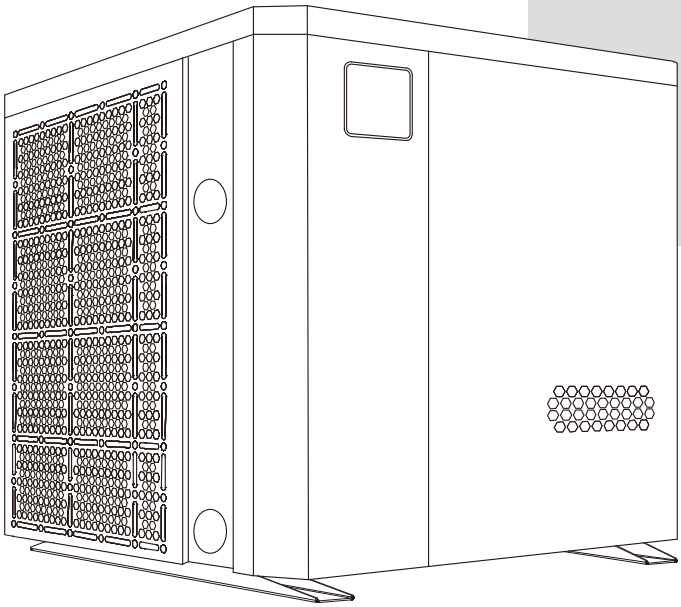
FAIRLAND®
HEATPUMP SPECIALIST

INSTALLATION AND USER MANUAL

Thank you for choosing Fairland Full-inverter heat pump. This manual provides you necessary information for optimal use and maintenance, please read it carefully and keep it for subsequent use.



CONTENT

PLEASE READ CAREFULLY AND KEEP FOR SUBSEQUENT USE

This manual provides you necessary information for optimal use and maintenance

Warning：

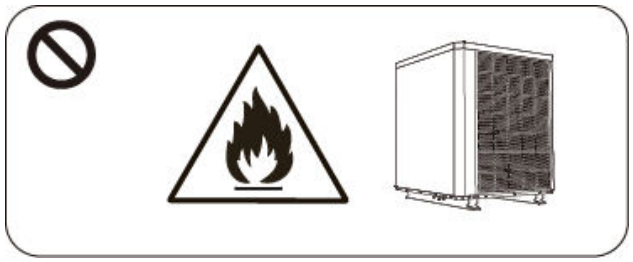
a. Please read the following tips before installation, use and maintenance.
b. Installation, removal and maintenance must be operated by a responsible person in accordance with the instructions.

1. Use

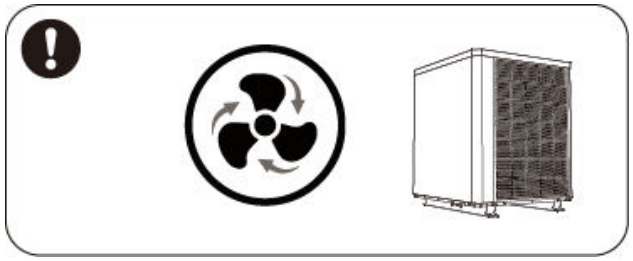
Don’t put articles on the heat pump, do not block the air outlet.

2.Installation

a. This product must be kept away from any source of fire.



b. The installation can’t be in a closed environment or indoors, and must be kept well ventilated.



3. Transportation & Storage.

a. Secure load for transportation.
b. This product must be stored away from any source of fire.

4. Maintenance notice

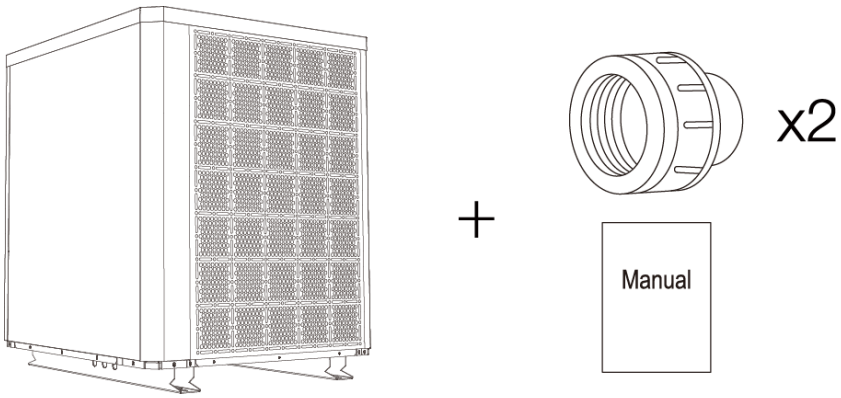
a. For repair or scrap, please contact an authorized service centre.

b. Only qualified Service Technicians are permitted to carry any service work on heat pump.

1. GENERAL INFORMATION

1.1. Components:

After unpacking, please check that all the following components are complete.



1.2. Operating conditions and range:

ITEMS		RANGE
Operating range	Air temp	-7℃～43℃
Temp. setting	heating	18℃～40℃
	cooling	12℃～30℃

1.3. Benefits in different modes:

The heat pump has three modes: Booster, Smart and Silence, which have different advantages under different conditions.

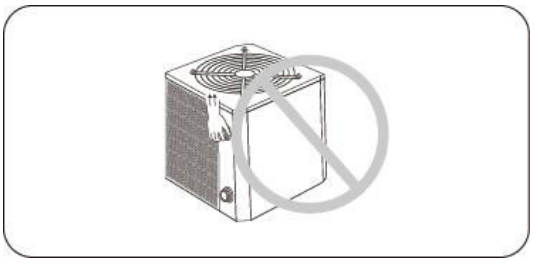
MODE	ADVANTAGES
Booster mode	Heating capacity: 120% Fast heating
Smart mode	Heating capacity: 100%~20% Intelligent optimization according to ambient temperature and water temperature Energy efficient saving
Silence mode	Heating capacity: 80%~20% Use at night

1.4. Cautions：

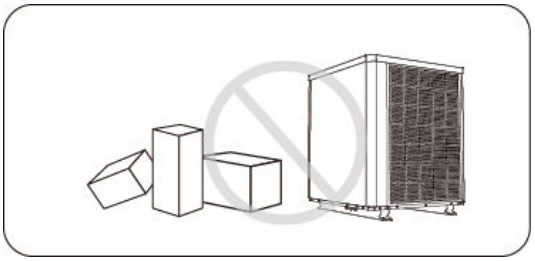
⚠This heat pump has Power-off memory function. When the power is returned, the heat pump will restart automatically.

