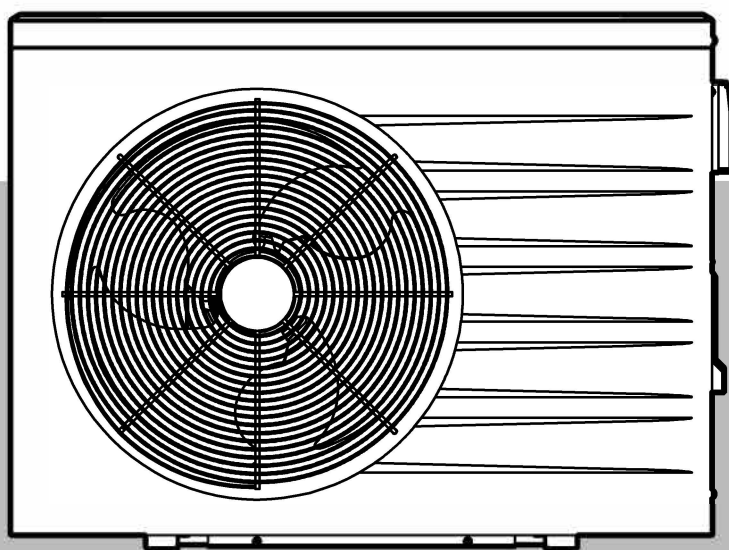


FULL INVERTER POOL HEAT PUMP

INSTALLATION AND OPERATION INSTRUCTIONS

LS07-IFP1-SXCX
LS09-IFP1-SXCX
LS13-IFP1-SXCX
LS16-IFP1-SXCX
LS20-IFP1-SXCX
LS24-IFP1-SXCX



Please Read The Manual Carefully Before Use.

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1 FOREWORD

Thank you for choosing our inverter pool heat pump, which is designed for more silent and energy saving user experience. It is an ideal way for green pool heating.

We hope you'll enjoy using our heat pumps.

Thank you!



2 SAFETY PRECAUTIONS

We have provided important safety messages in this manual and on your heat pump.

Please always read and obey all safety messages.

Environment friendly R32 Refrigerant is used for this heat pump

⚠ WARNING:



The WARNING sign denotes a hazard. It calls attention to a procedure, practice, or the like, which, if not correctly performed or adhered to, could result in personal injury or injury to a third party. These signs are rare, but are extremely important.

	a. Warning: Risk of fire. Appliances using flammable refrigerants , keep the appliance away from fire source.
	b.It must be placed in well ventilated area, indoor or closed area is not allowed.
	c.Repair and disposal must be carried out by trained service personnel
	d.Vacuumize completely before welding. Welding can only be carried out by professional personnel in service center.

2.1 ATTENTION

- a. 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.
- b. Children should be supervised to ensure that they do not play with the appliance.
- c. 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.
- d. Do not use any methods to accelerate the defrosting process or to clean, other than those recommended by the manufacturer.
- e. The appliance shall not be stored in a room continuously operating ignition sources (for example: open flames, an operating gas appliance or an operating electric heater.)
- f. Do not pierce or burn.
- g. The installation, the electric connection and the start up must be carried out by specialized and professional person.
- h. The mains supply cord and plug must be kept away from any water source and well protected from damaged.
- i. The appliance shall be installed in accordance with national wiring regulations.
- j. In a concern to a constant improvement, our products can be modified without notice; the present pictures in this note or the characteristics which are described are not contractual.
- k. Leakage test must be performed after installation. Be aware that refrigerants may not contain an odour.
- l. Please don't stack substances, which will block air flow near inlet or outlet area, otherwise the efficiency of the heat pump will be reduced or even stopped.
- m. Set proper temperature in order to get comfortable water temperature to avoid overheating or overcooling. It is essential to maintain the temperature in the swimming pool lower than the recommended value by the swimming pool's manufacturer.
- n. In order to optimize the heating effect, please install heat preservation insulation on pipes between swimming pool and the heat pump, and please use a recommended cover on the swimming pool.
- o. Connecting pipes of the swimming pool and the heat pump should be $\leq 10\text{m}$.
- p. If a repair is required, please contact the nearest after-sales service center. The repair process must be strictly in accordance with manual. All repair practice by non-professional is prohibited.

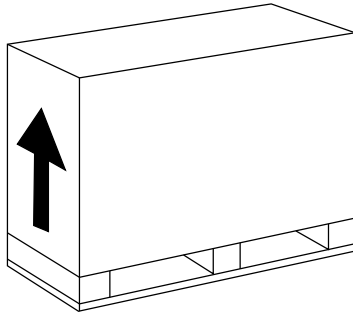
2.2 SAFETY

- a. Please keep the main power supply switch far away from the children.
- b. When a power cut happens during operating, and later the power is restored, the heat pump will start up.
- c. Please switch off the main power supply in lightening and storm weather to prevent from machine damage that caused by lightning;
- d. Safety inspection must be carried before the maintenance or repair for heat pumps with R32 gas in order to minimize the risk.
- e. Installation and any repairing should be conducted in the area with good ventilation. The ignition source is prohibited during the inspection.
- f. If R32 gas leaks during the installation process, all operations must be stopped immediately and call the service center.

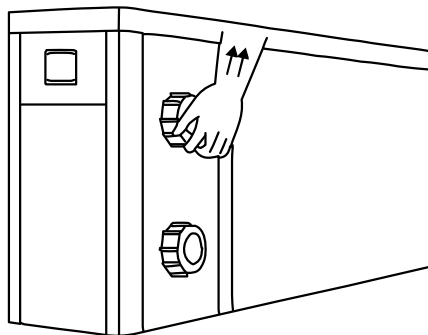
3 ABOUT YOUR HEAT PUMP

3.1 TRANSPORTATION

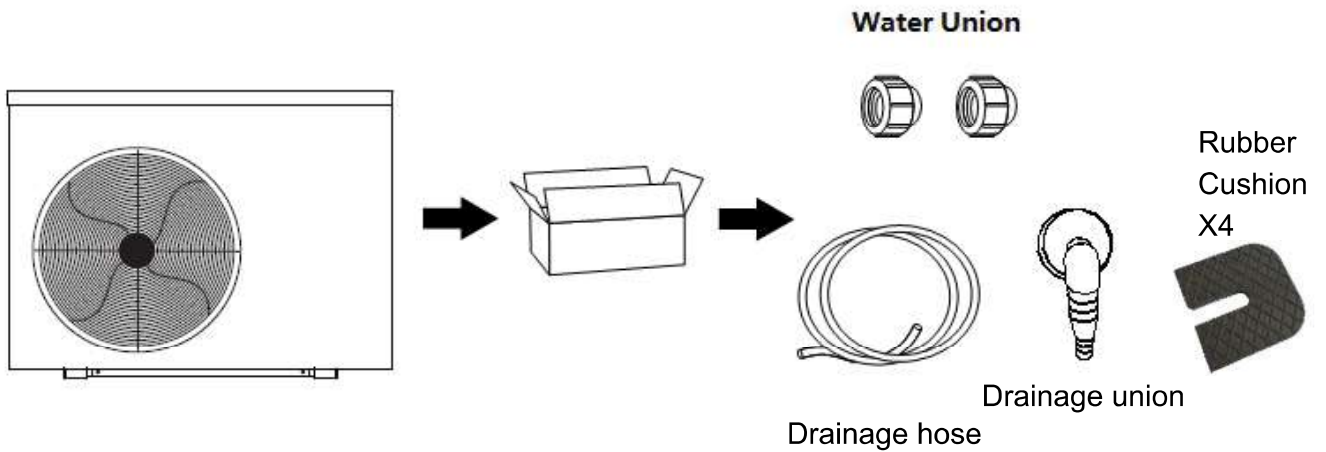
- a. Always keep upright



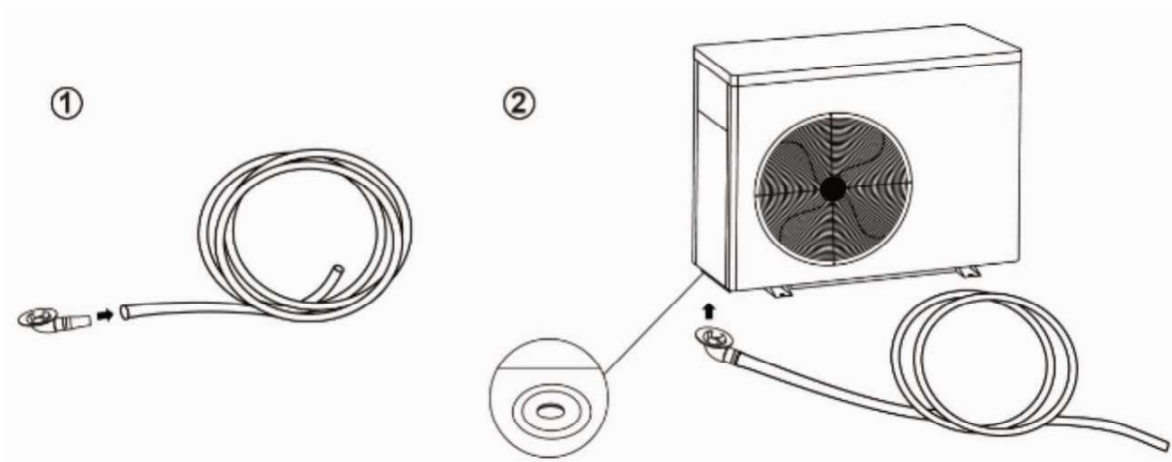
- b. Do not lift the water union
(Otherwise the titanium heat exchanger inside the heat pump may be damaged)



3.2 ACCESSORIES



Connection of the condensate drainage kit:



3.3 FEATURES

- a. Twin-rotary DC inverter compressor
- b. EEV Technology
- c. Reverse cycle defrosting with 4-way valve
- d. High-efficiency twisted titanium heat exchanger
- e. High pressure and low pressure protection
- f. Soft start & wide voltage application
- g. Stable inverter control system

3.4 OPERATING CONDITION AND RANGE

- a. To provide you comfort and pleasure, please set swimming pool water temperature efficiently and economically.
- b. The heat pump can work between air temperature $-10^{\circ}\text{C} \sim 43^{\circ}\text{C}$, and its ideal operation range is between air temperature $15^{\circ}\text{C} \sim 25^{\circ}\text{C}$.
- c. Heating temperature setting range: $15^{\circ}\text{C} \sim 40^{\circ}\text{C}$.
- d. Cooling temperature setting range: $15^{\circ}\text{C} \sim 35^{\circ}\text{C}$.

