



INVERMAX
INVERTER POOL HEAT PUMP



USER MANUAL

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A. 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!

B. Safety Precautions

We have provided important safety messages in this manual and on your heater. Please always read and obey all safety messages.

1. 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.

2. Attention

- a. Set proper temperature in order to get comfortable water temperature to avoid overheating or overcooling.
- b. Please don't stack substances, which will block air flow near inlet or outlet area, otherwise the efficiency of the heater will be reduced or even stopped.
- c. Don't use or stock combustible gas or liquid such as thinners, paint and fuel to avoid fire.
- d. In order to optimize the heating effect, please install heat preservation insulation on pipes between swimming pool and the heater, and please use a recommended cover on the swimming pool.
- e. Connecting pipes of the swimming pool and the heater should be $\leq 10\text{m}$.
- f. This unit can only be installed outdoors.
- g. This unit can only be connected to a power source with a single complete power cord.
- h. This unit contains fluorinated greenhouse gas.

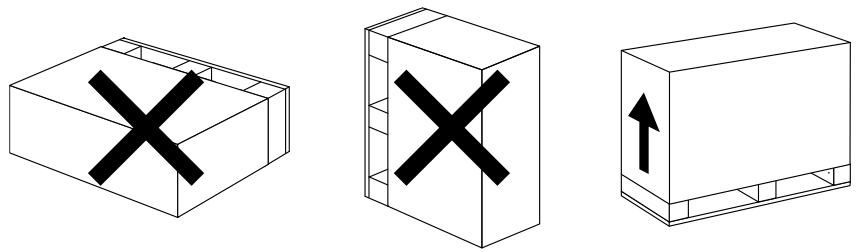
3. Safety

- 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 heater will start up.
- c. Please switch off the main power supply in lightning and storm weather to prevent from machine damage that caused by lightning.
- d. Installation and any repairing should be conducted in the area with good ventilation. The ignition source is prohibited during the operation.
- e. Do not put your hands or any sticks or other objects into the air outlet of the unit, and do not remove the fan cover or the running fan. Otherwise, the high-speed fan may cause injury.
- f. When abnormalities are found, such as abnormal noise, odor, smoke, power leakage, etc., immediately cut off the power supply and contact your local dealer. Do not repair the machine by yourself.

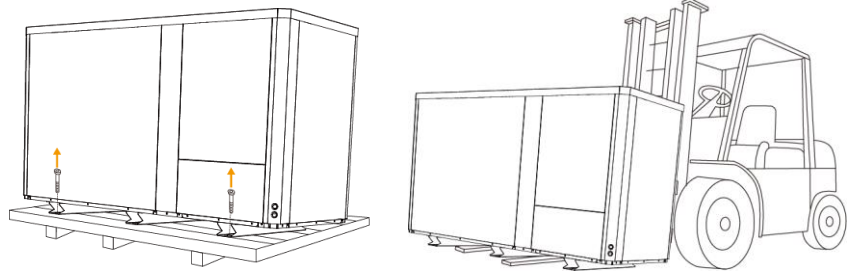
C. About your heat pump

1. Transportation

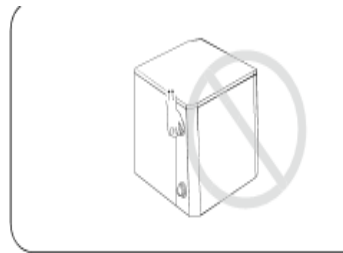
a. Always keep upright



b. Loose the screws in the bottom, and use the forklift to transport.

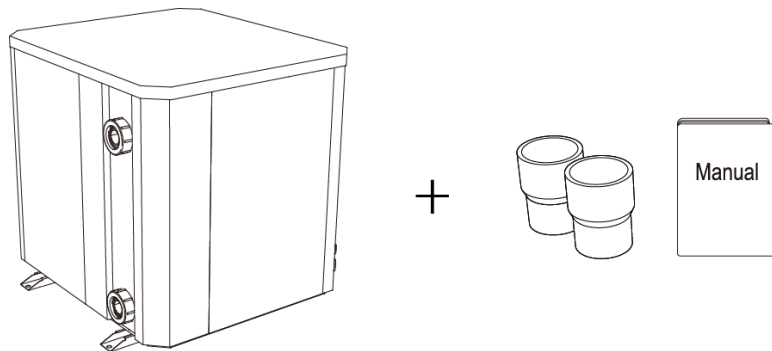


c. Do not lift the water union, otherwise, the titanium heat exchanger inside the heat pump may be damaged.

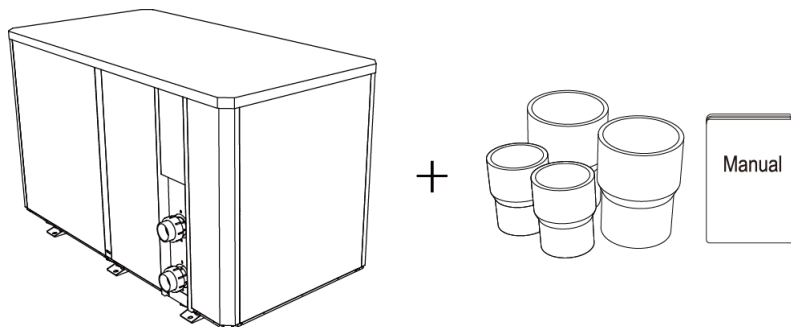


2. Accessories:

IM60



IM115





3. Operating condition and range:

To provide you comfort and pleasure, please set swimming pool water temperature efficiently and economically.

The heat pump can work between air $-10^{\circ}\text{C} \sim 43^{\circ}\text{C}$, and its ideal operation range is between air $15^{\circ}\text{C} \sim 25^{\circ}\text{C}$.

4. Introduction of different modes:

- a. The heat pump has two modes: Boost and Silence.
- b. They have different strengths under different conditions.