1.4.1. The heat pump can only be used to heat the pool water. **It can NEVER** be used to heat other flammable or turbid liquid.

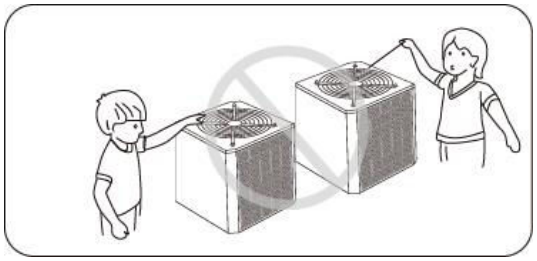
1.4.2. Avoid catching the water union when moving the heat pump to avoid the titanium heat exchanger damage.



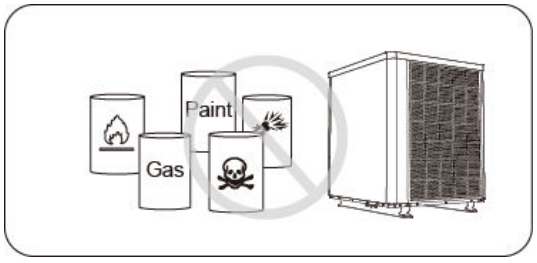
1.4.3. Don't put obstacles in front of the air inlet and outlet of the heat pump. Otherwise, heating efficiency will be sharply reduced, even stopping the system.



1.4.4. Do not put anything into inlet or outlet, do not remove fan cover.

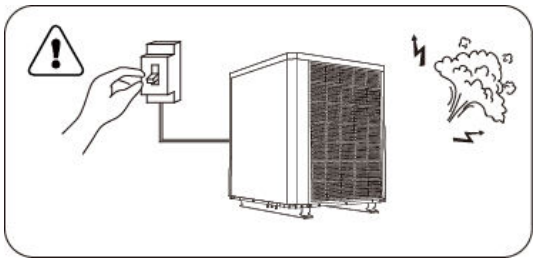


1.4.5. Do not use or store combustible gas or liquid such as thinners, paint and fuel to avoid fire.

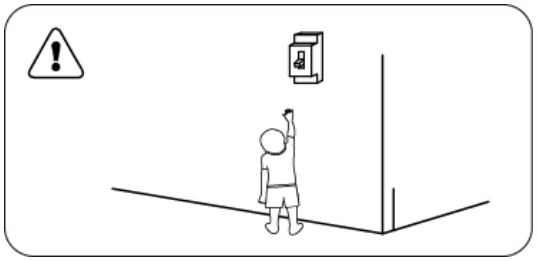


1.4.6. If any abnormal circumstances occurred, **e.g.: abnormal noises, smells, smokes and**

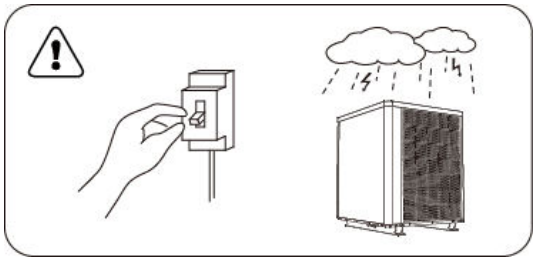
leakage of electricity, please switch off the main power immediately and contact your local dealer. Do not try to repair the heat pump by yourself.



1.4.7. The main power switch should be out of the reach of Children.



1.4.8. Cut off the power in a lightning storm, power surges can damage heat pumps.



1.4.9. Please note that the following codes are no failure codes.

	CODES
No water flow	E3
Anti-Freezing Reminder	Ed
Out of the operating temp. range	Eb
Insufficient water flow or pump blocked	E6
Abnormal outdoor power supply	E5

2. OPERATIONS

2.1. Notice before use

2.1.1. Ensure no water is leaking on piping system before use, then unlock screen and press to power on heat pump.

2.2 Operation instructions

SYMBOL	DESIGNATION	FUNCTION
	ON/OFF	Power On/Off
	Unlock	1. Press for 3 seconds to unlock/lock screen 2. After screen is unlocked, press to select mode. Auto (12~40℃) Heating (18~40℃) Cooling (12~30℃)
	Speed	Select Booster/Smart mode/Silence mode
▲▼	Up / Down	Adjust set temperature

Note:

①Screen lock:

a. If no operation in 30 seconds, screen will be locked.

