



## **EKC INVERTER**

FULL INVERTER HEAT PUMP FOR SWIMMING POOL

V1.0  
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## **Abstract**

### INSTALLATION MANUAL

Thank you for your preference when purchasing our HIDROCONTROL EKC TRUE INVERTER series full inverter heat pumps.

With the help of this instruction manual you can carry out a correct installation and operation of this product, so we recommend that you follow the instructions included here. Keep this manual in a safe place for future reference.

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# 1. INTRODUCTION

Thank you for selecting our HIDROCONTROL EKC TRUE INVERTER series heat pump

We invite you to read the following manual.

This manual provides information on: installation, function, operation and general precautions.

Keep this manual in a safe place for future reference.

## 2. SAFETY



### WARNINGS

1. Do not use this equipment for applications other than regulating pool water temperature.
2. Do not apply weight from other piping systems to the inlet and outlet connections.
3. Do not block the air inlet or outlet of the equipment. Disassembling the fan is prohibited. Turn off the main switch before performing any maintenance or intervention on the equipment.
4. Immediately turn off the power if any abnormal occurrence is detected, such as unusual sounds, odors, smoke, or refrigerant leaks, and contact your authorized dealer.
5. Do not store fuel or flammable materials near the equipment.



### CAUTIONS

1. The equipment must be installed by a qualified technician.
2. The application must meet the necessary requirements to ensure proper installation and operation of the product.
3. If the power is cut off while the equipment is operating, it will resume automatically when the power is restored. Before de-energizing the equipment, ensure it is in OFF mode.
4. If the equipment will remain de-energized for an extended period, we recommend draining the water from the pipes and the interior of the heat pump.
5. The hydraulic network between the pool and the heat pump must not exceed 32.8 ft in length, as exceeding this length may prevent proper water heating.
6. Ensure that the exhaust air does not affect any person, animal, or plant.

### 3. ACCESSORIES

The heat pump includes the following accessories:

**Models EKCINV40/1230, EKCINV50/1230, EKCINV65/1230, EKCINV90/1230**

- 2 x 1.5" couplings
- 1 1/2" hose by 3.2 ft long used for drainage.
- 1 1/2" drain nozzle for hose connection.