Mode	Modes	Strength
	Boost mode	Heating capacity: 20% to 100% capacity Intelligent optimization Fast heating
	Silence mode	Heating capacity: 20% to 80% capacity Sound level: 3dB (A) lower than Boost mode

5. Technical parameter

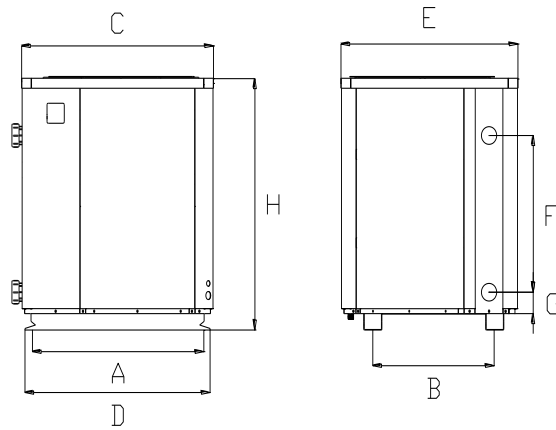
Model	IM60	IM115
PERFORMANCE CONDITION: Air 27°C/ Water 27°C/ Humid. 80%		
Heating capacity (kW)	60	115
Average COP at 50% Speed	10.5	10.8
PERFORMANCE CONDITION: Air 15°C/ Water 26°C/ Humid. 70%		
Heating capacity (kW)	40.1	85
Average COP at 50% Speed	6.8	7
TECHNICAL SPECIFICATIONS		
Advised pool volume (m ³) *	125~260	250~520
Operating air temperature (°C)	-10°C~43°C	
Fan direction	Vertical	
Power supply	400V 3N~, 50Hz	
Rated input power (kW)	2.13~8.53	4.43~17.7
Rated input current (A)	3.08~12.36	6.42~25.65
Max input current (A)	19	42
Circuit breaker (A)	25	50
Sound level at 10m dB(A)	33.0~41.0	35.0~44.0
Advised water flux (m ³ /h)	20~25	40~50
Water connection (mm)	75	110
Net dimension LxWxH (mm)	1000x1110x1260	2100x1090x1280
Net Weight (kg)	243	431
R410 gas weight (g)	6500	12000
GWP	2088	
CO2 Equivalent (Tonnes)	13.57	25.06

Remarks:

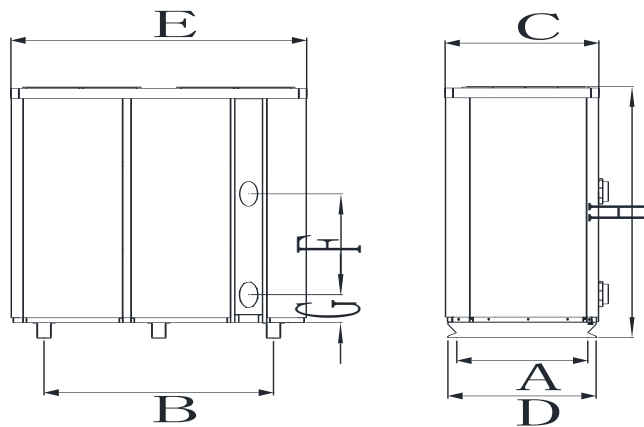
This heat pump is able to perform normal within air temp -10°C~43°C, efficiency will not be guaranteed out of this range. Please take into consideration that the pool heater performance and parameters are different under various conditions.

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

6. Dimension



Size (mm)	Name	A	B	C	D	E	F	G	H
Model									
	IM60	1010	705	1110	1070	1023	790	97	1260



Size (mm)	Name	A	B	C	D	E	F	G	H
Model									
	IM115	1010	1630	1090	1050	2100	515	140	1280

D. Installation guidance

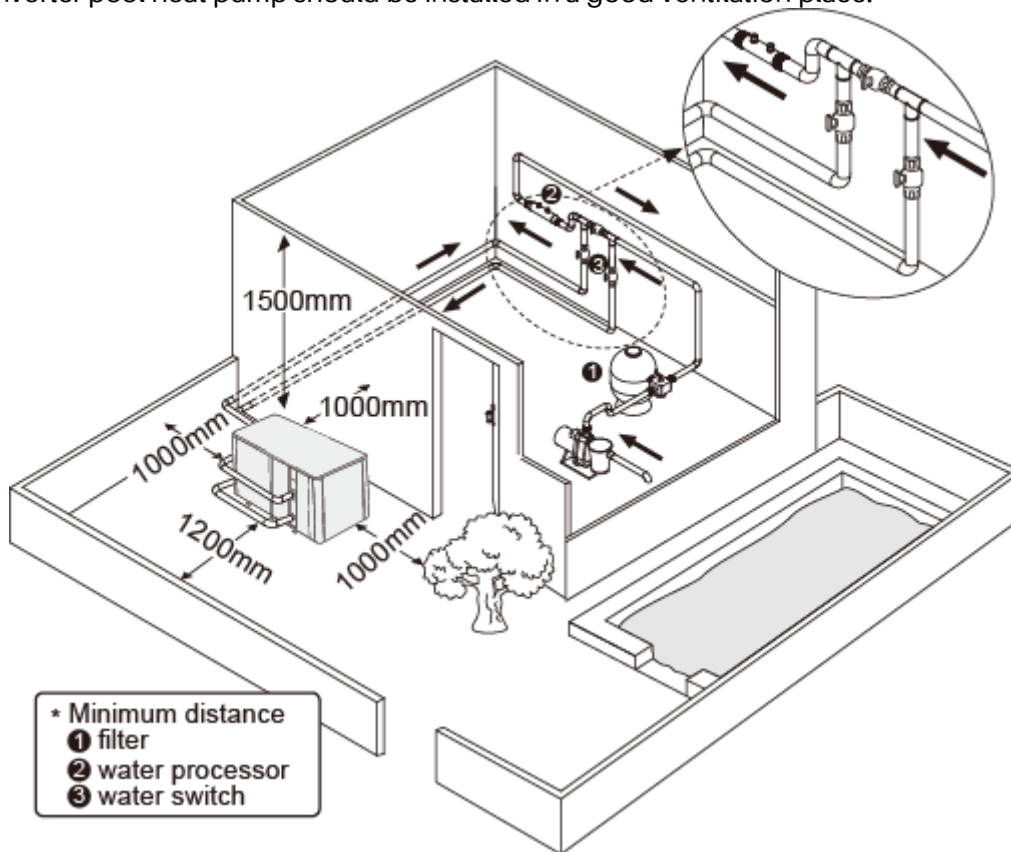
1. Installation reminder

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 water pipe connection

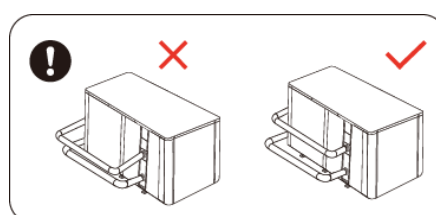


The inverter pool heat pump should be installed in a good ventilation place.



- 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 heater 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, Max. lift $\geq 10\text{m}$;
- 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!