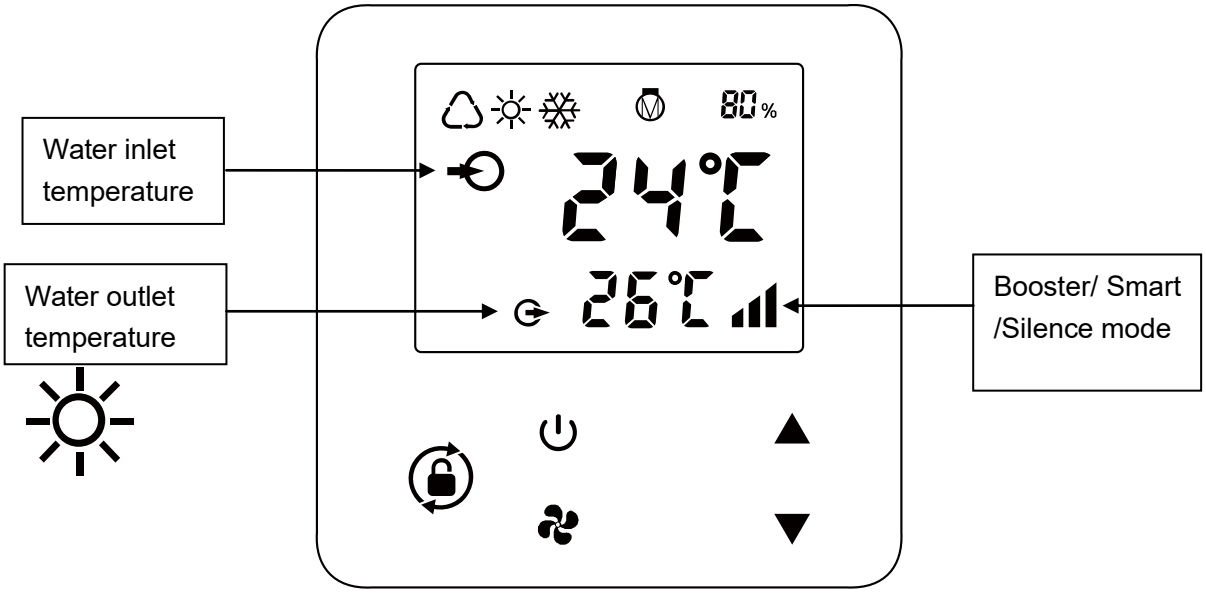
b. When HP is off, screen will be dark and "0%" will be displayed.

c. Press for 3 seconds to lock screen and it will go dark.

②Screen unlock:

a. Press for 3 seconds to unlock screen and it will be light up.

b. After screen is unlocked, any buttons will be functional.



	Auto
	Heating
	Cooling
	Compressor
80%	Heating capacity percentage

1.Power On: Press for 3 seconds to light up screen, then press to power on heat pump.

2.Adjust Set Temperature: When screen is unlocked, press ▲ or ▼to display or adjust the set temperature.

3. Mode Selection: Press to select mode.

a. Auto : adjustable temperature range 12~40℃

b. Heating : adjustable temperature range 18~40℃

c. Cooling : adjustable temperature range 12~30℃

4.Booster/Smart/Silence mode selection:

① Smart mode as default will be activated when heat pump is on, and screen shows .

② Press to enter Booster mode, and screen shows , then press to enter Silence mode, the screen shows . Press again, the screen shows and returns to Smart mode.

Attention:
a. When using the booster mode, you will need to select it every time, the heat pump will not automatically enter the booster mode.
b. During the booster mode, when the heat pump reaches the set temperature, it will automatically return to the smart mode.

5. Defrosting

a. Auto Defrosting: When heat pump is defrosting, will be flashing. After defrosting, will stop flashing.

b. Compulsory Defrosting: When heat pump is heating, press and ▼ together for 5 seconds to start compulsory defrosting, and will be flashing. After defrosting, will stop flashing.

(Note: Compulsory defrosting intervals should be more than 30 minutes and the compressor should run for more than 10 minutes.)

2.3. Daily maintenance and winterizing

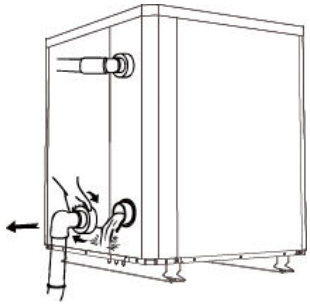
2.3.1. Daily maintenance

⚠ Cut off power supply of the heat pump when performing daily maintenance

- Clean the evaporator with household detergents or clean water, NEVER use gasoline, thinners or any similar fuel.
- Check bolts, cables and connections regularly.

2.3.2. Winterizing

In winter season when you do not swim, cut off power supply and drain water out of the heat pump.



⚠Important:

Unscrew the water union 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.

3. TECHNICAL SPECIFICATION

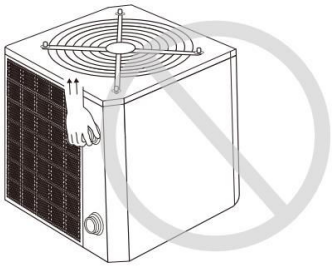
Model	IPHCR13V	IPHCR17V	IPHCR21V
Operating air temperature (℃)	-7~43		
Performance Condition: Air 26°C, Water 26°C, Humidity 80%			
Booster (kw)	16.2	20.5	26.5
COP at Booster	6.5	6.2	6.0
Heating capacity (kw)	13.5	17.2	22.0
COP	14.6~7.5	15.1~7.0	14.6~6.8
COP at 50% capacity	11.5	11.6	11.2
Performance Condition: Air 15°C, Water 26°C, Humidity 70%			
Booster (kw)	12.0	15.0	19.0
COP at Booster	4.9	4.7	4.4
Heating capacity (kw)	9.8	12.5	16.0
COP	7.3~5.3	7.4~5.0	7.3~4.7
COP at 50% capacity	6.6	6.7	6.2
Performance Condition: Air 35°C, Water 28°C, Humidity 80%			
Cooling capacity (kw)	7.5	8.5	11.2
Sound pressure at 1m dB(A)	41.5~55.2	43.3~53.9	41.0~54.4
Sound pressure at 10m dB(A)	21.5~35.2	23.3~33.9	21.0~34.4
Power supply	230V/1 Ph/50Hz		
Rated input power at air 15°C (kw)	0.34~2.45	0.42~3.19	0.55~4.32
Rated input current at air 15°C (A)	1.48~10.7	1.83~13.9	2.40~18.8
Advised water flux (m^3/h)	5~7	6.5~8.5	8~10
Water pipe in-out size (mm)	50		
Net Dimension LxWxH (mm)	776x687x656	776x687x656	776x687x755
Net weight (kg)	65	72	88

- *The values indicated are valid under ideal conditions: Pool covered with an isothermal cover.*
- *Related parameters are subject to adjustment periodically for technical improvement without further notice. For details please refer to nameplate.*

1. TRANSPORTATION

1.1. When storing or moving the heat pump, the heat pump should be at the upright position. Otherwise the heat pump can be damaged and will not work.