3.5 TECHNICAL PARAMETER

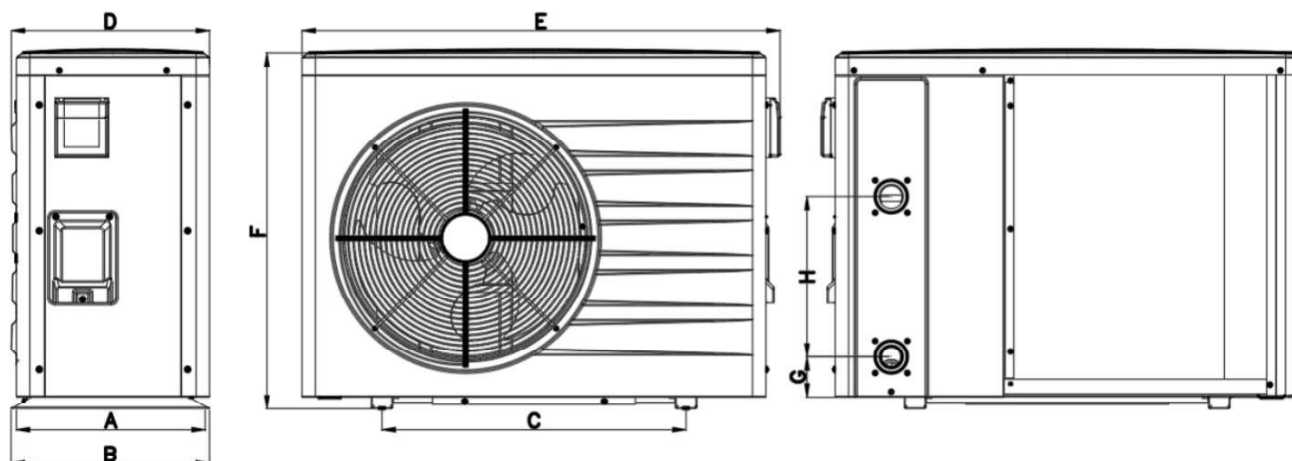
Model	LS07-IFP1-SXCX	LS09-IFP1-SXCX	LS13-IFP1-SXCX	LS16-IFP1-SXCX	LS20-IFP1-SXCX	LS24-IFP1-SXCX
PERFORMANCE CONDITION: Air 27°C/ Water 27°C/ Humid. 80%						
Heating capacity (kW)	1.4-7.2	1.9-9.3	2.6-13	3.2-16	4.1-20	4.8-24
COP Range	12.8-6.4	13.1-6.7	13.1-6.4	13.5-6.4	13.6-6.4	14-6.4
Average COP at 50% speed	9.1	9.6	9.8	9.6	9.7	9.6
PERFORMANCE CONDITION: Air 15°C/ Water 26°C/ Humid. 70%						
Heating capacity (kW)	1.0-5.0	1.3-6.5	1.8-9.1	2.3-11.5	2.8-14.0	3.4-16.8
COP Range	7.6-4.1	7.7-4.2	7.4-4.0	7.7-4.2	7.8-4.1	7.6-4.1
Average COP at 50% speed	6.4	6.7	6.9	6.7	6.8	6.7
TECHNICAL SPECIFICATIONS						
Advised pool volume (m ³)	15~30	20~45	35~65	40~75	50~90	60~110
Operating air temperature (°C)	-10°C~43°C					
Refrigerant	R32					
Power supply	220-240V/1Ph/50-60Hz					
Water connection (mm)	50					
Rated input power (kW)	0.33-1.25	0.38-1.5	0.6-2.3	0.7-3.2	0.8-3.5	0.9-4.0
Rated input current (A)	0.82-5.4	1.1-6.5	1.4-10	1.8-14	2.4-15.5	2.6-17.5
Power cord (mm ²)	3*1.5	3*1.5	3*2.5	3*2.5	3*4.0	3*4.0
Sound level at 1m dB(A)	36.8~50.2	38.6~52.5	42.5~52.0	42.5~52.0	44.3~57.0	44.9~58.7
Sound level at 10m dB(A)	17.9~30.2	19.6~31.4	22~32.5	24.2~35.4	24.3~36.2	25.9~37.6
Advised water flux (m ³ /h)	2~4	3~5	4~6	6~8	7~10	10~12
Minimum water flow speed	2	3	4	6	7	10
Net dimensions (mm)	891x370x665	891x370x665	891x370x665	981x370x665	981x440x765	981x440x765

Remarks:

This heat pump is able to perform normal within air temp $-10^{\circ}\text{C} \sim 43^{\circ}\text{C}$, efficiency will not be guaranteed if out of this range. Please take into consideration that the pool heat pump performance and parameters are different under various conditions.

Related parameters are subject to adjust periodically for technical improvement without further notice. For details please refer to nameplate.

3.6 DIMENSION



Size(mm) Model	Name	A	B	C	D	E	F	G	H
LS07-IFP1-SXCX		352	370	567	370	891	665	75	300
LS09-IFP1-SXCX		352	370	567	370	891	665	75	300
LS13-IFP1-SXCX		352	370	567	370	891	665	75	300
LS16-IFP1-SXCX		352	370	657	370	981	665	75	350
LS20-IFP1-SXCX		422	440	594	440	981	765	75	420
LS24-IFP1-SXCX		422	440	594	440	981	765	75	420

※ Above data is subject to modification without notice.

Note: The picture above is the specification diagram of the pool heat pump, for technician's installation and layout reference only. The product is subject to adjustment periodically for improvement without further notice.

4 INSTALLATION GUIDANCE

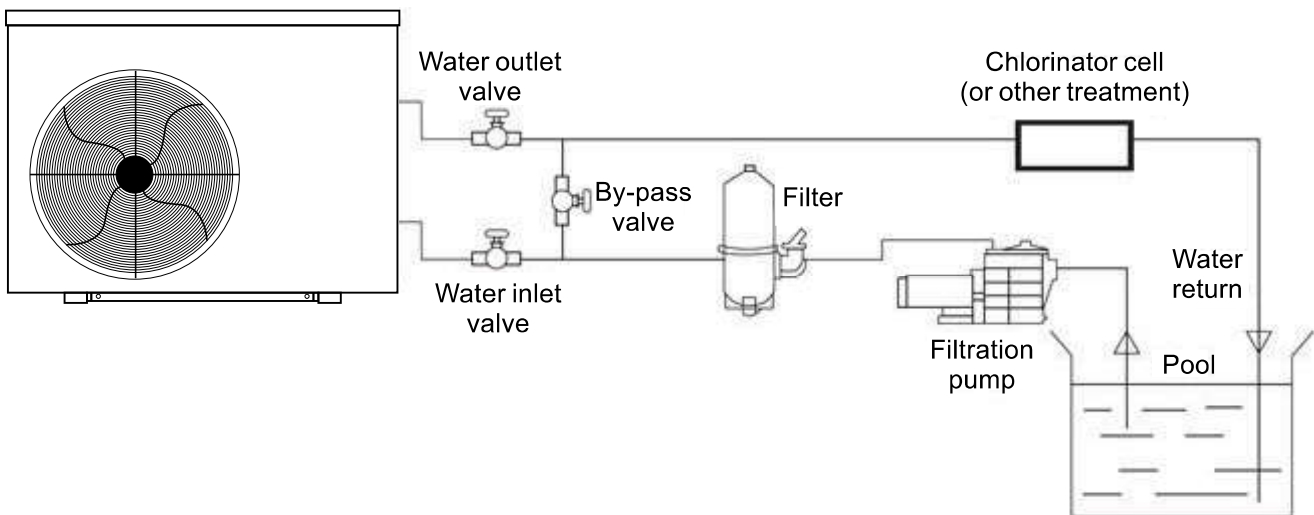
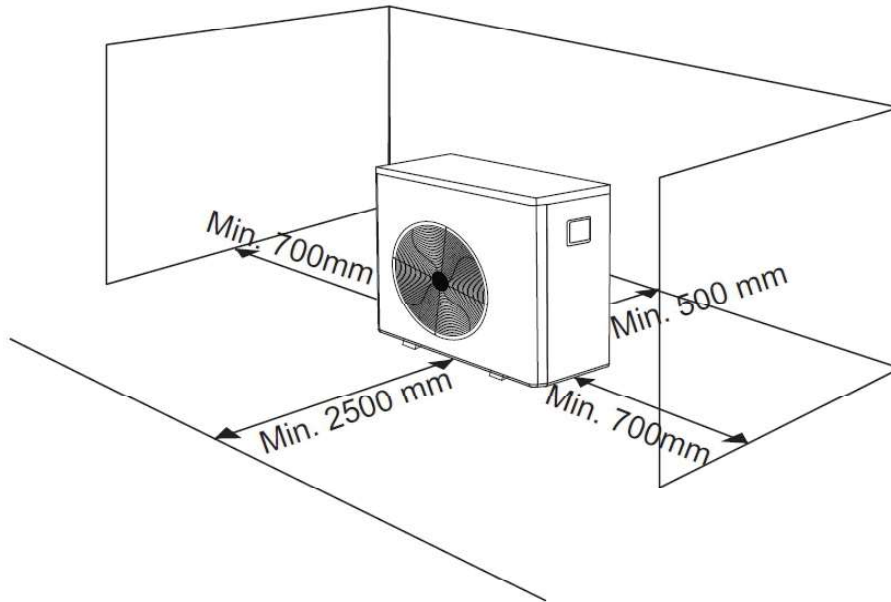
4.1 INSTALLATION REMINDER

Only a professional staff is allowed to install the heat pump. The users are not qualified to install by themselves, otherwise the heat pump might be damaged and risky for users' safety.

a. Location and dimension

⚠ NOTICE

The inverter pool heat pump should be installed in a good ventilation place.



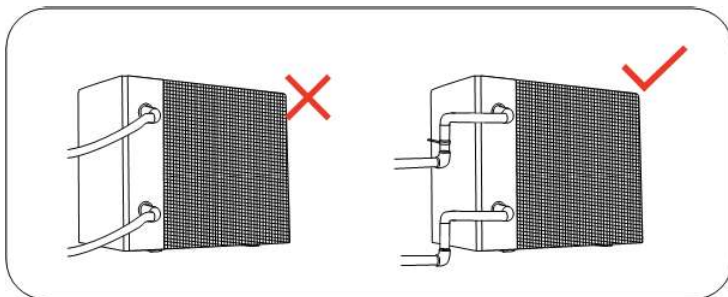
1)The frame must be fixed by bolts (M10) to concrete foundation or brackets. The concrete foundation must be solid and fastened; the bracket must be strong enough and antirust treated.

2)Please don't stack substances that will block air flow near inlet or outlet area, and there is no barrier within 50cm behind the main machine, or the efficiency of the heat pump will be reduced or even stopped.

3)The machine needs an appended pump (Supplied by the user). The recommended pump specification-flux: refer to Technical Parameter.

4)When the machine is running, there will be condensation water discharged from the bottom, please pay attention to it. Please hold the drainage nozzle (accessory) into the hole and clip it well, and then connect a pipe to drain the condensation water out.

b.The inlet and outlet water unions can't stand the weight of soft pipes. The heat pump must be connected with hard pipes!



⚠ WIRING:

a.Connect to appropriate power supply, the voltage should comply with the rated voltage of the products.

b.Earth the machine well.

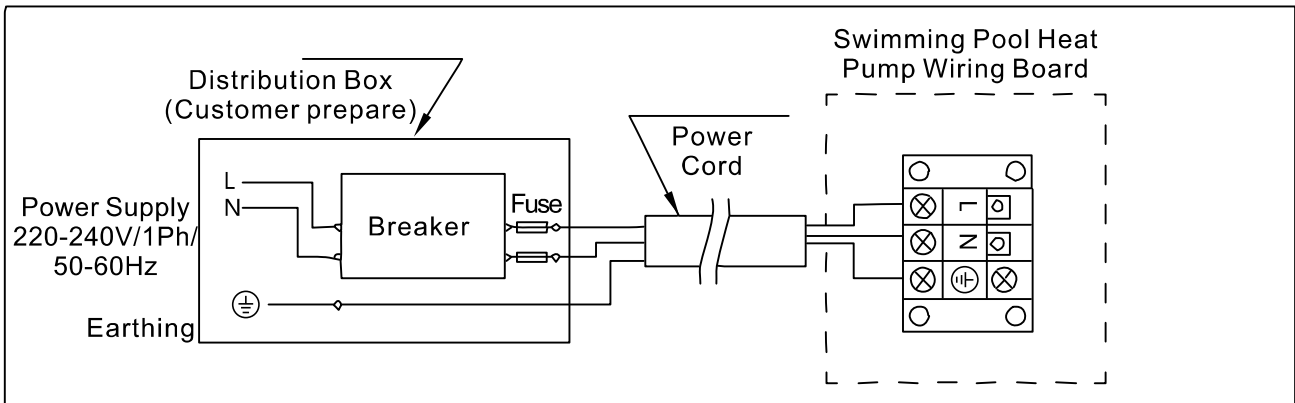
c.Wiring must be handled by a professional technician according to the circuit diagram.

d.Set leakage protector according to the local code for wiring (leakage operating current \leq 30mA).

e.The layout of power cable and signal cable should be orderly and not affecting each other.

4.2 ELECTRIC WIRING DIAGRAM

For power supply: 220-240V/1Ph/50-60Hz



4.3 REFERENCE FOR PROTECTING DEVICES AND CABLE SPECIFICATION

Model		LS07-IFP1-SXCX	LS09-IFP1-SXCX	LS13-IFP1-SXCX	LS16-IFP1-SXCX	LS20-IFP1-SXCX	LS24-IFP1-SXCX
Breaker	Rated Current (A)	8	9.5	15	20.5	23.5	25
	Rated Residual Action Current (mA)	30	30	30	30	30	30
Fuse (A)		8	9.5	15	20.5	23.5	25
Power Cord (mm ²)		3x1.5	3x1.5	3x1.5	3x2.5	3x4.0	3x4.0
Signal cable (mm ²)		4x0.5	4x0.5	4x0.5	4x0.5	4x0.5	4x0.5

⚠ Note:

Above data is subject to modification without notice.

The above data is adapted to power cord $\leq 10\text{m}$. If power cord is $> 10\text{m}$, wire diameter must be increased. The signal cable can be extended to 50m maximally.

5 OPERATION GUIDANCE

5.1 KEY FUNCTION



No.	Key	Function
1		Turn on or off the controller or quit from the current function.
2		Select the desired function or confirm the current operation.
3		Enter the timing function setting.
4		Switch modes when the controller is turned on.
5		Increase the temperature or other setting points.
6		Decrease the temperature or other setting points.