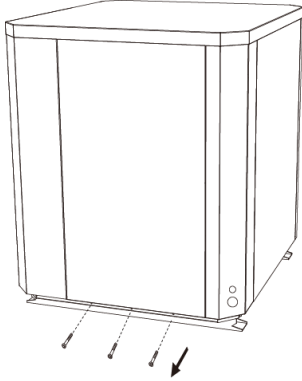


⚠ 1. How to connect to the terminal board of IM60

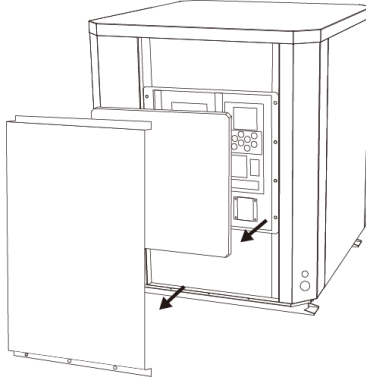
Step 1. open the maintenance panel

IM60

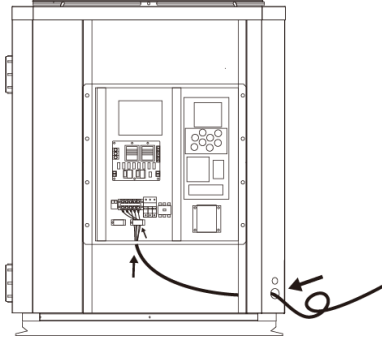
① Remove three screws outside



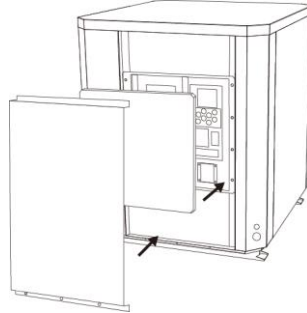
② Open the front right panel and the internal