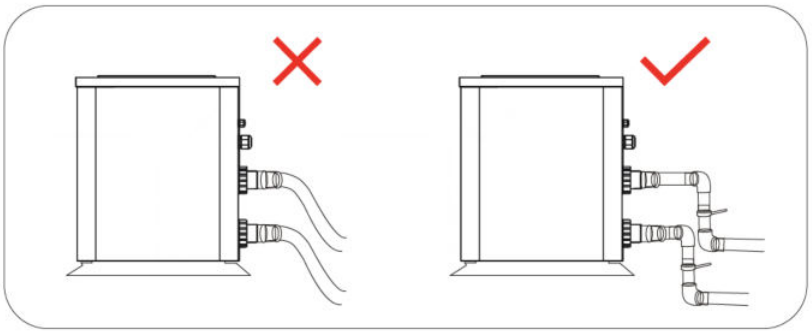
1.2. When moving the heat pump, do not lift or hold the water union to avoid the titanium heat exchanger damage.



2. INSTALLATION AND MAINTENANCE

2.1.Before installation:

2.1.1. The inlet and outlet water unions **can not** bear the weight of soft pipes. The heat pump must be connected with hard pipes!



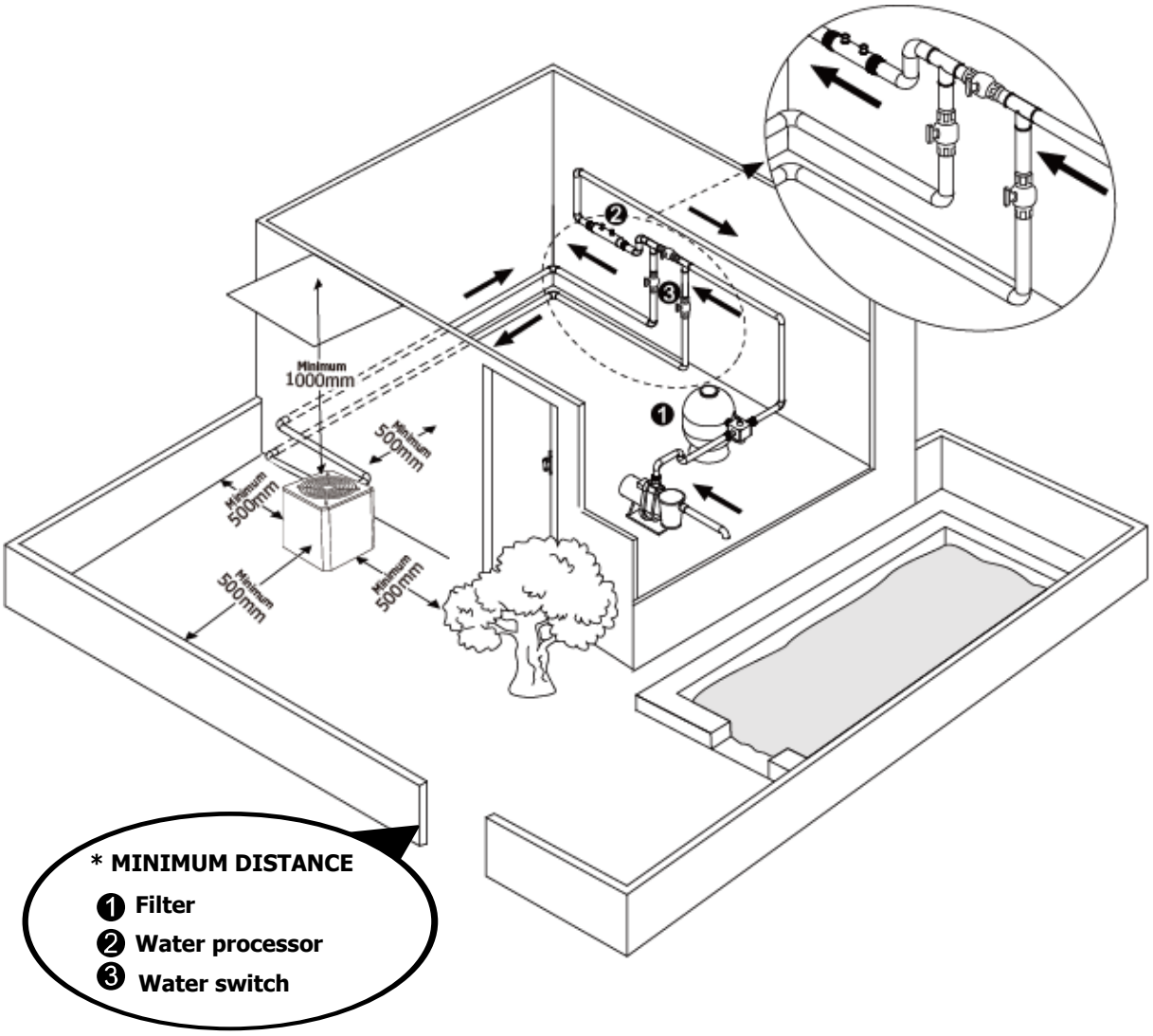
2.1.2. In order to guarantee the heating efficiency, the water pipe length should be **≤10m** between the pool and the heat pump.