5.2 OPERATION INSTRUCTION

1. (ON/OFF key)

When the controller is off, the mode icon is not displayed and the mode cannot be switched; shortly press the button, and then the controller will be turned on and the mode of last operation will be displayed and flash for 3 seconds.

The power on/off command will be sent to the main board with a delay of 5 seconds to prevent it turning on or off due to misoperation.

2. (Mode key)

At the power-on state, shortly press the mode key to switch the cooling-heating mode. At the power-off state, the mode cannot be switched. The operable modes are decided by the main board.

3. ⊕/⊖ (Temperature adjustment key)

At the power-on state under which the water temperature is displayed, shortly press the ⊕/⊖ key to directly enter the temperature setting page of the current mode. At this time, the set temperature flashes, and the user is allowed to increase or decrease the temperature set point. Press it again or press the ⏻ key to save the setting value and exit from this function.

4. ⊕+⊖ (Lock keys)

The controller will automatically lock the keys and reduce the screen brightness after 60 seconds without any operation.

Press ⊕ and ⊖ at the same time for 3 seconds to lock/unlock the keys. When the lock icon appears on the screen, it means that the controller is locked.

At the locked state, press ⊕ and ⊖ at the same time for 3 seconds to unlock the keys.

5. How to view the operating parameter

5.1. How to enter the operating parameter page

At the page that the water temperature is displayed, shortly press ⏻ to enter the operating parameter page. Under the online state, select the unit address firstly.

5.2. How to view and exit the operating parameter page

After entering the operating parameters, press ⊕/or ⊖ to scroll and display the various operating parameters. By press ⏻ key or 1 minute without key operation, this page will automatically exit.

6. How to set parameters

6.1. How to enter the parameter setting page

At the page when the water temperature is displayed, press ⊞ for 3 seconds, the temperature display area displays the parameter number and flashes, and the timing area displays the parameter content. At the online state, select the unit address firstly.

6.2. How to set the parameter

After entering the setting parameters, the parameter serial number flashes, and press ⊕ or ⊖ to scroll and display the various setting parameters or press ⊞ to flash display the parameter content. Then, press ⊕ or ⊖ again to adjust the current value. After that, press ⊞ to save the current setting, and return to the number flashing display state.

6.3. How to exit the parameter setting page


This setting page will exit automatically by pressing ⏻ or no key operation for 1 minute.

7. Faults







When there is a fault for the unit, it will flash and be displayed in the timing area, and the fault code and the corresponding faulty unit number will be displayed cyclically. When the fault is eliminated, the display will be back to normal.

8. Clock Setting

8.1. How to enter the clock setting page











Press  and the hour of the clock area will flash, indicating that it has entered the clock setting state.









8.2. How to exit the clock setting page

After entering the clock setting page, the hour flashes and press  /  to adjust the hour; press  and the minute flashes and then press  /  to adjust the minute; and press  again or 60 seconds of no key operation this setting will automatically be saved and exit.

9. Timing


9.1. How to enter the timing page

1) Press  and  for 3 seconds and the "ON" icon on the screen will be displayed, and the hour display area flashes, which means it enters the timing 1 ON setting page. At this moment, the hour is digitally flashing and press  /  to adjust the hour. Then, press  to confirm this setting and switch to the minute setting with the number flashing at the minute, and then press  /  to adjust the minute, and then again press  to confirm this setting. Note:  key operation will make this setting exit and will not be saved. Or  key operation for 3 seconds will make the current setting ineffective.


2) After timing 1 ON is completed, it will automatically enter the timing 1 OFF setting state, and the "OFF" icon will be displayed and the number flashes at the hour. Press  /  to adjust the hour and then press  to confirm this setting and switch to the minute setting. The number at the minute will flash. Then press  /  to adjust the minute, and then press  to confirm this setting. Note:  key operation will make this setting exit and will not be saved. Or  key operation for 3 seconds will make the current setting ineffective.

3) Press  and  to enter the timing 2 setting state. Its setting is the same as that of timing 1.

9.2. How to exit the timing page



When setting timing state, it will quit automatically by pressing the  key or no key operation for 20 seconds.

9.3. How to cancel the timing setting














When entering the corresponding timing setting state, press  for 3 seconds to cancel this timing setting.

10. Others

10.1. Manual defrosting

At the page when the water temperature is displayed, press  and  for 3 seconds at the same time after powering on to enter the manual defrosting function. The main control board will determine whether to enter the manual defrosting function according to the conditions.

5.3 OTHER KEYS OPERATION

No.	Key	Description	Others
1	Press  +  for 3 seconds	Locking/unlocking keys.	
2	Press  for 3 seconds	Parameter setting.	
3	Shortly press 	Parameter viewing.	
4	Press  +  for 3 seconds	Timing 1 setting.	
5	Press  +  for 3 seconds	Timing 2 setting.	
6	Press  +  for 3 seconds	Forceful defrosting.	It is available when the controller has been turned on.
7	Press  +  for 3 seconds	Wi-Fi setting.	
8	Press  for 3 seconds	Clock setting.	

6 TESTING

6.1 INSPECT HEAT PUMP BEFORE USE

- The ventilating device and outlets are operating adequately and are not obstructed.
- It's prohibited to install refrigeration pipe or components in corrosive environment.
- Inspect the electric wiring on basis of the electric wiring diagram and earthing connection.
- Double confirm the main machine power switch should be off.
- Inspect the air inlet and outlet.

6.2 LEAKAGE DETECTION NOTICE AND METHOD



- Leakage checking is prohibited in closed area.
- The ignition source is prohibited during the leakage inspection. A halide torch (or any other detector using a naked flame) shall not be used.
- Leakage detection fluids can be applied with most refrigerants but the use of detergents containing chlorine shall be avoided as the chlorine may react with the refrigerant and corrode the copper pipe.
- Vacuumize completely before welding. Welding can only be carried out by professional personnel in service center.
- Please stop using while gas leakage occur, and contact professional personnel in service center.

6.3 TRIAL

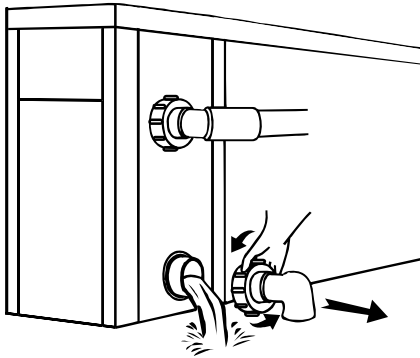
- The user must "Start the Pump before the Machine, and Turn off the Machine before the Pump", or the machine will be damaged.
- Before start the heat pump, please check for any leakage of water.
- In order to protect the swimming pool heat pump, the machine is equipped with a time lag starting function, the fan will run 1 minute earlier than the compressor when starting the machine, and it will stop running 1 minute later than the compressor when power off the machine.
- After the swimming pool heat pump start up, please kindly checking for any abnormal noise from the machine.

7 MAINTENANCE



“CUT OFF” power supply of the heat pump before cleaning, examination and repairing

1. In winter season when you don't swim:
 - a. Cut off power supply to prevent any machine damage.
 - b. Drain water clear of the machine



Unscrew the water nozzle of inlet pipe to let the water flow out. When the water in machine freezes in winter season, the titanium heat exchanger may be damaged.

- c. Cover the machine body when not in use.
2. Please clean this machine with household detergents or clean water, NEVER use gasoline, thinners or any similar fuel.
3. Check bolts, cables and connections regularly.
4. If repair or scrap is required, please contact authorized service center nearby.
5. Do not attempt to work on the equipment by yourself. Improper operation may cause danger.
6. In case of risk, safety inspection must be carried before the maintenance or repairing for heat pumps with R32 gas.

8 TROUBLE SHOOTING FOR COMMON FAULTS

8.1 REPAIRING GUIDANCE

WARNING:

- a. If repair or scrap is required, please contact authorized service center nearby.
- b. Requirements for Service Personnel
- c. Any person who is involved with working on or breaking into a refrigerant circuit should hold a current valid certificate from an industry-accredited assessment authority, which authorizes their competence to handle refrigerants safely in accordance with an industry recognized assessment specification.
- d. Do not attempt to work on the equipment by yourself. Improper operation may cause danger.

e. Strictly comply with the manufacturer's requirements when charging R32 gas and equipment maintenance. This chapter focuses on special maintenance requirements for swimming pool heat pump with R32 gas. Please refer to the technical service manual for detailed maintenance operation.

f. Vacuumize completely before welding. Welding can only be carried out by professional personnel in service center.

8.2 FAILURE SOLUTION AND CODE

Failure	Reason	Solution
Heat pump doesn't run	No power	Wait until the power recovers
	Power switch is off	Switch on the power
	Fuse burned	Check and change the fuse
	The breaker is off	Check and turn on the breaker
Fan running but with insufficient heating	evaporator blocked	Remove the obstacles
	Air outlet blocked	Remove the obstacles
	3 minutes start delay	Wait patiently
Display normal, but no heating	Set temp. too low	Set proper heating temp.
	3 minutes start delay	Wait patiently
If above solutions don't work, please contact your installer with detailed Information and your model number. Don't try to repair it yourself.		

Note:

If the following conditions happen, please stop the machine immediately, and cut off the power supply immediately, then contact your dealer:

1. Inaccurate switch action.
2. The fuse is frequently broken or leakage circuit breaker jumped.

8.3 PROTECTION & FAILURE CODE

Code	Failure discription	Action
EE	Sensor failure	Stop for protection
E01	Controller communication protection	Stop for protection
E02	Driver communication protection	Stop for protection
E03	AC current protection	Stop for protection
E04	AC voltage protection	Stop for protection
E05	DC voltage protection	Stop for protection

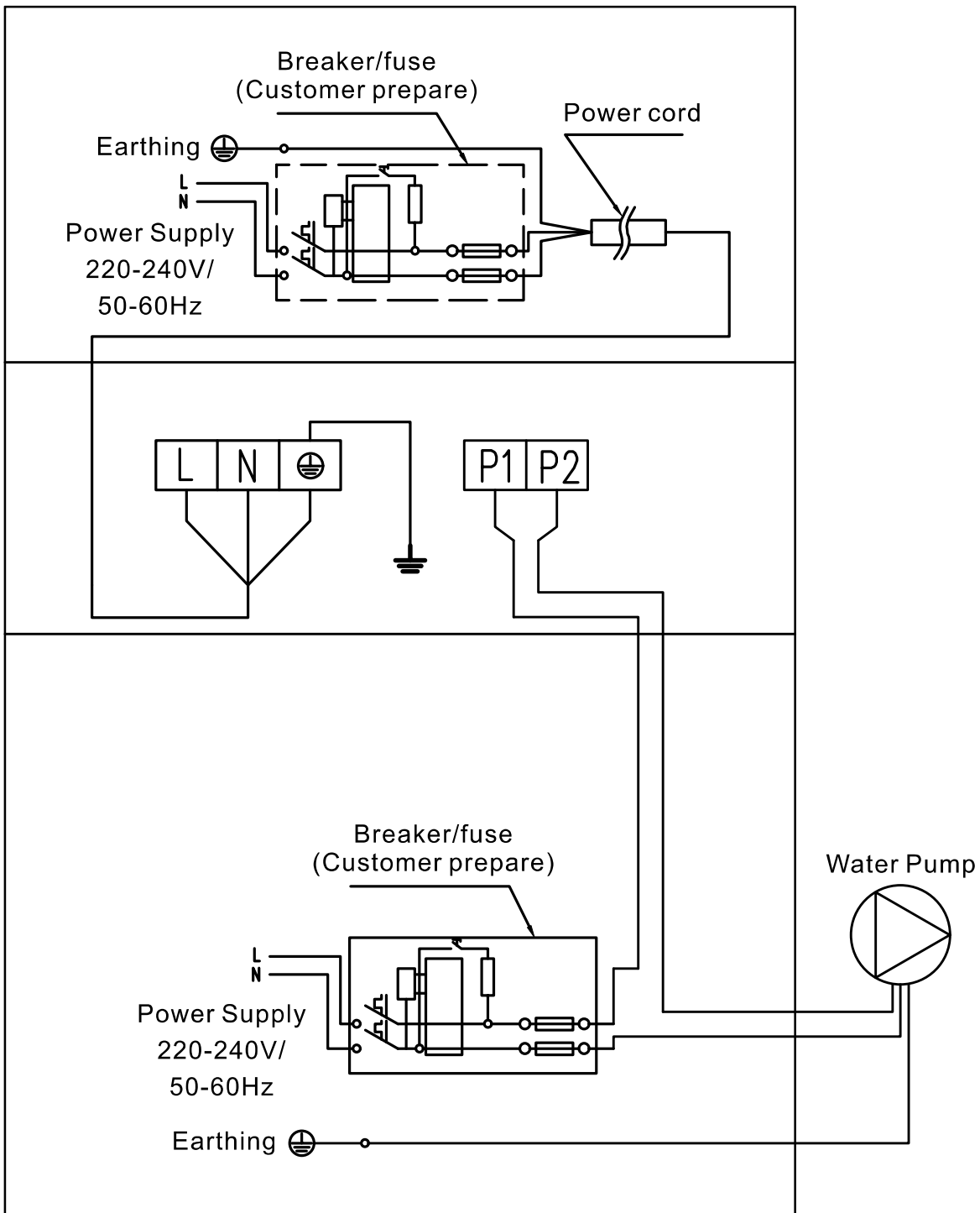
Code	Failure discription	Action
E06	Phase current protection	Stop for protection
E07	IPM over-temperature protection	Stop for protection
E08	DC current protection	Stop for protection
E09	Excessive exhaust protection	Stop for protection
E10	Outdoor environment protection (Ambient temperature limit failure)	Stop for protection
E11	High pressure protection	Stop for protection
E12	Low pressure protection	Stop for protection
E13	Reserved	Reserved
E14	Refrigerating water outlet overcooling protection	Stop for protection
E15	Refrigerating coil temp too high protection	Stop for protection
E16	Heating water outlet temp too high protection	Stop for protection
E17	Water flow failure	Stop for protection initiate again in a minute, lock after three times
E18	High voltage switch failure	Stop for protection
E19	Low voltage switch failure	Stop for protection
E20	Phase failure	Stop for protection
E21	Phase A out-of-phase fault	Stop for protection
E22	inlet and outlet Water temperature difference protection	Stop for protection
E23	Heating ambient temp too low protection	Stop for protection
E24	Refrigeration ambient temp too low protection	Stop for protection
E25	Internal cooling coil temp too low protection	Stop for protection
E26	DC Fan motor failure (no feedback running speed)	Stop for protection
E27	Phase B out-of-phase fault	Stop for protection
E28	Phase C out-of-phase fault	Stop for protection
E29	Eeprom reading error	Restore the default,normal operation
E30	Trial period expired	Stop for protection, can anti-freezing
E31	Power-on password wrong	Stop for protection, can anti-freezing
E32 to E36	Reserved	
E37	IPM protection (permanent)	Stop for protection
E38	Driver protection	Stop for protection
E39 to E48	Reserved	

