236	4.280	4.323	215	219	223
148	298.4	0.7858	0.8354	0.8877	4.252	4.296	4.338	216	220	224
149	300.2	0.7655	0.814	0.8652	4.269	4.312	4.353	217	221	225
150	302	0.7458	0.7932	0.8433	4.284	4.327	4.368	217	222	226



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