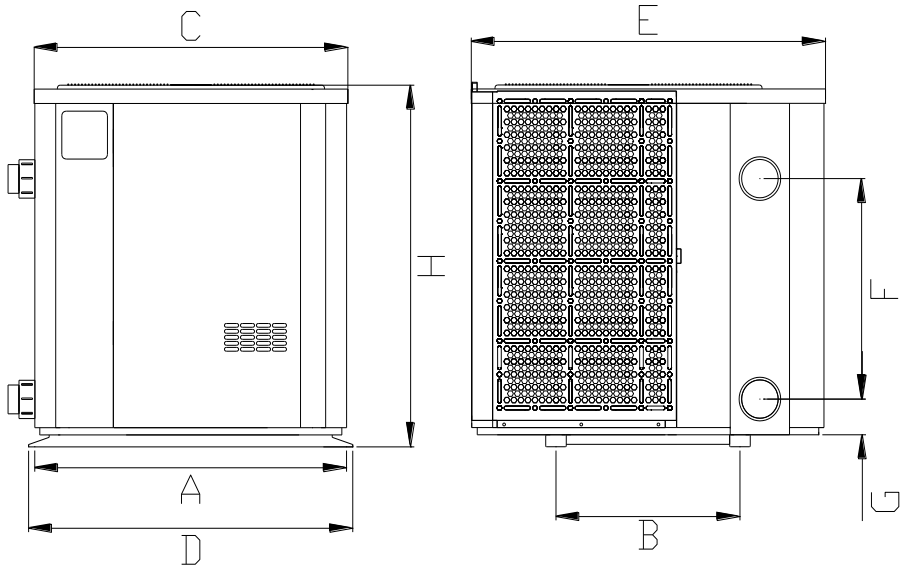
2.2.Installation instruction

2.2.1. Water pipes connection and distance sketch

⚠To avoid air recirculation, the heat pump should be installed in a place with good ventilation or should reserve sufficient space for installation and maintenance. Please refer to below:

A distance at least 500 mm is required between the heat pump and the walls, shrubs, equipment, etc. This will provide sufficient intake air. In order to prevent air recirculation, the gap of air outlet should not be less than 1000 mm. We do not recommend placing the unit under the eaves, deck or porch as this will result in recirculation of the exhaust air or low efficiency of the heater, even seize.





	UNIT=MM	A	B	C	D	E	F	G	H
MODEL	IPHCR13V	685	403	687	710	776	340	75	656
	IPHCR17V	685	403	687	710	776	390	75	656
	IPHCR21V	685	403	687	710	776	460	75	756

Above data is subject to modification without notice.

2.2.2.Heat pump installation

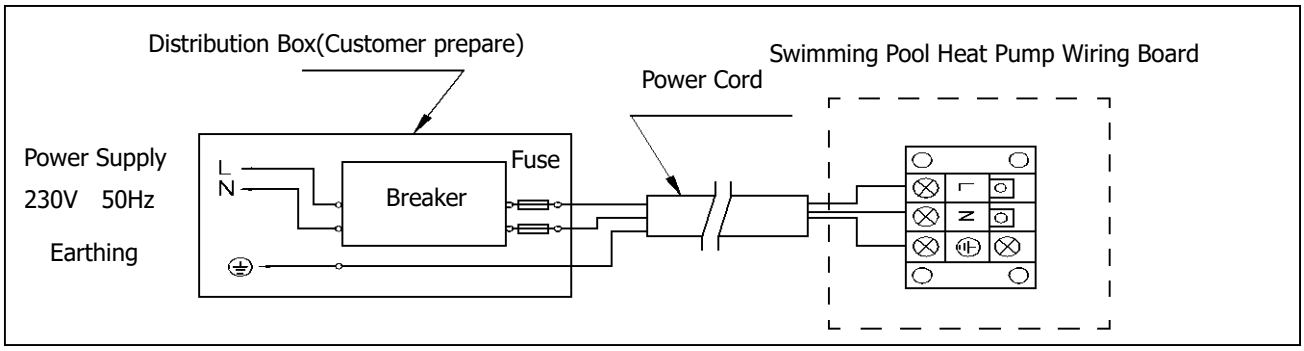
- The frame must be fixed by bolts to concrete foundation or brackets. The concrete foundation must be solid.
- The heat pump needs a water pump **(Supplied by the user)**. The recommended pump specification-flux: refer to Technical Parameter, Max. lift **≥10m.**
- When the heat pump is running, there will be condensation water discharged from the bottom .

2.2.3. Wiring & protecting devices and cable specification

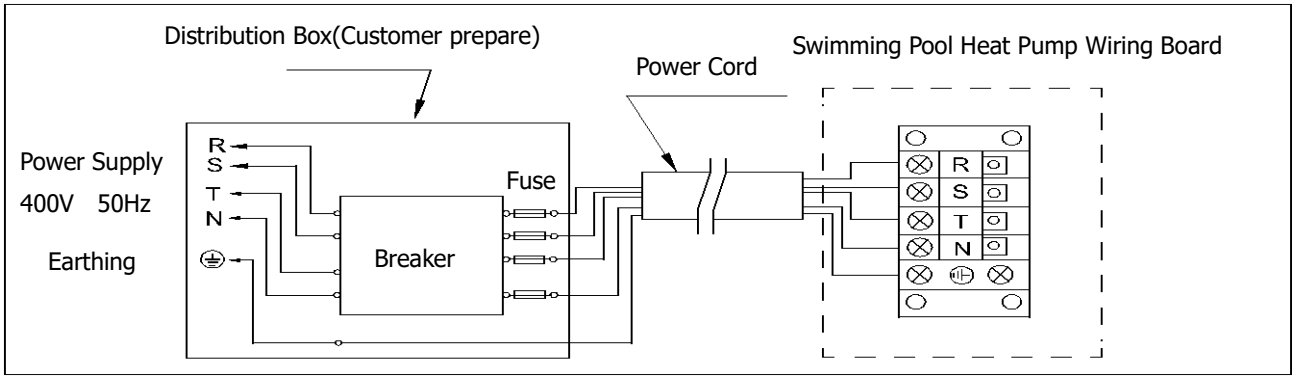
- Connect to appropriate power supply, the voltage should comply with the rated voltage of the products.
- It should be well resistance grounding.
- Wiring must be connected by a professional technician according to the circuit diagram.
- Set breaker or fuse according to the local code (leakage operating current **≤ 30mA**).

1.Wiring diagram

A. For power supply: 230V 50Hz



B. For power supply: 400V 50Hz



NOTE:

Must be hard wired, no plug allowed.

For the detailed wiring diagram, please refer to Appendix 1.