Code	Failure discription	Action
E49	Water inlet sensor failure	Water flow to replace logical judgement
E50	Coil sensor failure	Cancel the corresponding logical judgement
E51	Exhaust sensor failure	Stop for protection
E52	Suction sensor failure	Cancel the corresponding logical judgement
E53	Cooling Internal coil sensor failure	Water flow to replace logical judgement
E54	Ambient sensor failure	Cancel the corresponding logical judgement
E55 to E56	Reserved	
E57	Water outlet sensor failure	Cancel the corresponding logical judgement
E58	Coil 2 sensor failure	Cancel the corresponding logical judgement
E59	Exhaust 2 sensor failure	Stop for protection
E60	Suction 2 sensor failure	Cancel the corresponding logical judgement
E61	Cooling Internal coil 2 sensor failure	Cancel the corresponding logical judgement
E62	Reserved	
E63	High pressure sensor failure	
E64	Low pressure sensor failure	Cancel the corresponding logical judgement
E65	High pressure 2 switch failure	System 2 stop
E66	Low pressure 2 switch failure	System 2 stop
E67	Cooling Internal coil 2 temp too low protection	System 2 stop
E68	Driver 2 DC fan failure	System 2 stop
E69	Driver 2 AC current protection	System 2 stop
E70	Driver 2 AC voltage protection	System 2 stop
E71	Driver 2 DC voltage protection	System 2 stop
E72	Driver 2 phase current protection	System 2 stop
E73	Driver 2 IPM over temperature protection	System 2 stop
E74	Driver 2 DC current protection	System 2 stop
E75	Exhaust 2 high temp protection	System 2 stop
E76	Cooling coil 2 high tempt protection	System 2 stop
E77	System 2 low pressure sensor failure	System 2 stop
D17	Driver 1 IBM over-current protection	System 1 stop
D18	Driver 1 compressor drive failure (other drive failure except IPM)	System 1 stop
D19	Driver 1 compressor over current	System 1 stop

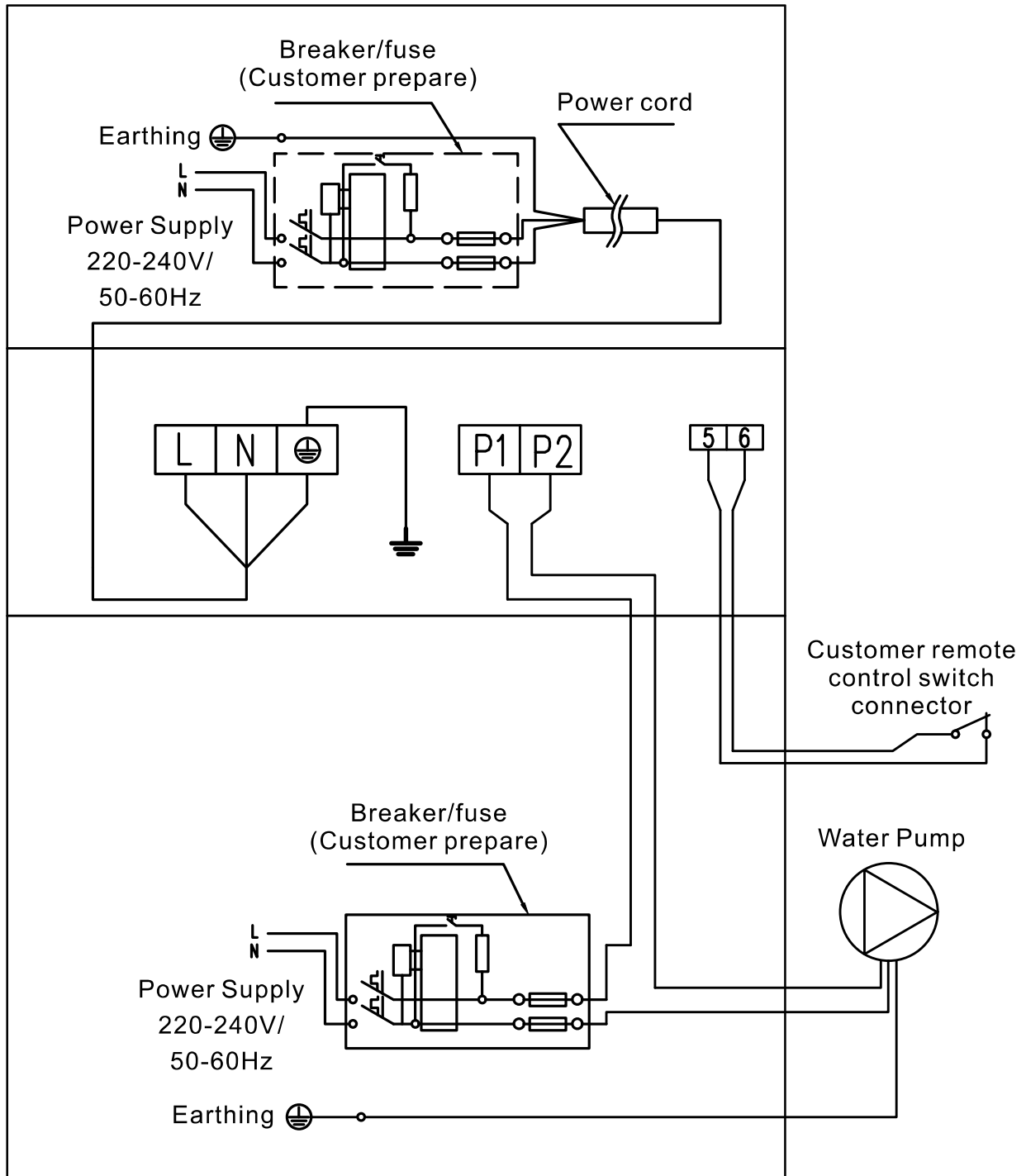
Code	Failure discription	Action
D20 to D21	Reserved	
D22	Driver 1 IPM temp too high protection	System 1 stop
D23	Driver 1 PFC failure	System 1 stop
D24	Driver 1 DC busbar overvoltage	System 1 stop
D25	Driver 1 DC busbar undervoltage	System 1 stop
D26	Driver 1 AC input voltage over-voltage /under-voltage	System 1 stop
D27	Driver 1 AC input current overcurrent stop	System 1 stop
D28 to D31	Reserved	
D32	Communication failure between driver 1 and main control panel	System 1 stop
D33	Driver 1 IPM temperature protection	System 1 stop
D34	Driver 1 DC fan motor 1 failure	System 1 stop
D35	Driver 1 DC fan motor 2 failure	System 1 stop
D36	Driver 1 transformer output 15v over-voltage / under-voltage protection	System 1 stop
D65	Driver 2 IPM over-current protection	System 2 stop
D66	Driver 2 compressor drive failure (other drive failure except IPM)	System 2 stop
D67	Driver 2 compressor over current	System 2 stop
D68 to D69	Reserved	
D70	Driver2 IPM temp too high protection	System 2 stop
D71	Driver 2 PFC failure	System 2 stop
D72	Driver 2 DC busbar overvoltage	System 2 stop
D73	Driver 2 DC busbar undervoltage	System 2 stop
D74	Driver 2 AC input voltage over-voltage /under-voltage	System 2 stop
D75	Driver 2 AC input current overcurrent stop	System 2 stop
D76 to D79	Reserved	
D80	Communication failure between driver 2 and main control panel	System 2 stop
D81	Driver 2 IPM temperature protection	System 2 stop
D82	Driver 2 DC fan 1 failure	System 2 stop
D83	Driver 2 DC fan 2 failure	System 2 stop
D84	Driver 2 transformer output 15v over-/under-voltage protection	System 2 stop

9 WATER PUMP CONNECTION

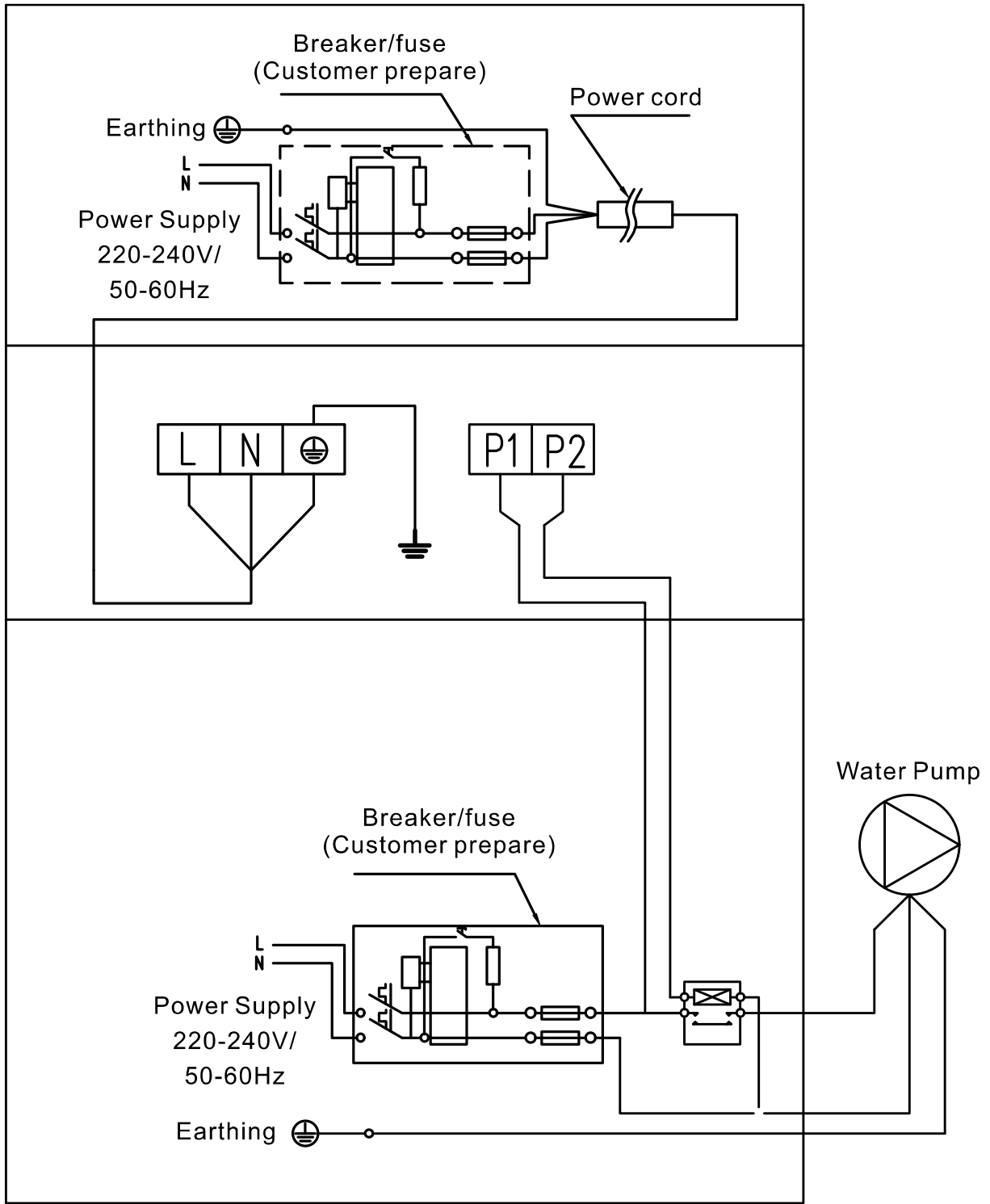
Water pump: 220-240V voltage, $\leq 500W$ capacity