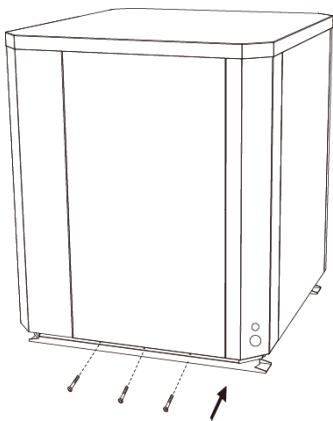
③ Connect the wire



④ Restore the internal panel and the front right panel

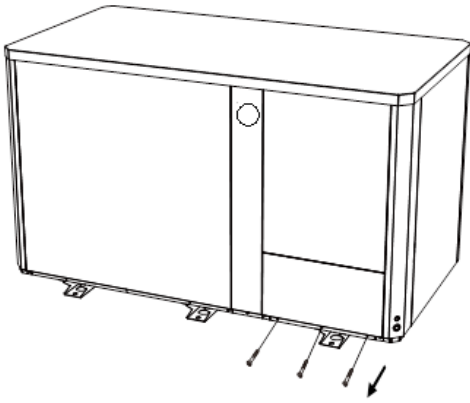


⑤ Fix by screws

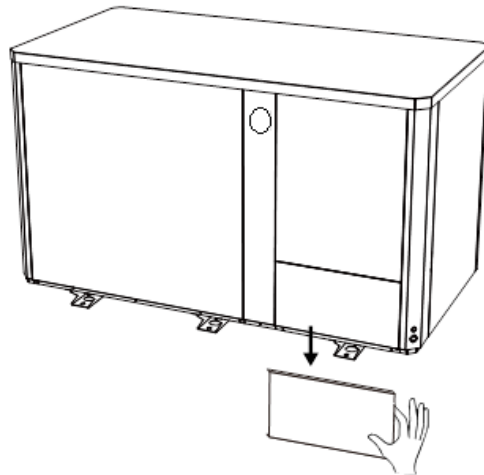


IM115

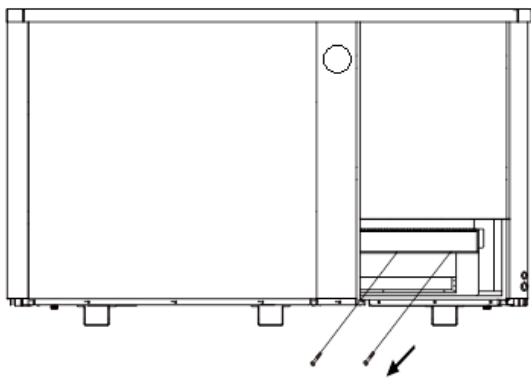
① Remove three screws outside



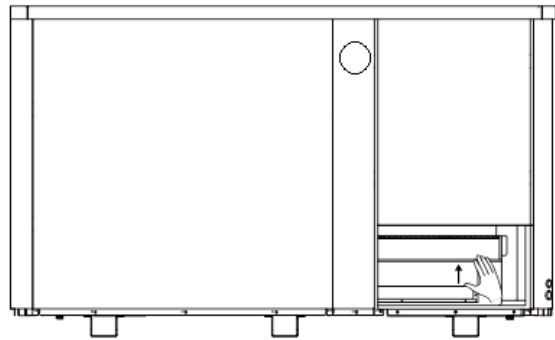
② Open the panel



③ Remove two screws inside

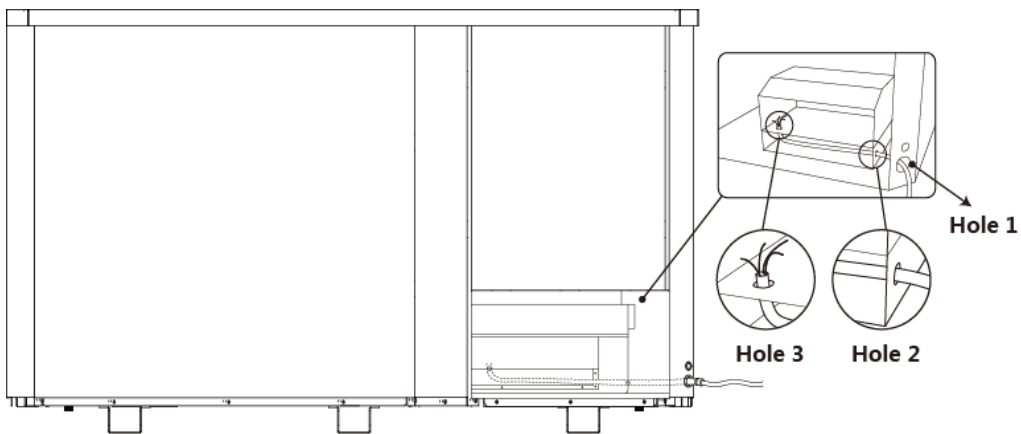


④ Open the internal

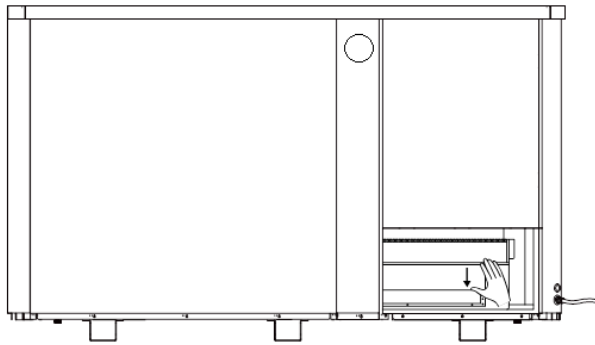


Step 2. Power cord must be passed through below 3 holes

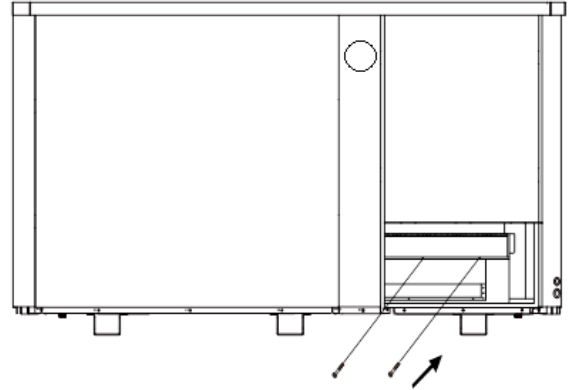
① Connect the wire through three holes



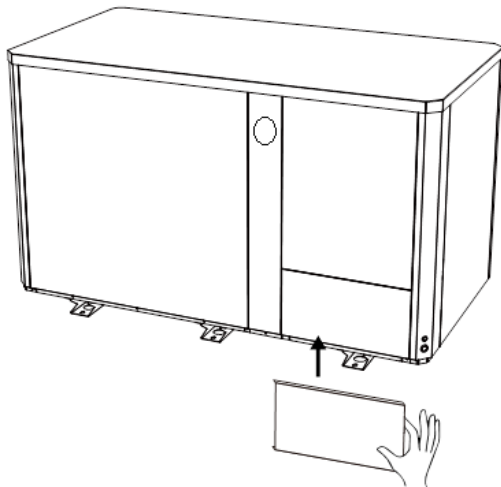
② Restore the internal panel



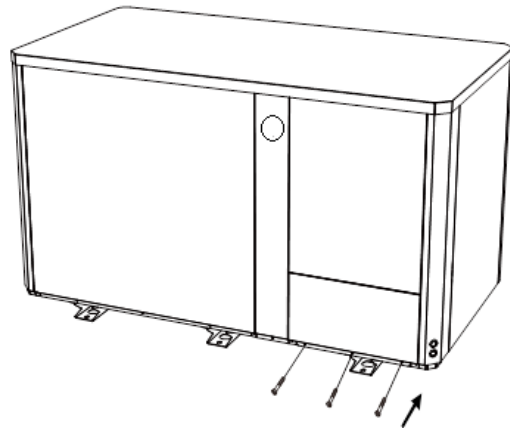
③ Fix the internal panel by two screws



④ Restore the panel



⑤ Fix the panel by three screws

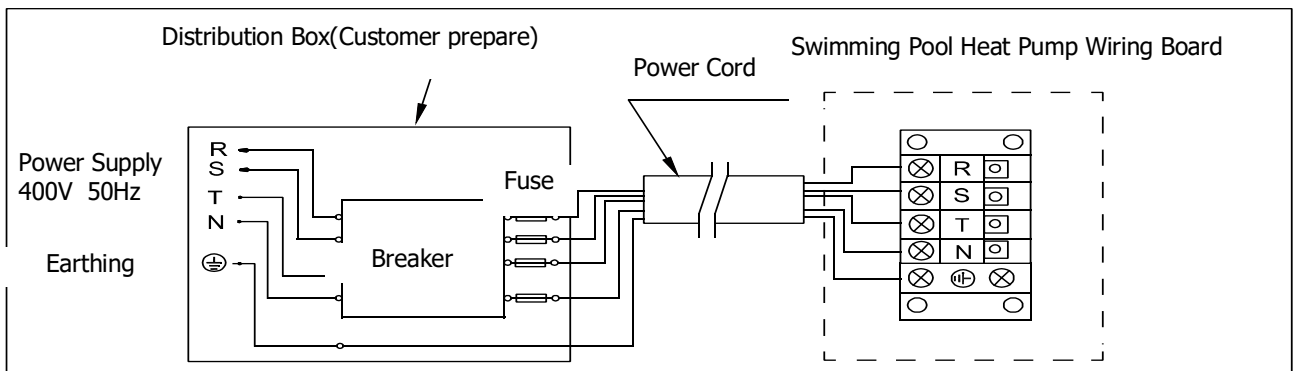



2. Wiring

- Connect to appropriate power supply, the voltage should comply with the rated voltage of the products.
- Earth the machine well.
- Wiring must be handled by a professional technician according to the circuit diagram.
- Set leakage protector according to the local code for wiring (leakage operating current $\leq 30\text{mA}$).
- The layout of power cable and signal cable should be orderly and not affecting each other.

3. Electric wiring Diagram

For power supply: 400V 50Hz



- Note: 1)  Must be hard wired, plug is not allowed.
 2) The swimming pool heat pump must be earthed well.

4. References for protecting devices and cable specification

MODEL		IM60	IM115
Breaker	Rated Current (A)	25	50
	residual-current circuit breaker (A)	30	30
Fuse (A)		25	50
Power Cord (mm ²)		5×4	5×10
Signal cable (mm ²)		3×0.5	3×0.5

※ Above data is subject to modification without notice.

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 maximumly.