2.Options for protecting devices and cable specification

MODEL		IPHCR13V	IPHCR17V	IPHCR21V
Breaker	Rated Current A	16	21	24
	Rated Residual Action Current mA	30	30	30
Fuse A		16	21	24
Power Cord（mm^2）		3×2.5	3×4	3×6
Signal cable（mm^2）		3×0.5	3×0.5	3×0.5

NOTE: The above data is adapted to power cord ≤ 10m. If power cord is ＞10m, wire diameter must be increased. The signal cable can be extended to 50m at most.

2.3.Trial after installation

⚠Please check all the wirings carefully before turning on the heat pump.

2.3.1. Inspection before use

- Please check if the heat pump is well installed, and check the pipe connections in accordance to the pipe diagram.
- Check the electric wiring in accordance to the electrical wiring diagram and check the earthing connection;
- Make sure that the main power is well connected;
- Check there isn't any obstacle in front of the air inlet and outlet of the heat pump

2.3.2. Trial

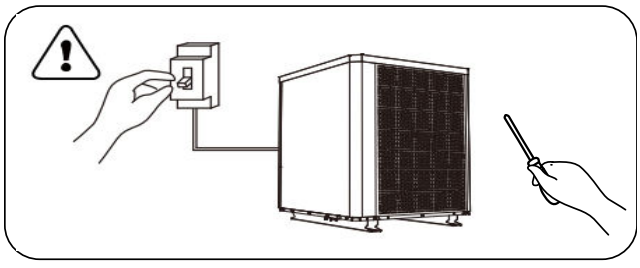
- The user is advised to start the water pump before the heat pump works, and turn off the heat pump before the water pump off in order to avoid heat pump damage.
- The user should start the water pump, and check for any leakage of water; Power on and press the ON/OFF button of the heat pump, and set desired temperature in the thermostat.
- In order to protect the heat pump, the heat pump is equipped with start delay function. When starting the heat pump, the fan will start to run in 3 minutes, in another 30 seconds, the compressor will start to run.
- After pool heat pump starts up, check for any abnormal noise from the heat pump.
- Check the temperature setting.

2.4.Maintenance and winterizing

2.4.1 Maintenance

⚠The maintenance should be carried out once per year by qualified professional technician.

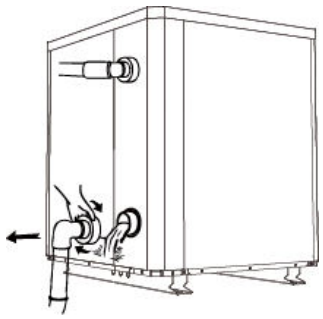
- Cut off power supply of the heat pump before cleaning, examination and repairing. Do not touch the electronic components until the LED indication lights on PCB turns off.



- Please clean the evaporator with household detergents or clean water, NEVER use gasoline, thinners or any similar fuel.
- Check bolts, cables and connections regularly.

2.4.2 Winterizing

In winter season when you don't swim, please cut off power supply and drain water out of the heat pump. When using the heat pump under 2°C, make sure there is always water flow.



⚠Important:

Unscrew the water union 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.

3.TROUBLE SHOOTING FOR COMMON FAULTS

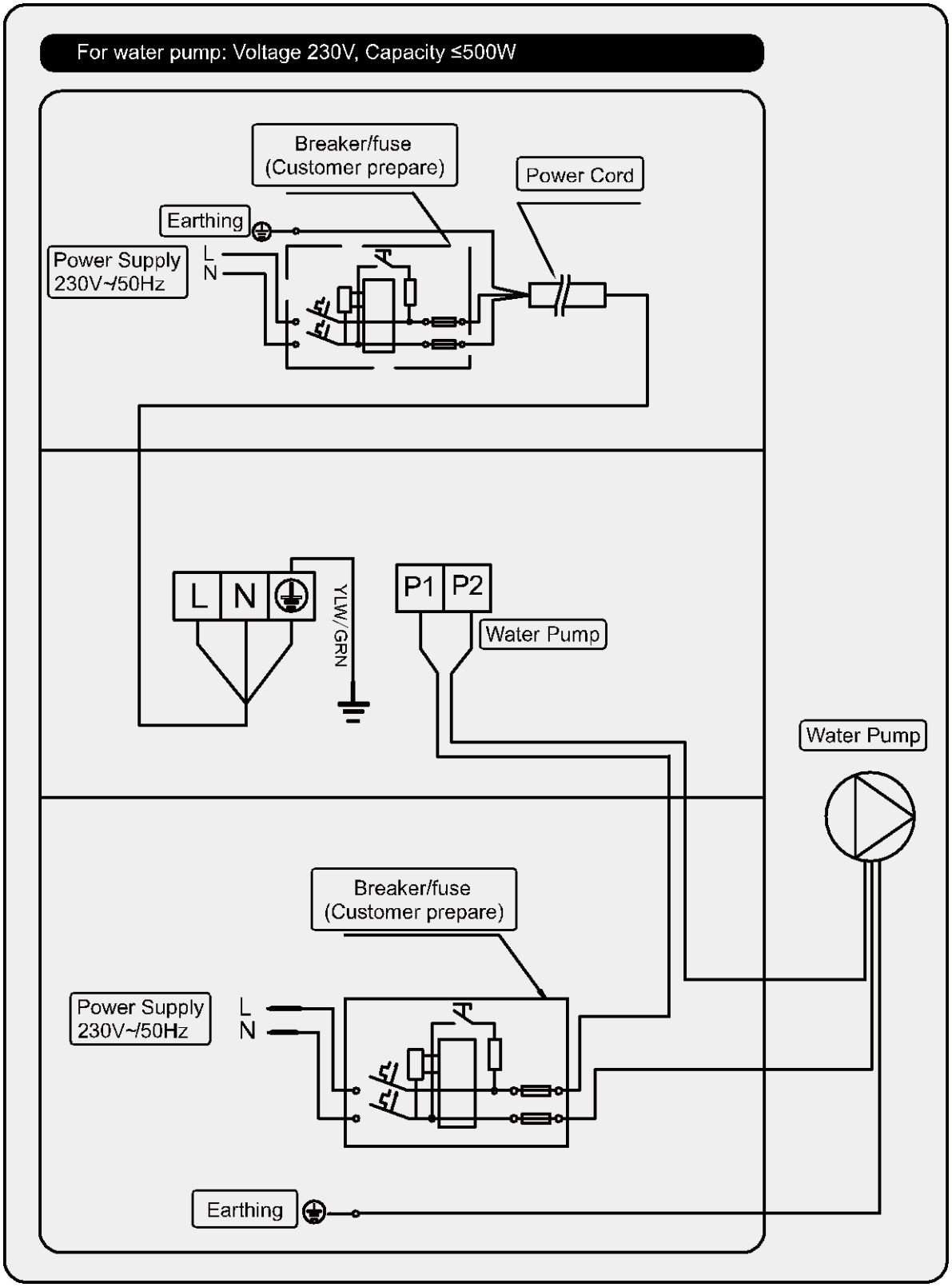
FAILURE	REASON	SOLUTION
Heat pump doesn't run	power cut	Wait until the power recovers
	Power switch is off	Switch on
	Fuse burned	Check and change the fuse
	The breaker is off	Check and turn on the breaker
Fan running but with insufficient heating	evaporator blocked	Remove the obstacles
	Air outlet blocked	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 by yourself.		