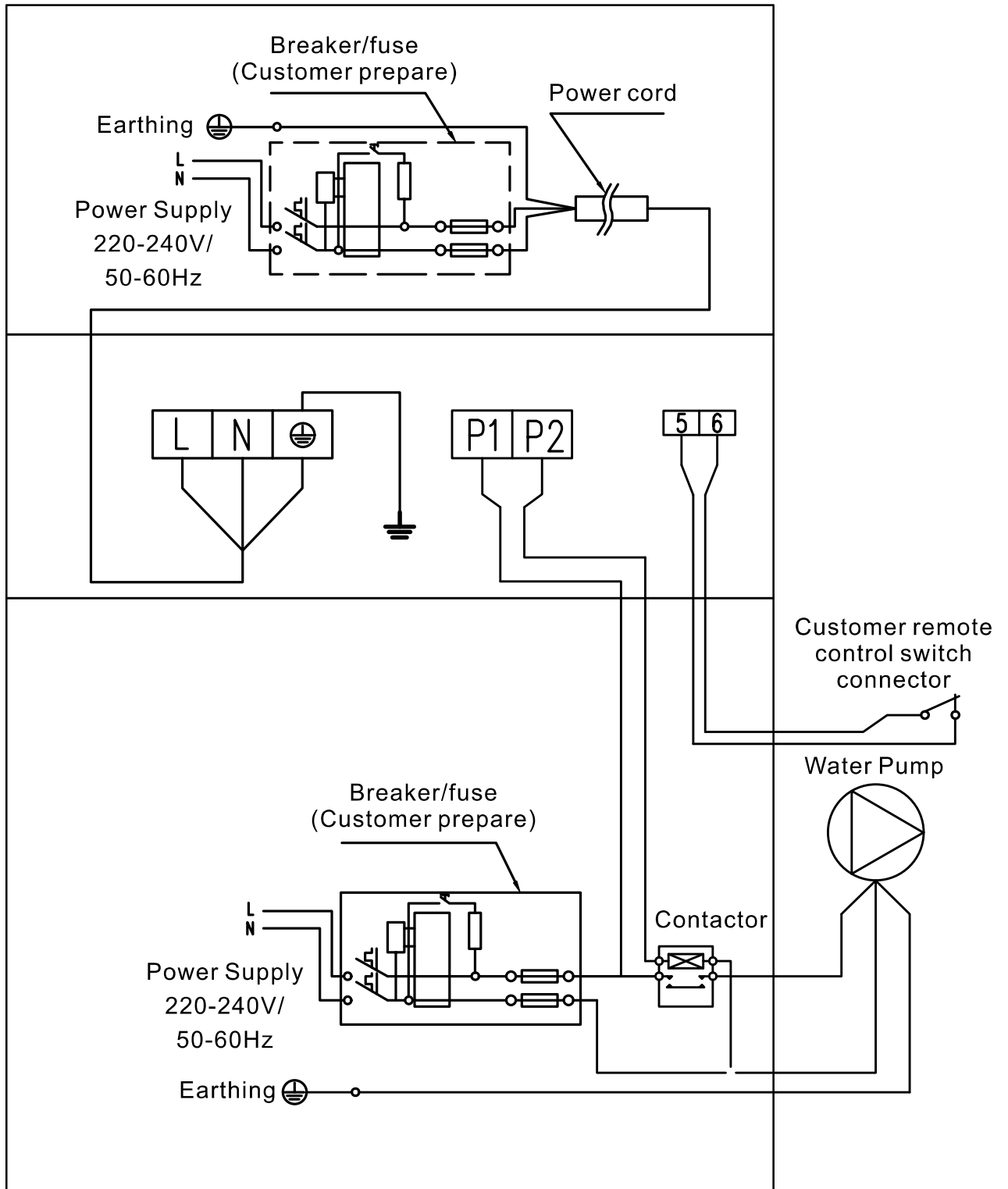
Water pump: 220-240V voltage, $\leq 500W$ capacity



Water pump: 220-240V voltage, > 500W capacity

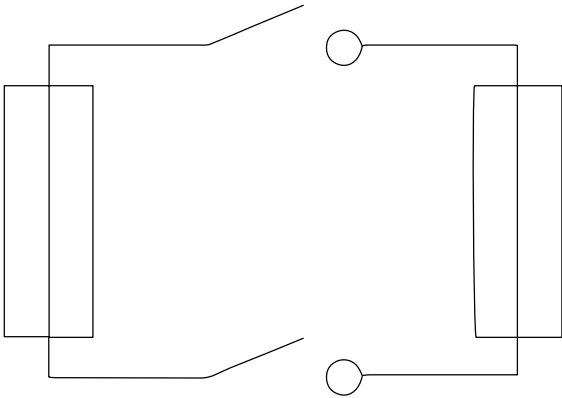


Water pump: 220-240V voltage, > 500W capacity



WATER PUMP CONTROL AND TIMER CONNECTION

1: Water pump timer



2: Water pump wiring of Heat Pump

⚠ Note:

The installer should connect 1 parallel with 2 (as above picture). To start the water pump, condition 1 or 2 is connected. To stop the water pump, both 1 and 2 should be disconnected.

10 Wi-Fi

It is defaulted to be deactivated and it is allowed to be activated when it has been configured.

10.1 HOW TO CONFIGURE Wi-Fi

- 1) Simultaneously press **⏻** and **⏻** for more than 3 seconds to enter the Wi-Fi network configuration mode. At this time, the interface displays AF, which means that you have successfully entered the AP network configuration mode.
- 2) Meanwhile open the mobile phone App, click the Add device , select Large Home Appliance -> Smart Heat Pump(Wi-Fi), check "Confirm that the indicator light is flashing slowly", and click Next.
- 3) Follow the prompts to connect to the home Wi-Fi and enter the password, then click Next. Click the EZ model on the upper right corner to change to the AP mode, then confirm the indicator is blinking slowly, then click Next.
- 4) Follow the prompts to switch the mobile phone Wi-Fi to the hotspot sent by the controller, and the hotspot name is in "SmartLife-XXXX" format.
- 5) After successfully connecting to the hotspot, switch back to the mobile app and wait for the controller to configure the network and connect to the cloud.
- 6) The controller displays the network configuration status as follows:
 - ①AF: enter AP network configuration mode;
 - ②nC: Wi-Fi is configured but not connected to the router;
 - ③Cr: Wi-Fi is configured and connected to the router;
 - ④CC: Wi-Fi is connected to the router and the cloud.

10.2 Wi-Fi DISPLAY STATUS

The icon at the upper right corner of the controller indicates the current Wi-Fi function status, where:

- 1) “No display” indicates that the controller has not been configured with a network, and the Wi-Fi function is not turned on by default;
- 2) “Slow flashing” indicates that the network is configured and is trying to connect to Wi-Fi;
- 3) “Steady on” indicates that Wi-Fi has been connected and successfully connected to the Internet.

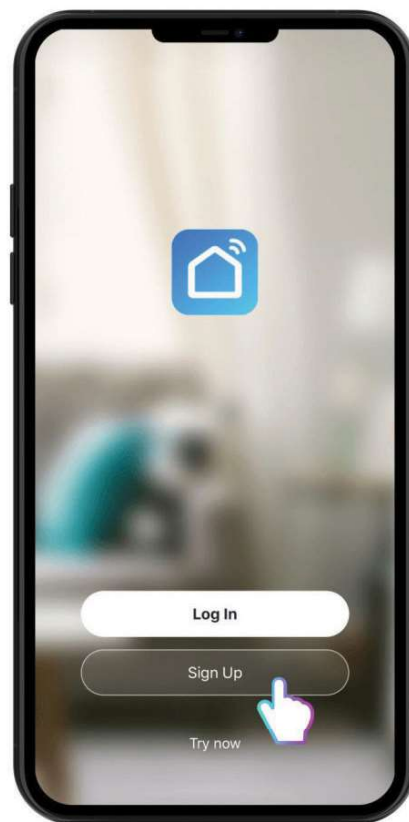
10.3 Wi-Fi OPERATION

3.1 App Download



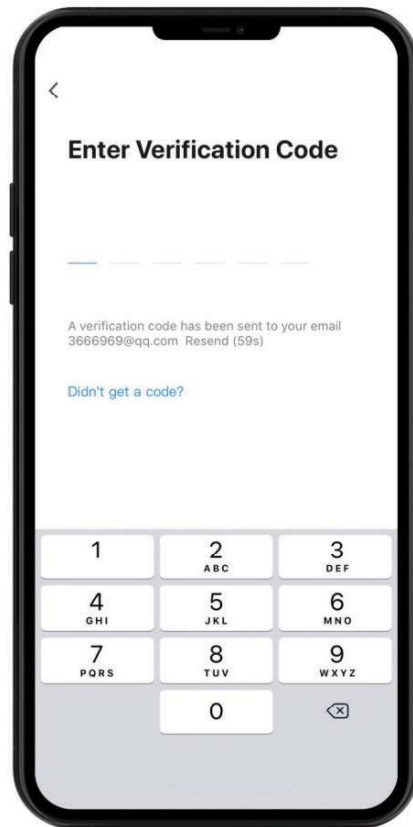
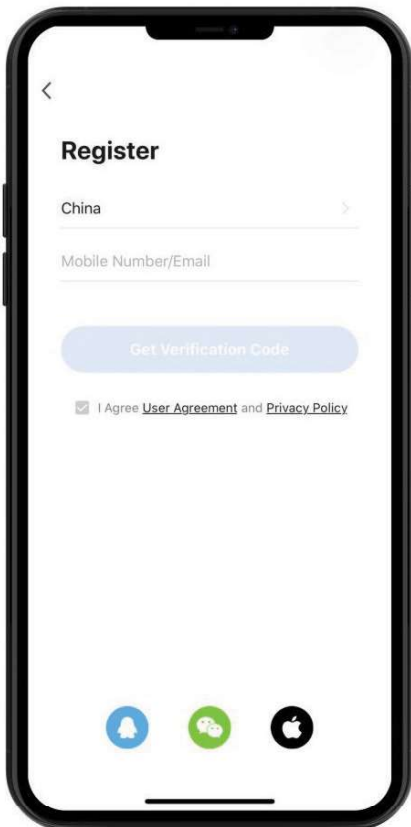
3.2 Account registration