E. Operation guidance

1. Key Function

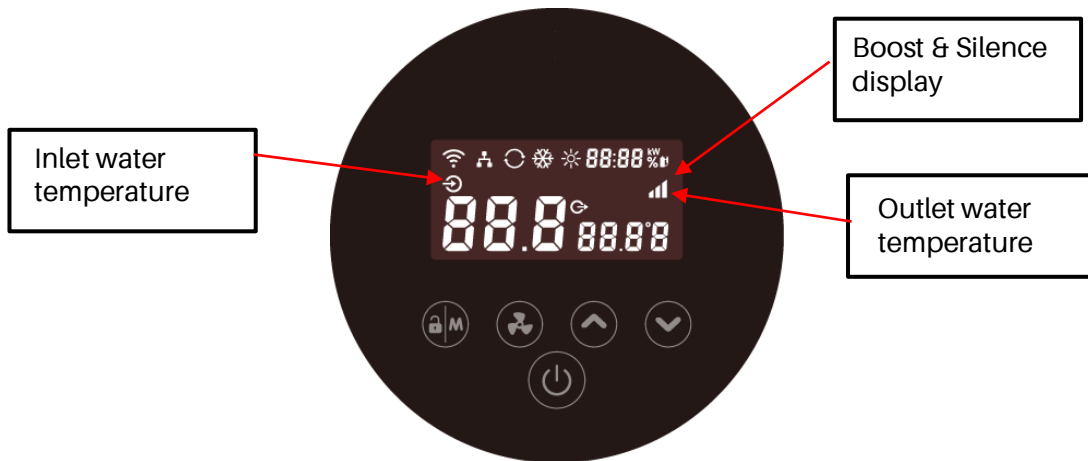


Symbol	Heating & cooling models
	i. Power On/Off ii. Wi-Fi setting
	i. Lock/Unlock Screen ii. Heating mode (18-40°C) iii. Cooling mode (12-30°C) iv. Auto mode (12-40°C)
	i. Boost ii. Silence
	Temperature Setting

Attention:

- i. The controller has power-down memory function.
- ii. The buttons will turn dark when it's locked.

2. Screen display



	Heating mode
	Running speed percentage
	Wi-Fi connection
	Inlet
	Outlet

3. Operation Instruction

a. Screen Lock

- 1) Press for 3 seconds to lock or unlock the screen
- 2) Automatic Lock Period: 30 seconds if no operation

b. Power On

Press for 3 seconds to unlock screen, Press to power on machine.

c. Temperature Setting

Press and to display and adjust set temperature.

d. Mode Selection

Silence/Boost mode selection

Press "" to switch between boost mode , silence mode

Default mode: boost

Please choose boost mode for initial heating

e. WIFI

When the screen is on, press "" for 3 seconds, after "" flashing, enter Wi-Fi connection.

Connect Wi-Fi on mobile phone and input password, and then control equipment by Wi-Fi. When APP connects Wi-Fi successfully, "" lights on.

f. Defrosting

- 1) Automatic defrosting: When machine is auto defrosting, ☀ will flash, and return to previous working mode when it finishes.
- 2) Manual Defrosting: To enter forced defrosting mode, the compressor must be working more than 10 minutes. in heating mode, press "⚙" and "⏴" on touch controller simultaneously for 5 seconds to start forced defrosting, "☀" is flashing and defrost starts, "☀" stop flashing and defrosting stops. (Remarks: the interval between manual defrosting should be more than 30 minutes.)

g. Round Controller Running Status Checking

- 1) Press "⚙" for 5 seconds, it will enter running status checking.
- 2) During this time, the display will show the status symbol "C0" and its corresponding value.
- 3) Change status through "⏴" and "⏵", the corresponding value also changes.
- 4) Press "⚙" to quit "Running Status Checking" mode
- 5) Running status checking table:

Symbol	Content	Unit
C0	Inlet water temp	°C
C1	Outlet water temp	°C
C2	Ambient temp	°C
C3	Exhaust gas temp	°C
C4	Evaporator coil pipe temp	°C
C5	Return gas temp	°C
C6	Cooling coil pipe temp	°C
C9	Cooling plate temp	°C
C10	EEV opening angle	P
C11	DC fan speed	r/min

F. Testing

1. Inspect heat pump before use

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

2. Trial

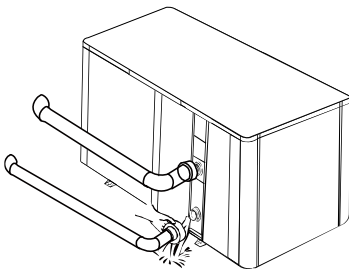
- a. The user must "Start the Pump before the Machine, and Turn off the Machine before the Pump", or the machine will be damaged.
- b. Before start the heat pump, please check for any leakage of water.
- c. In order to protect the swimming pool heat pump, the machine is equipped with a time lag starting 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.
- d. After the swimming pool heat pump start up, please kindly checking for any abnormal noise from the machine.

G. Maintenance



“ CUT OFF ” power supply of the heater 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.
 - c. Cover the machine body when not in use.



!!Important:

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.

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.

H. Trouble shooting for common faults

1. Failure solution and code

Failure	Reason	Solution
When powered on, the controller displays a code	Startup code	This is normal. Please wait until it disappears.
Unresponsive controller	Some models have screen lock function.	Refer to the manual to unlock the screen
Heat pump doesn't run	Improper operation	Refer to the manual
	No power	Wait until the power recovers
	Unit is powered off	Switch on the power
	Burned fuse	Check and change the fuse
	The breaker is off	Check and turn on the breaker
	Voltage anomaly	Inspection by professional
Unit suddenly starts or stops running	The unit may be in defrost. At this point the fan stops spinning and the heat indicator on the controller will flash	Not failure, the unit will switch back after defrosting
	Some models have a timed power on/off function.	Refer to the manual to disable this function
	Once the set temperature is reached, the heat pump will go into standby	This is normal
Air is blowing out, but unit is not heating well	Evaporator blocked	Clear the blockage
	Air inlet and/or outlet blocked	Clear the blockage
	3 minutes start delay protection for compressor	Wait patiently
Display normal, but no heating	Set temperature too low	Set to proper temperature
	3 minutes start delay protection for compressor	Wait patiently
Unit is releasing white smoke	The unit is defrosting	This is normal. Please wait until unit finished defrosting.
Unit is leaking water	In heating mode, condensation will be generated on the evaporator and released through the bottom of the unit	This is normal
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. Unit has stopped running because of external factors.
2. The fuse is frequently broken or leakage circuit breaker jumped.

Protection & Failure code

NO.	Display	Protection code description
1	E3	No water protection
2	E5	Power supply exceeds 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 code 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	EC	System communication failure
8	P0	Controller communication failure
9	P1	Water inlet temp sensor failure
10	P2	Water outlet temp sensor failure
11	P3	Gas exhaust temp sensor failure
12	P4	Evaporator coil pipe temp sensor failure
13	P5	Gas return temp sensor failure
14	P6	Cooling coil pipe temp sensor failure
15	P7	Ambient temp sensor failure
16	P8	Cooling plate sensor failure
17	P9	Current sensor failure
18	PA	Restart memory failure
19	F1	Compressor drive module failure
20	F2	PFC module failure
21	F3	Compressor start failure
22	F4	Compressor running failure
23	F5	Inverter board over current protection
24	F6	Inverter board overheat protection
25	F7	Current protection
26	F8	Cooling plate overheat protection
27	F9	Fan motor failure
28	Fb	Power filter plate No-power protection
29	FA	PFC module over current protection

Notice!