ATTENTION！ Please don't try to repair the heat pump by yourself to avoid any risk.

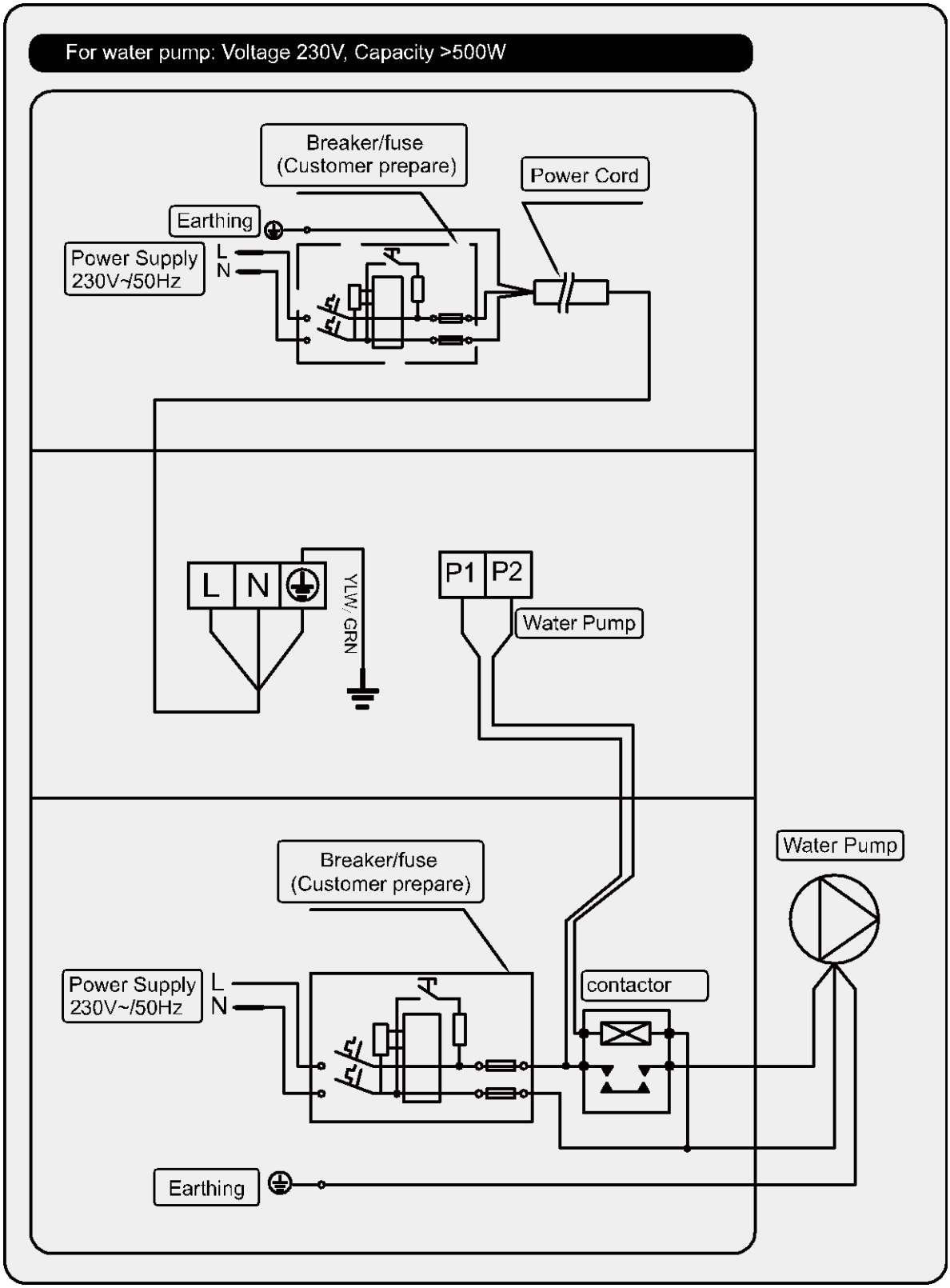
4. FAILURE CODE

NO.	DISPLAY	NOT FAILURE DESCRIPTION
1	**E3**	No water protection
2	**E5**	Power supply excesses operation range
3	**E6**	Excessive temp difference between inlet and outlet water (Insufficient water flow protection)
4	**Eb**	Ambient temperature too high or too low protection
5	**Ed**	Anti-freezing reminder
NO.	**DISPLAY**	**FAILURE DESCRIPTION**
1	**E1**	High pressure protection
2	**E2**	Low pressure protection
3	**E4**	3 phase sequence protection (three phase only)
4	**E7**	Water outlet temp too high or too low protection
5	**E8**	High exhaust temp protection
6	**EA**	Evaporator overheat protection (only at cooling mode)
7	**P0**	Controller communication failure
8	**P1**	Water inlet temp sensor failure
9	**P2**	Water outlet temp sensor failure
10	**P3**	Gas exhaust temp sensor failure
11	**P4**	Evaporator coil pipe temp sensor failure
12	**P5**	Gas return temp sensor failure
13	**P6**	Cooling coil pipe temp sensor failure
14	**P7**	Ambient temp sensor failure