① Register by E-mail

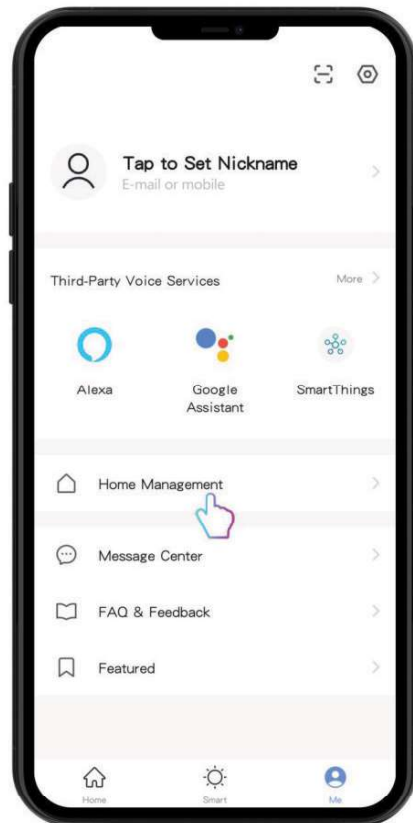
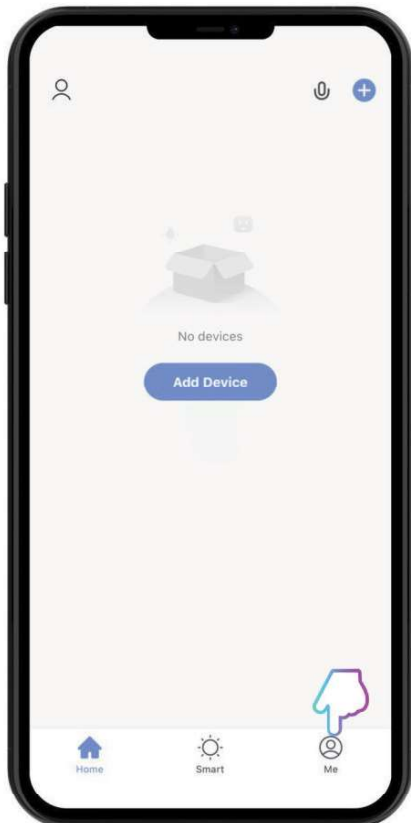


3.2 Account registration

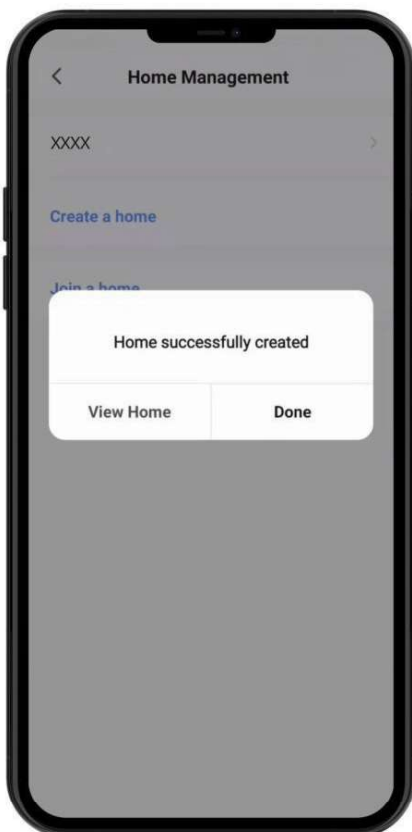
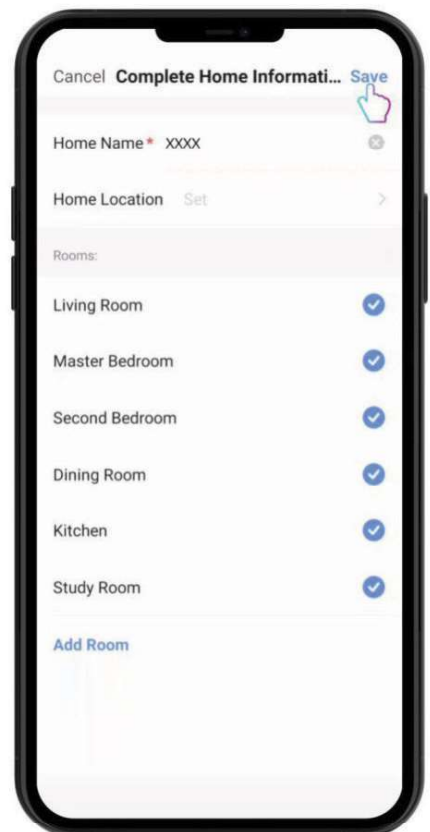
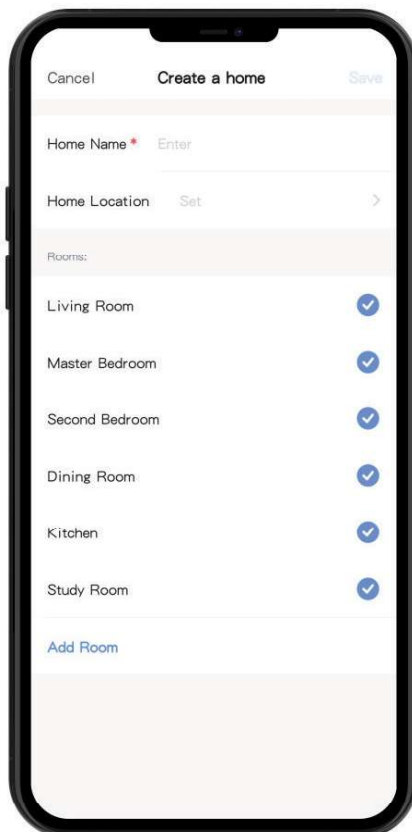
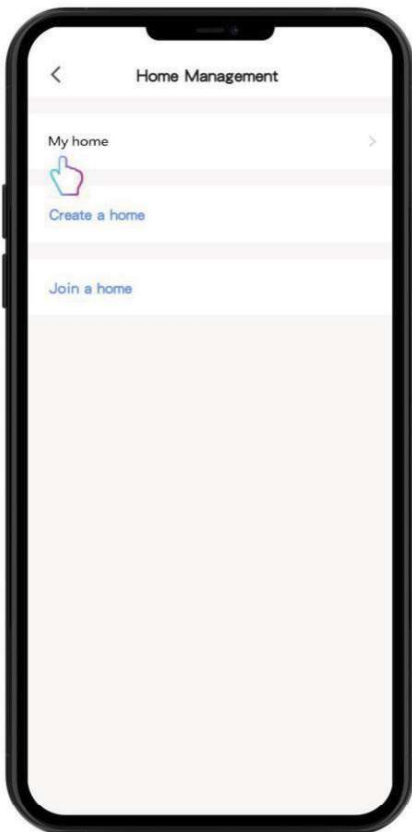
② Email registration



3.3 Create Home

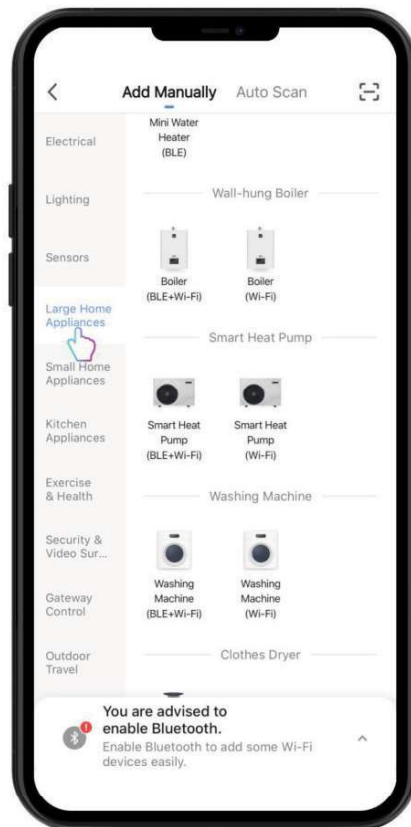
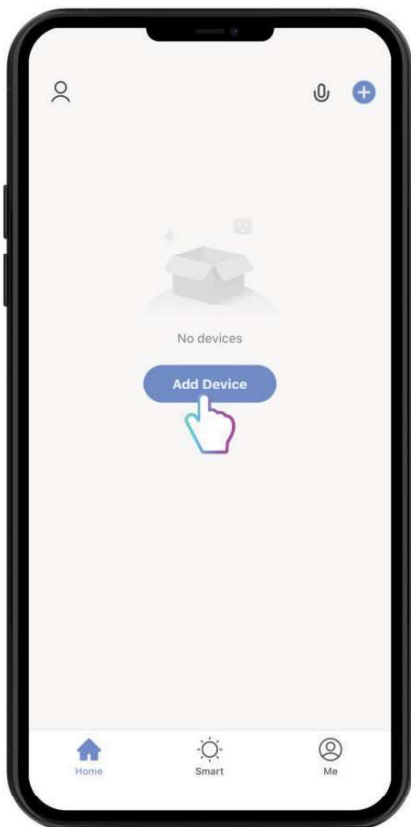
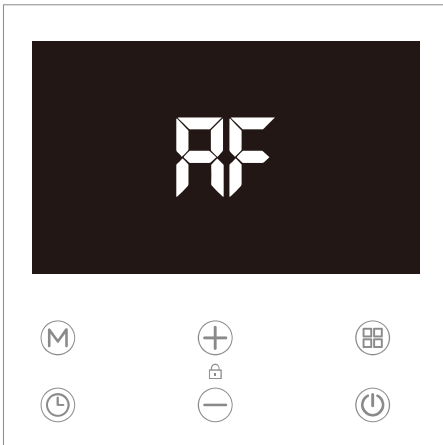


Please set home name and choose the room of device

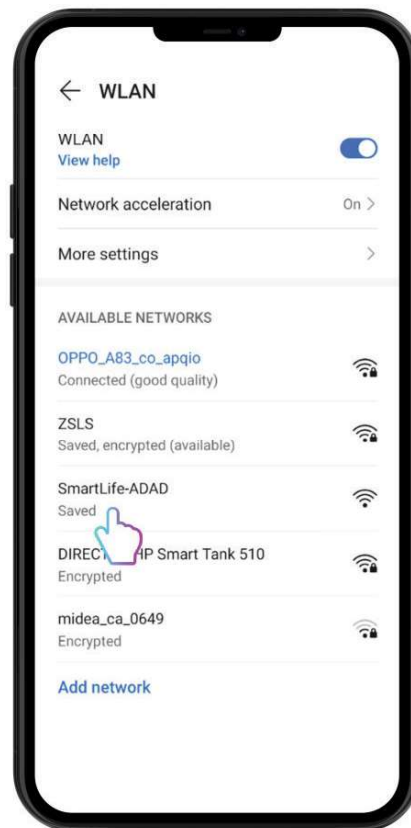
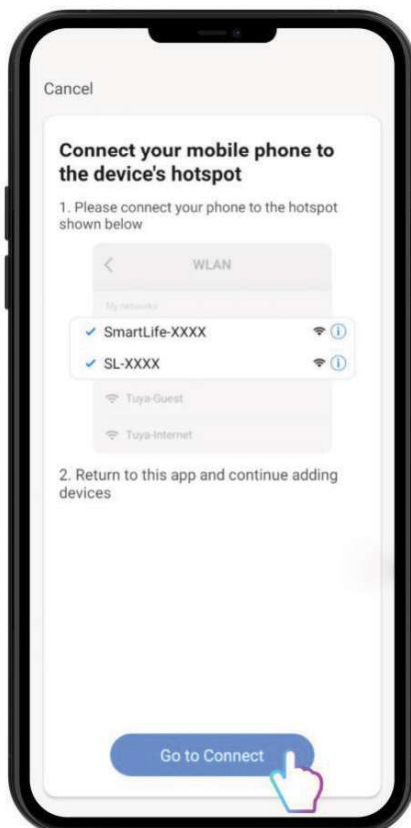
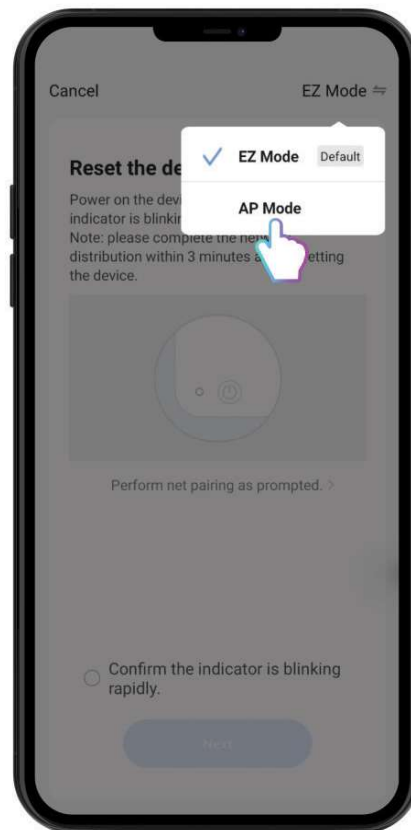
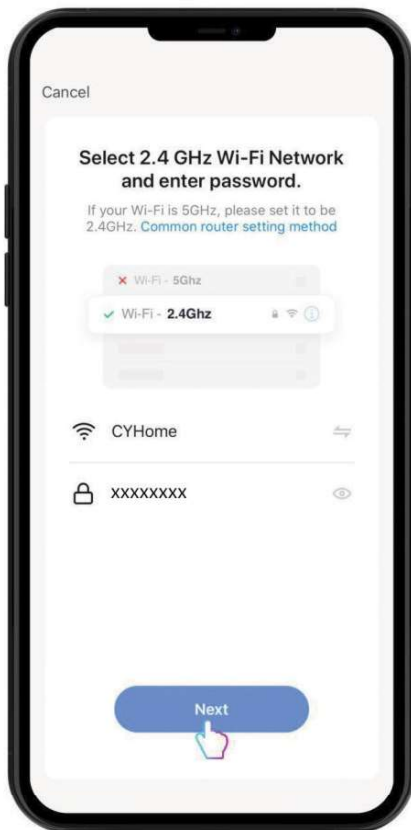