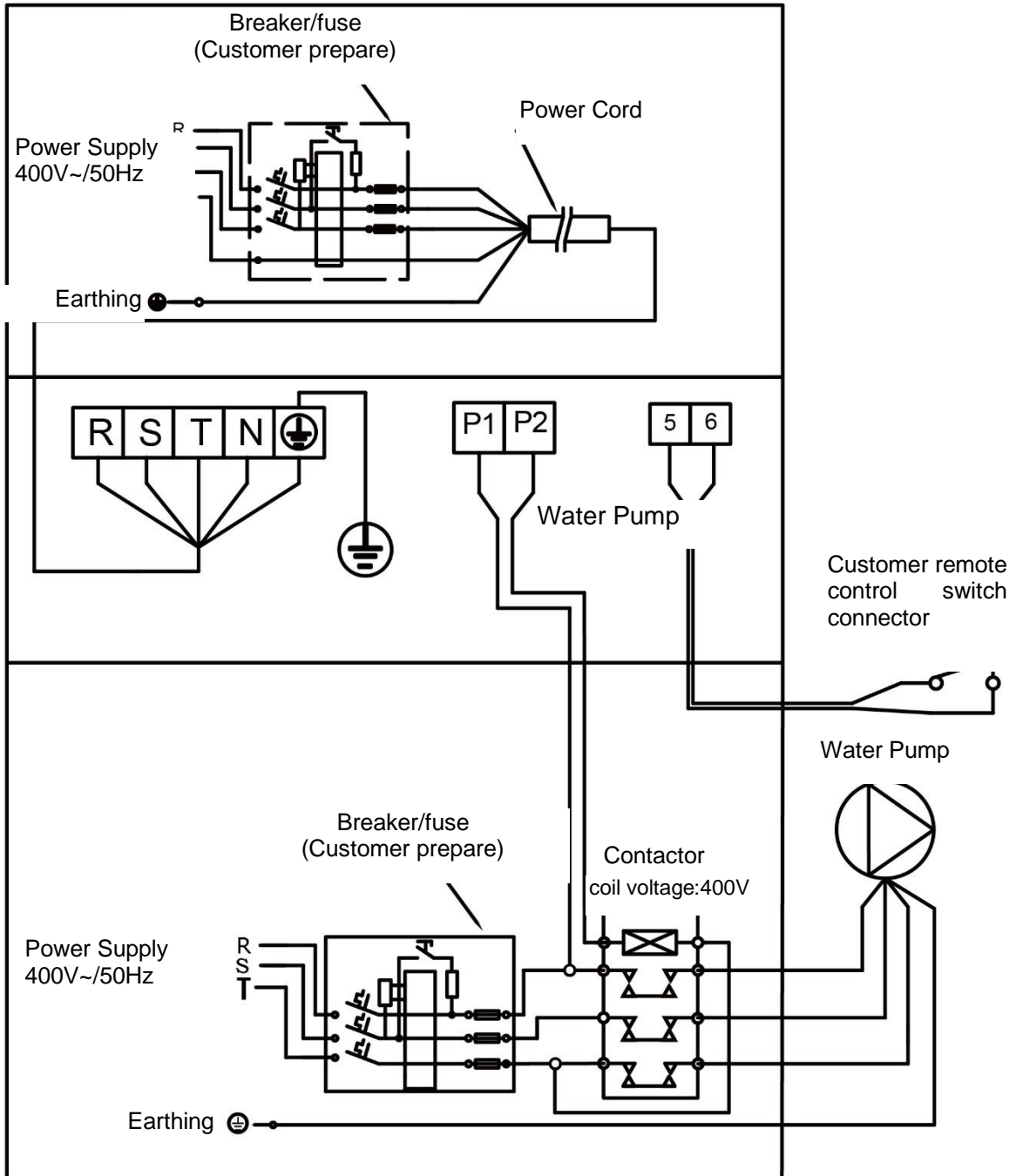
System 1 failure: display 1 or no display after the error code

System 2 failure: 2 is displayed after the error code

I. Electrical wiring schematic (optional)

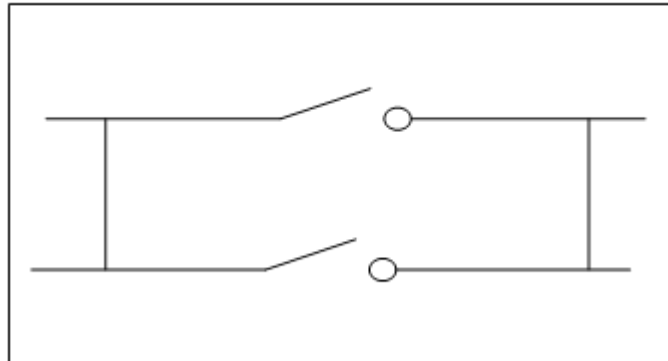
Water pump: 400V voltage

Please install contactor



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.

J. Wi-Fi operation

1 InverGo Download



Android



iOS

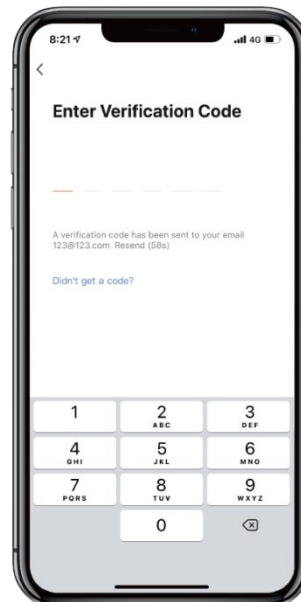
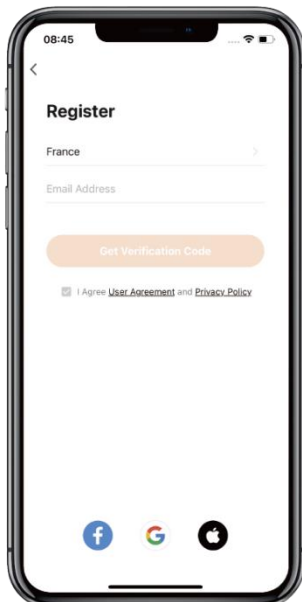