15	**P8**	Cooling plate sensor failure
16	**P9**	Current sensor failure
17	**PA**	Restart memory failure
18	**F1**	Compressor drive module failure
19	**F2**	PFC module failure
20	**F3**	Compressor start failure
21	**F4**	Compressor running failure
22	**F5**	Inverter board over current protection
23	**F6**	Inverter board overheat protection
24	**F7**	Current protection
25	**F8**	Cooling plate overheat protection
26	**F9**	Fan motor failure
27	**Fb**	Power filter plate No-power protection
28	**FA**	PFC module over current protection

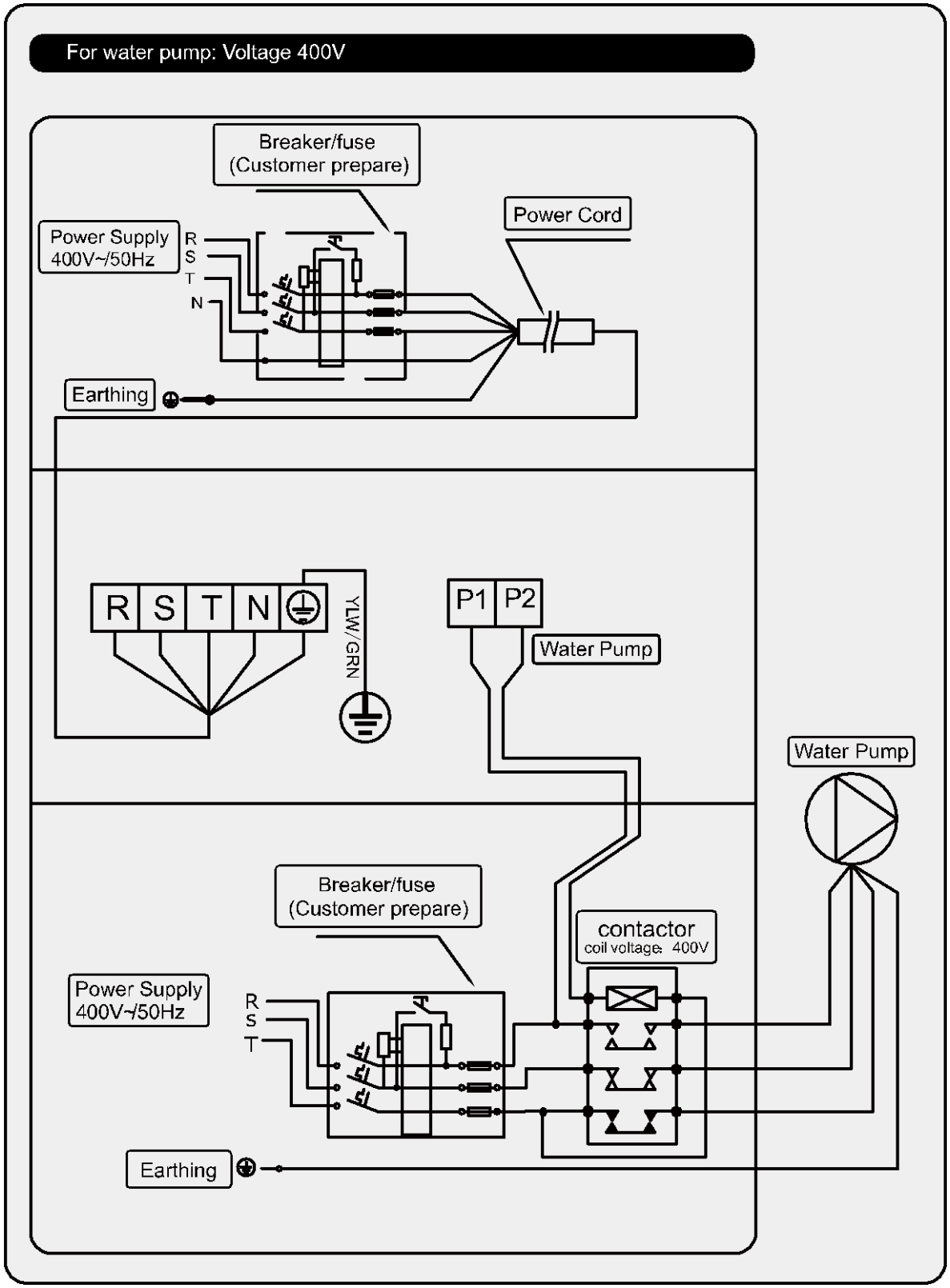
APPENDIX 1：HEATING PRIORITY WIRING DIAGRAM (OPTIONAL)



APPENDIX 2 : HEATING PRIORITY WIRING DIAGRAM(OPTIONAL)

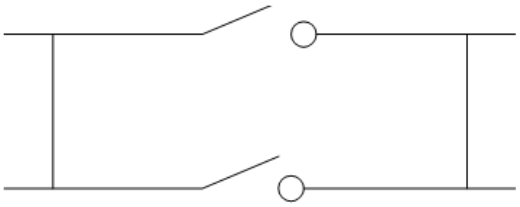


APPENDIX 3：HEATING PRIORITY WIRING DIAGRAM(OPTIONAL)



Parallel connection with filtration clock

A: Water pump timer



B: Water pump wiring of Heat Pump

Note: The installer should connect A parallel with B (refer to the picture above). To start the water pump, condition A or B is connected. To stop the water pump, both A and B should be disconnected.