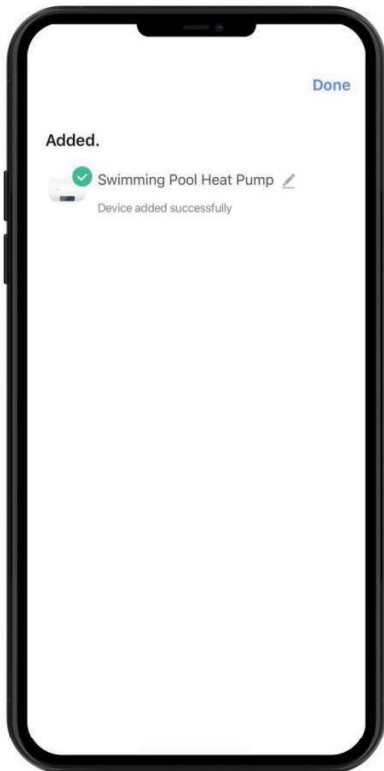
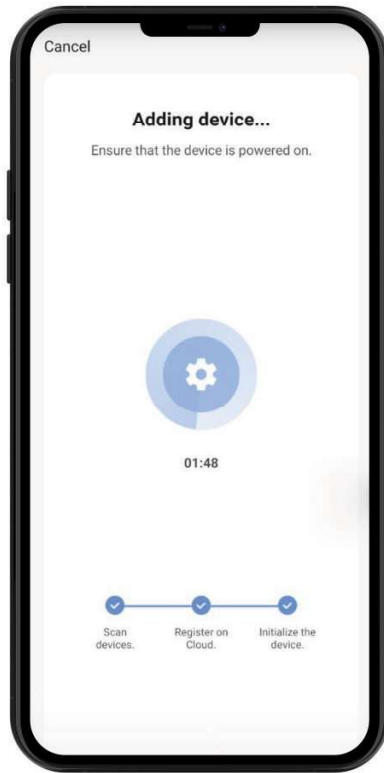
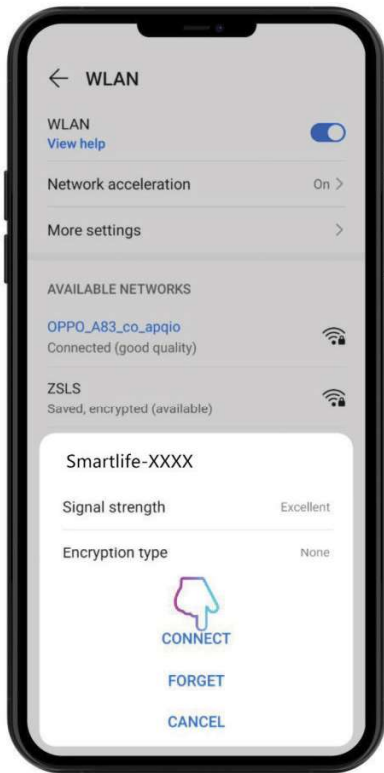
3.4 App Pairing

Please make sure you have successfully entered the AP network configuration mode (Refer to the operation part when the the interface displays AF)

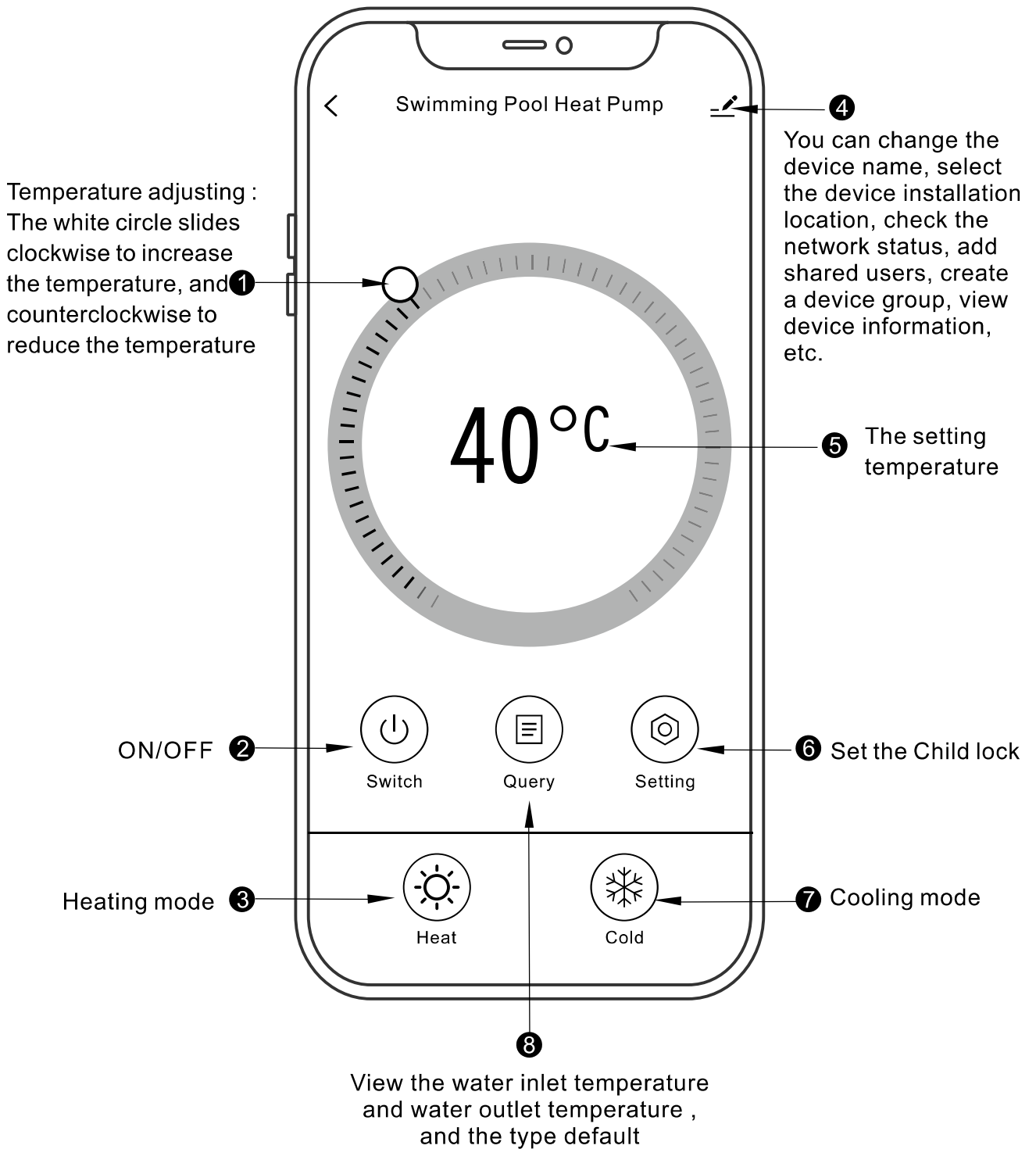


Enter Wi-Fi password and click Next.

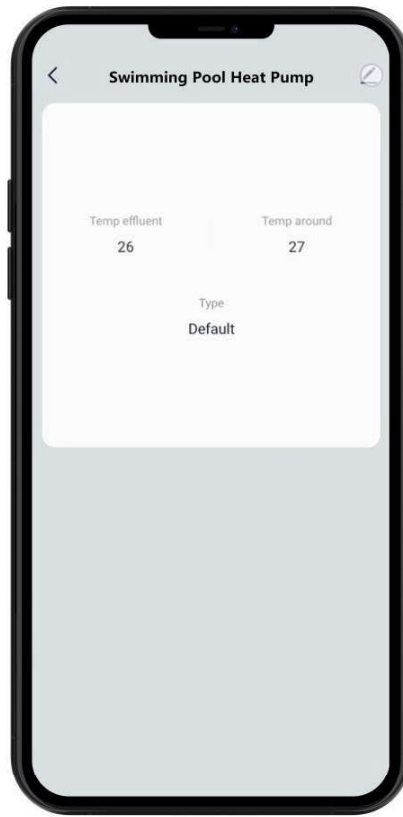




3.5 Operation:



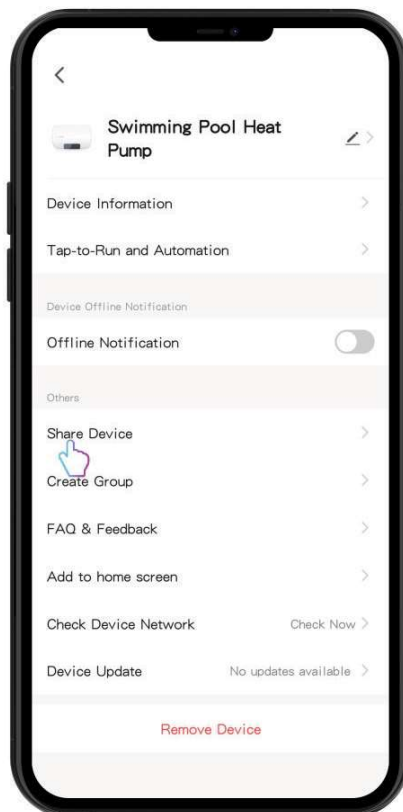
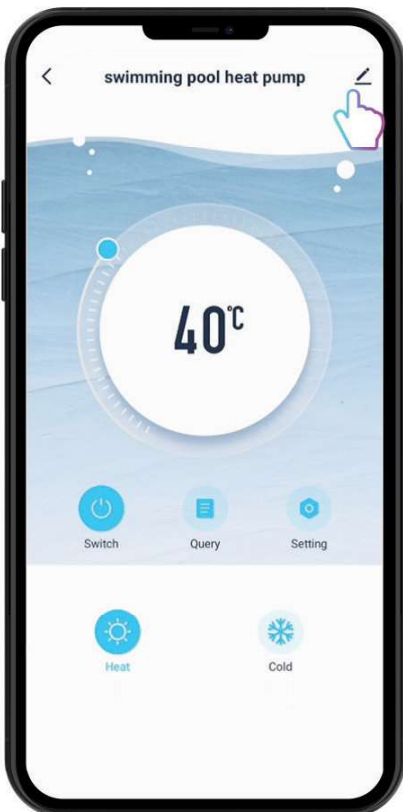
3.5 Operation:



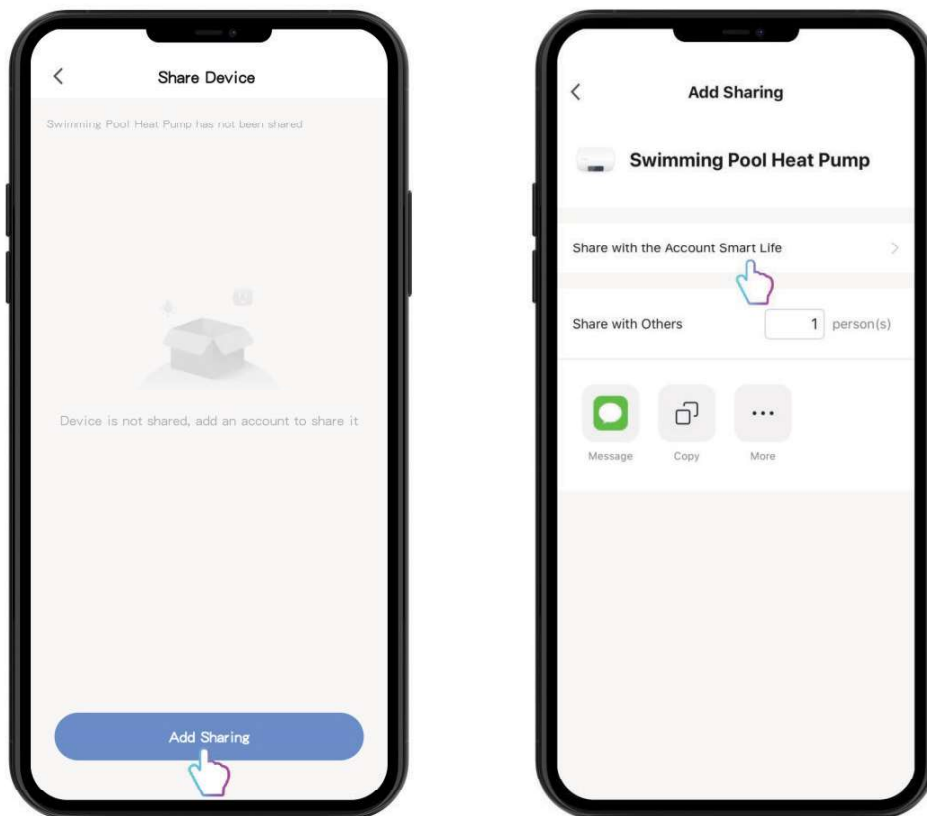
3.6 Share devices to your family members

After Pairing, if your family members also want to control the device.