2 Account Registration

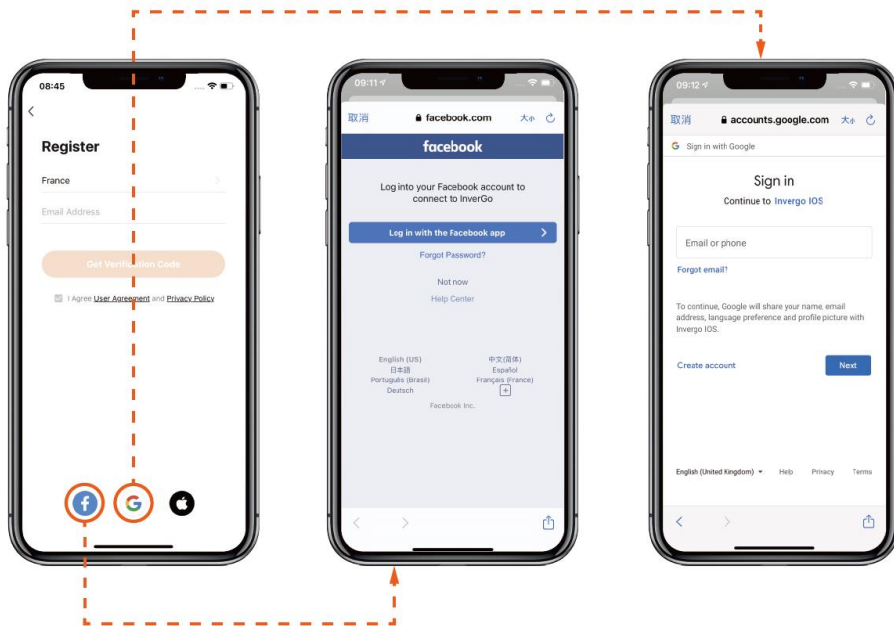
Register by e-mail or third-party application.



a. E-mail registration.

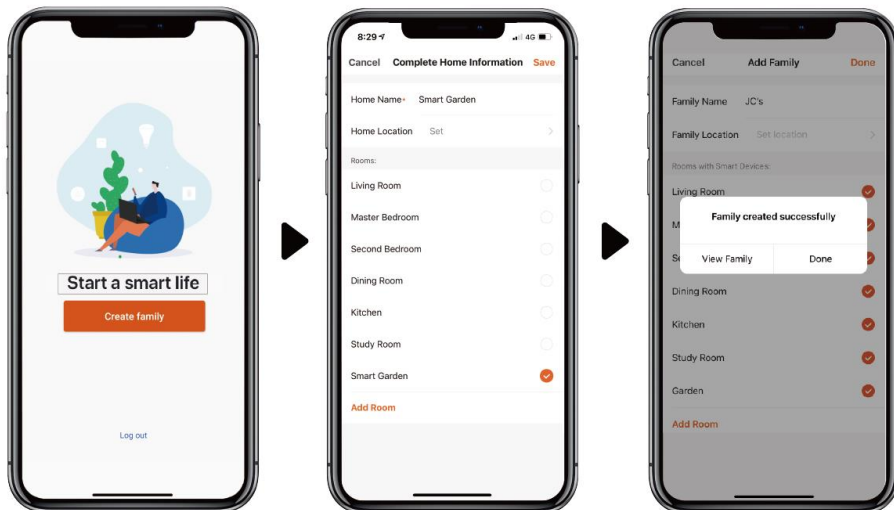


b. Register through third-party application



3 Create Family

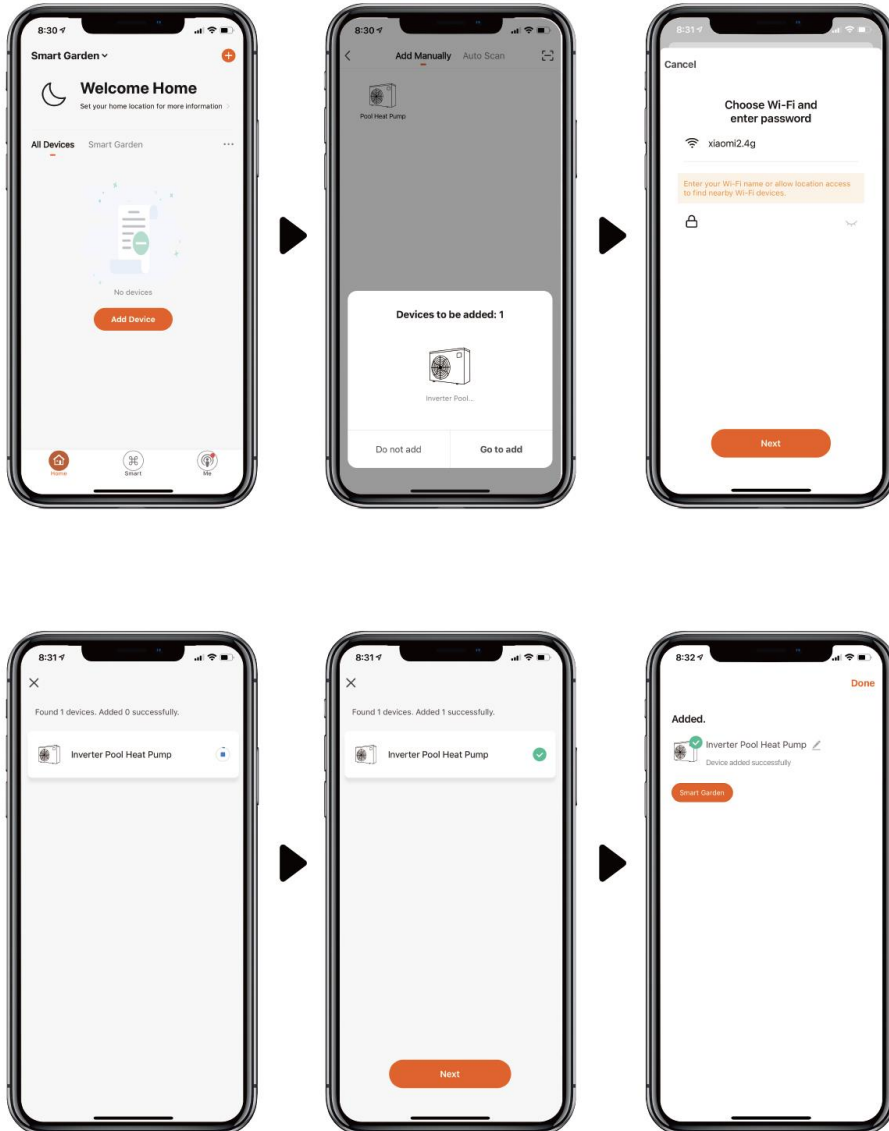
Please set family name and choose location of device.