Please let your family members register the APP first, and then the administrator can operate as below:



3.6 Share devices to your family members



To delete the person being shared, long press the selected user and the delete page will pop up. Click "Delete"

Note:

- 1.If the Wi-Fi signal can not cover the device(Normally 10m-15m),please connect 10m extension cable(optional,not standard configuration)
APP is subject to updating without notice.

11 SERVICE OPERATIONS



This heat pump contains a flammable refrigerant R32.

Any intervention on the refrigerant circuit is prohibited without a valid authorization. Before working on the refrigerant circuit, the following precautions are necessary for safe work.

Only persons authorized by an accredited agency certifying their competence to handle refrigerants in compliance with sector legislation should work on refrigerant circuits.

Servicing shall be performed only as recommended by the manufacturer.

Any person who is involved with working on or breaking into a refrigerant circuit should hold a current valid certificate from an industry-accredited assessment authority, which authorises their competence to handle refrigerants safely in accordance with an industry recognised assessment specification.

Servicing shall only be performed as recommended by the equipment manufacturer. Maintenance and repair requiring the assistance of other skilled personnel shall be carried out under the supervision of the person competent in the use of flammable refrigerants.

1. Checks to the area

Prior to beginning work on systems containing flammable refrigerants, safety checks are necessary to ensure that the risk of ignition is minimised. For repair to the refrigerating system, the following precautions shall be complied with prior to conducting work on the system.

2. Work procedure

The work must be carried out according to a controlled procedure, in order to minimize the risk of presence of flammable gases or vapors during the execution of the works.

3. General work area

All persons in the area must be informed of the nature of the work in progress. Avoid working in a confined area. The area around the work area should be divided, secured and special attention should be paid to nearby sources of flame or heat.

4. Verification of the presence of refrigerant

The area should be checked with a suitable refrigerant detector before and during work to ensure that there is no potentially flammable gas. Make sure that the leak detection equipment used is suitable for flammable refrigerants, i.e. it does not produce sparks, is properly sealed or has internal safety.

5. Presence of fire extinguisher

If hot work is to be performed on the refrigeration equipment or any associated part, appropriate fire extinguishing equipment must be available. Install a dry powder or CO₂ fire extinguisher near the work area.

6. No source of flame, heat or spark

It is totally forbidden to use a source of heat, flame or spark in the direct vicinity of one or more parts or pipes containing or having contained a flammable refrigerant. All sources of ignition, including smoking, must be sufficiently far from the place of installation, repair, removal and disposal, during which time a flammable refrigerant may be released into the surrounding area. Before starting work, the environment of the equipment should be checked to ensure that there is no risk of flammability. «No smoking» signs must be posted.

7. Ventilated area

Make sure the area is in the open air or is properly ventilated before working on the system or performing hot work. Some ventilation must be maintained during the duration of the work.

8. Controls of refrigeration equipment

When electrical components are replaced, they must be suitable for the intended purpose and the appropriate specifications. Only the parts of the manufacturer can be used. If in doubt, consult the technical service of the manufacturer.

The following controls should be applied to installations using flammable refrigerants:

- The size of the load is in accordance with the size of the room in which the rooms containing the refrigerant are installed;
- Ventilation and air vents work properly and are not obstructed;
- If an indirect refrigeration circuit is used, the secondary circuit must also be checked.
- The marking on the equipment remains visible and legible. Illegible marks and signs must be corrected;
- Refrigeration pipes or components are installed in a position where they are unlikely to be exposed to a substance that could corrode components containing refrigerant

9. Verification of electrical appliances

Repair and maintenance of electrical components must include initial safety checks and component inspection procedures. If there is a defect that could compromise safety, no power supply should be connected to the circuit until the problem is resolved.

Initial security checks must include:

- That the capacitors are discharged: this must be done in a safe way to avoid the possibility of sparks;
- No electrical components or wiring are exposed during loading, recovery or purging of the refrigerant gas system;
- There is continuity of grounding.

10. Initial safety checks shall include

- that capacitors are discharged: this shall be done in a safe manner to avoid possibility of sparking;
- that no live electrical components and wiring are exposed while charging, recovering or purging the system;
- that there is continuity of earth bonding.

11. Repairs to sealed components

During repairs to sealed component, all electrical supplies shall be disconnected from the equipment being worked upon prior to any removal of sealed covers, etc. If it is absolutely necessary to have an electrical supply to equipment during servicing, then a permanently operating form of leak detection shall be located at the most critical point to warn of a potentially hazardous situation.

Particular attention shall be paid to the following to ensure that by working on electrical components, the casing is not altered in such a way that the level of protection is affected. This shall include damage to cables, excessive number of connections, terminals not made to original specification, damage to seals, incorrect fitting of glands, etc.

Ensure that apparatus is mounted securely.

Ensure that seals or sealing materials have not degraded such that they no longer serve the purpose of preventing the ingress of flammable atmospheres.

Replacement parts shall be in accordance with the manufacturer's specifications.

NOTE The use of silicon sealant may inhibit the effectiveness of some types of leak detection equipment. Intrinsically safe components do not have to be isolated prior to working on them.

12. Repair to intrinsically safe components

Do not apply any permanent inductive or capacitance loads to the circuit without ensuring that this will not exceed the permissible voltage and current permitted for the equipment in use.

Intrinsically safe components are the only types that can be worked on while live in the presence of a flammable atmosphere. The test apparatus shall be at the correct rating.

Replace components only with parts specified by the manufacturer. Other parts may result in the ignition of refrigerant in the atmosphere from a leak.

13. Cabling

Check that cabling will not be subject to wear, corrosion, excessive pressure, vibration, sharp edges or any other adverse environmental effects. The check shall also take into account the effects of ageing or continual vibration from sources such as compressors or fans.

14. Detection of flammable refrigerants

Under no circumstances shall potential sources of ignition be used in the searching for or detection of refrigerant leaks. A halide torch (or any other detector using a naked flame) shall not be used.

15. Leak detection methods

The following leak detection methods are deemed acceptable for systems containing flammable refrigerants.

Electronic leak detectors shall be used to detect flammable refrigerants, but the sensitivity may not be adequate, or may need re-calibration. (Detection equipment shall be calibrated in a refrigerant-free area. Ensure that the detector is not a potential source of ignition and is suitable for the refrigerant used. Leak detection equipment shall be set at a percentage of the LFL of the refrigerant and shall be calibrated to the refrigerant employed and the appropriate percentage of gas (25% maximum) is confirmed.

Leak detection fluids are suitable for use with most refrigerants but the use of detergents containing chlorine shall be avoided as the chlorine may react with the refrigerant and corrode the copper pipe-work.

If a leak is suspected, all naked flames shall be removed/extinguished.

If a leakage of refrigerant is found which requires brazing, all of the refrigerant shall be recovered from the system, or isolated (by means of shut off valves) in a part of the system remote from the leak. Oxygen free nitrogen (OFN) shall then be purged through the system both before and during the brazing process.

16. Removal and evacuation

When breaking into the refrigerant circuit to make repairs - or for any other purpose - conventional procedures shall be used. However, it is important that best practice is followed since flammability is a consideration. The following procedure shall be adhered to:

1. remove refrigerant;
2. purge the circuit with inert gas;
3. evacuate;
4. purge again with inert gas;
5. open the circuit by cutting or brazing.

The refrigerant charge shall be recovered into the correct recovery cylinders. The system shall be "flushed" with OFN to render the unit safe. This process may need to be repeated several times. Compressed air or oxygen shall not be used for this task.

Flushing shall be achieved by breaking the vacuum in the system with OFN and continuing to fill until the working pressure is achieved, then venting to atmosphere, and finally pulling down to a vacuum. This process shall be repeated until no refrigerant is within the system. When the final OFN charge is used, the system shall be vented down to atmospheric pressure to enable work to take place. This operation is absolutely vital if brazing operations on the pipe work are to take place.

Ensure that the outlet for the vacuum pump is not close to any ignition sources and there is ventilation available.

17. Charging procedures

In addition to conventional charging procedures, the following requirements shall be followed.

- Ensure that contamination of different refrigerant does not occur when using charging equipment. Hoses or lines shall be as short as possible to minimize the amount of refrigerant contained in them.
- Cylinders shall be kept upright.
- Ensure that the refrigeration system is earthed prior to charging the system with refrigerant.
- Label the system when charging is complete (if not already).
- Extreme care shall be taken not to overfill the refrigeration system.

Prior to recharging the system it shall be pressure tested with OFN. The system shall be tested on completion of charging but prior to commissioning. A follow up leak test shall be carried out prior to leaving the site.

18. Decommissioning

Before carrying out this procedure, it is essential that the technician is completely familiar with the equipment and all its detail. It is recommended good practice that all refrigerants are recovered safely. Prior to the task being carried out, an oil and refrigerant sample shall be taken in case analysis is required prior to re-use of reclaimed refrigerant. It is essential that electrical power is available before the task is commenced.

- a) Become familiar with the equipment and its operation.
- b) Isolate system electrically.
- c) Before attempting the procedure ensure that.
 - 1. mechanical handling equipment is available, if required, for handling refrigerant cylinders:
 - 2. all personal protective equipment is available and being used correctly
 - 3. the recovery process is supervised at all times by a competent person;
 - 4. recovery equipment and cylinders conform to the appropriate standards.
- d) Pump down refrigerant system. if possible.
- e) If a vacuum is not possible, make a manifold so that refrigerant can be removed from various parts of the system.
- f) Make sure that cylinder is situated on the scales before recovery takes place.
- g) Start the recovery machine and operate in accordance with manufacturers instructions.
- h) Do not overfill cylinders. (No more than 80 volume liquid charge).
- i) Do not exceed the maximum working pressure of the cylinder, even temporarily.
- j) When the cylinders have been filled correctly and the process completed, make sure that the cylinders and the equipment are removed from site promptly and all isolation valves on the equipment are closed off.
- k) Recovered refrigerant shall not be charged into another refrigeration system unless it has been cleaned and checked.

19. Labeling

Equipment shall be labeled stating that it has been de-commissioned and emptied of refrigerant. The label shall be dated and signed. Ensure that there are labels on the equipment stating the equipment contains flammable refrigerant.

20 Recovery

When removing refrigerant from a system, either for the servicing or decommissioning, it is recommended good practice that all refrigerants are removed safely.

When transferring refrigerant into cylinders, ensure that only appropriate refrigerant recovery cylinders are employed. Ensure that the correct number of cylinders for holding the total system charge are available. All cylinders to be used are designate for the recovered refrigerant and labeled for that refrigerant (i.e. special cylinders for the recovery of Refrigerant). Cylinders shall be complete with pressure relief valve and associated shut-off valves in good working order. Empty recovery cylinders are evacuated and, if possible, cooled before recovery occurs.

The recovery equipment shall be in good working order with a set of instructions concerning the equipment that is at hand and shall be suitable for the recovery of flammable refrigerants. In addition, a set of calibrated weighing scales shall be available and in good working order. Hoses shall be complete with leak-free disconnect couplings and in good condition. Before using the recovery machine, check that it is in satisfactory working order, has been properly maintained and that any associated electrical components are sealed to prevent ignition in the event of a refrigerant release. Consult manufacturer if in doubt.

The recovered refrigerant shall be returned to the refrigerant supplier in the correct recovery cylinder, and the relevant Waste Transfer Note arranged. Do not mix refrigerants in recovery units and especially not in cylinders.

If compressors or compressor oils are to be removed, ensure that they have been evacuated to an acceptable level to make certain that flammable refrigerant does not remain within the lubricant. The evacuation process shall be carried out prior to returning the compressor to the suppliers. Only electric heating to the compressor body shall be employed to accelerate this process.

When oil is drained from a system, it shall be carried out safely.