4 APP Pairing

a. With Bluetooth

1. Please confirm that you're connected to Wi-Fi and your Bluetooth is on.
2. Click "Add Device", and then follow the instructions to pair device.

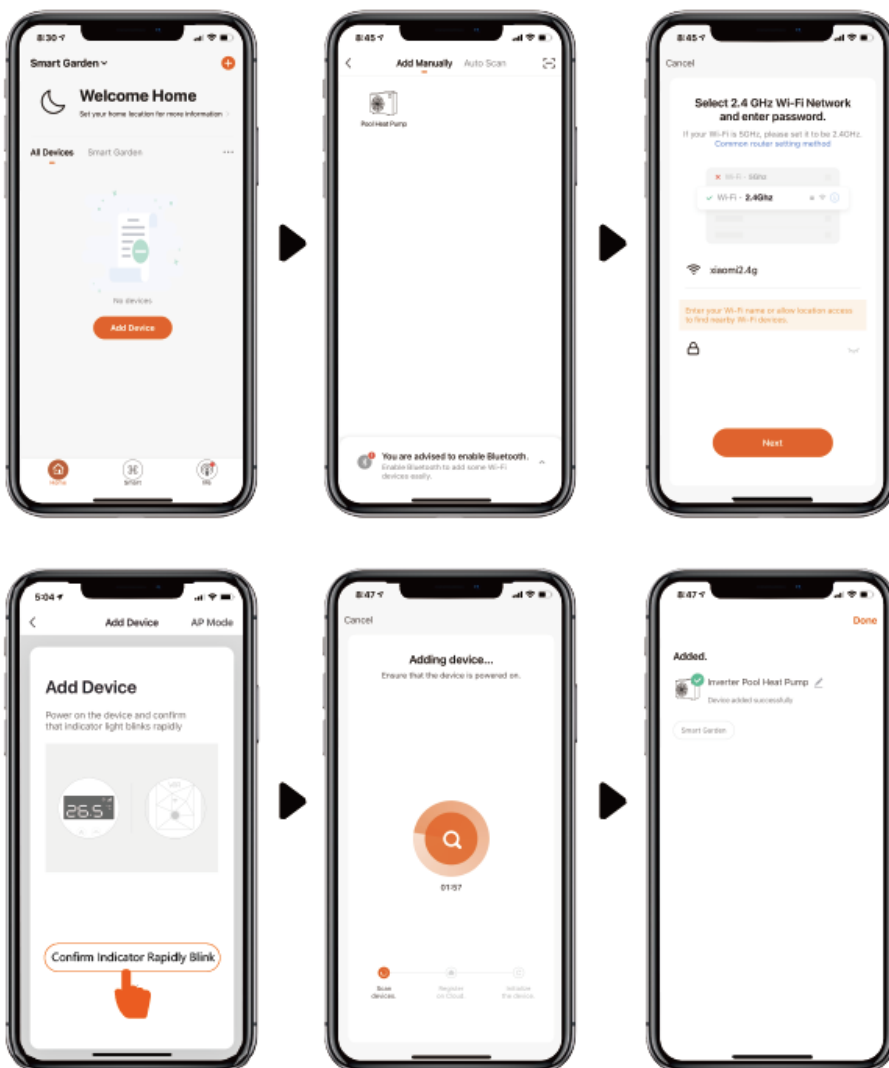


b. With Wi-Fi

1. Please make sure you are connected to Wi-Fi
2. Press "Ⓜ" for 3 seconds to unlock the screen. Press "⏻" for 3 seconds and release. After hearing "Beep", enter Wi-Fi password in app. During connection, "📶" will flash. Once the app connects to Wi-Fi successfully, "📶" will display.



3. Click "Add Device", and then follow the instructions to pair device.



5 Operation

1. For heat pump with Heating function only:

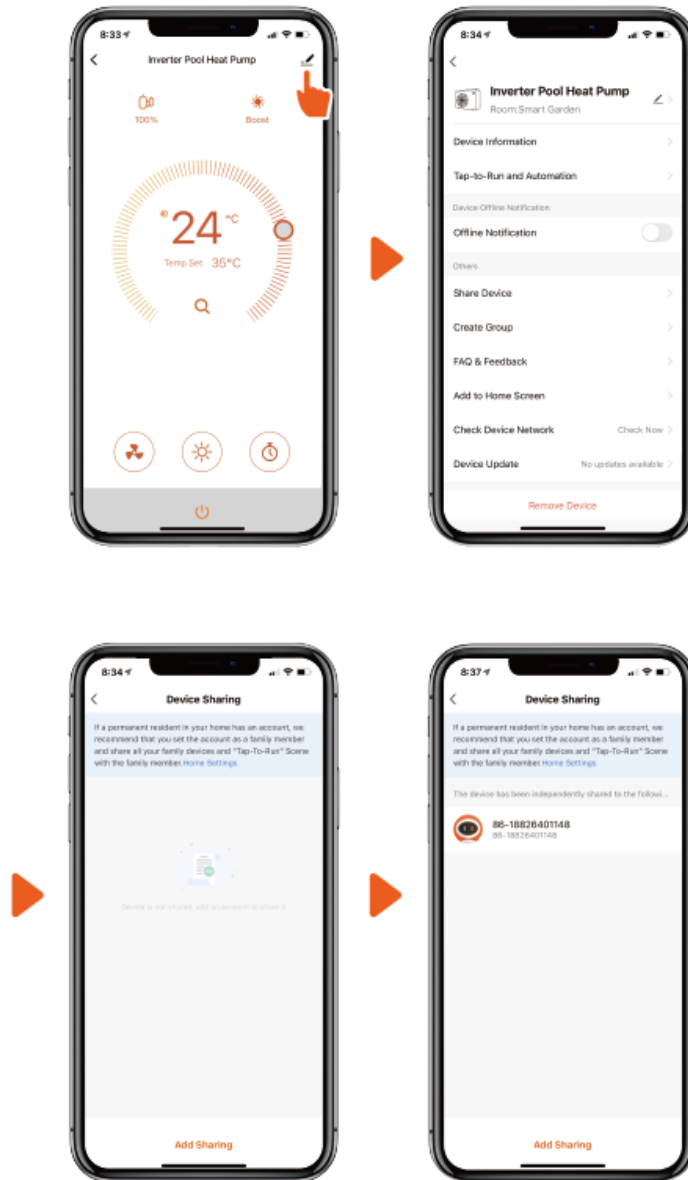


2. For heat pump with Heating&Cooling function:



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 “InverGo” first, and then the administrator can operate as below:



Notice:

1. Weather forecast is just for reference.
2. App is subject to updates without notice.



Mechanical Solutions:

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ε

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