**Models EKCINV110/1230**

- 2 x 1.5" couplings

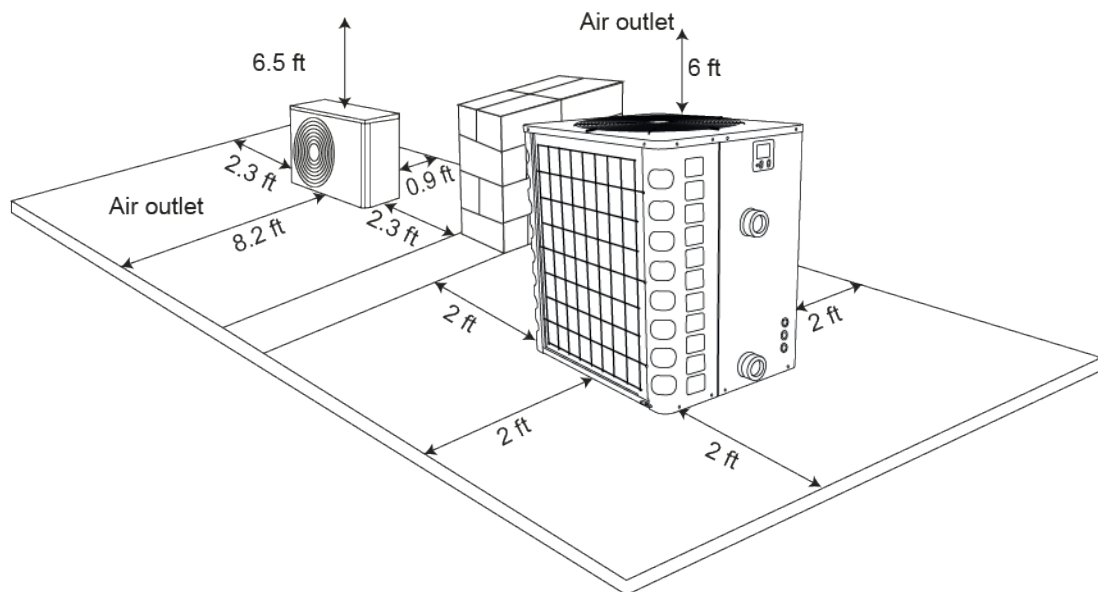
**Models EKCFINV140/1230**

- 2 x 2" connector

### 4. REQUIREMENTS FOR THE INSTALLATION OF THE HEAT PUMP

#### 4.1. LOCATION OF THE FACILITY

1. The heat pump must be installed in a well-ventilated area.
2. Ensure that the pump is securely attached to the concrete or support as required.
3. Do not store objects near the ventilation inlet and outlet, as they can obstruct air circulation. Follow the distances shown in the diagram to prevent affecting the pump's efficiency.



4. To drain the condensed water, use the accessories provided with the pump (except for models EKCINV110/1230 and EKCFINV140/1230). Insert the drain nozzle into the hole below the pump and connect the drain tube to a drain outlet.

## 4.2. SPECIFICATION OF THE SWITCH AND CABLES

MODEL		EKCINV40/1230	EKCINV50/1230	EKCINV65/1230	EKCINV90/1230	EKCINV110/1230	EKCFINV140/1230
Thermomagnetic switch	Nominal current (A)	20	25	30	40	44	
	Nominal residual action current (mA)	30					
Fuse capacity (A)		20	25	30	40	44	
Power cable gauge (AWG)		3x12		3x10		3x8	
Signal cable gauge (AWG)		3x16	3x20	3x20			



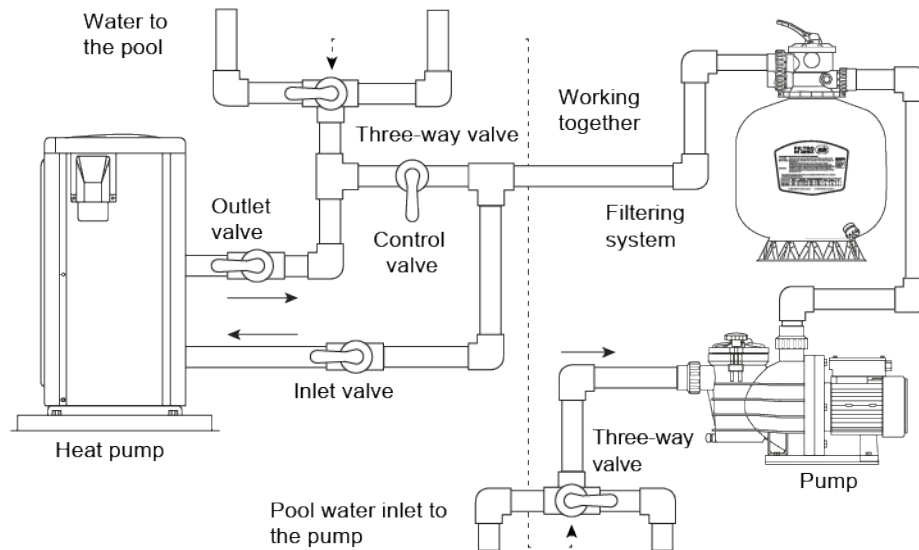
### NOTE

This information indicated is considering a distance of 32.8 ft. For a longer distance, oversize the wire gauge.

## 5. INSTALLATION GUIDE

### 5.1. DIAGRAM FOR CONNECTING THE PIPES

The image below is a reference diagram for installing the EKC TRUE INVERTER series heat pump.



#### NOTE

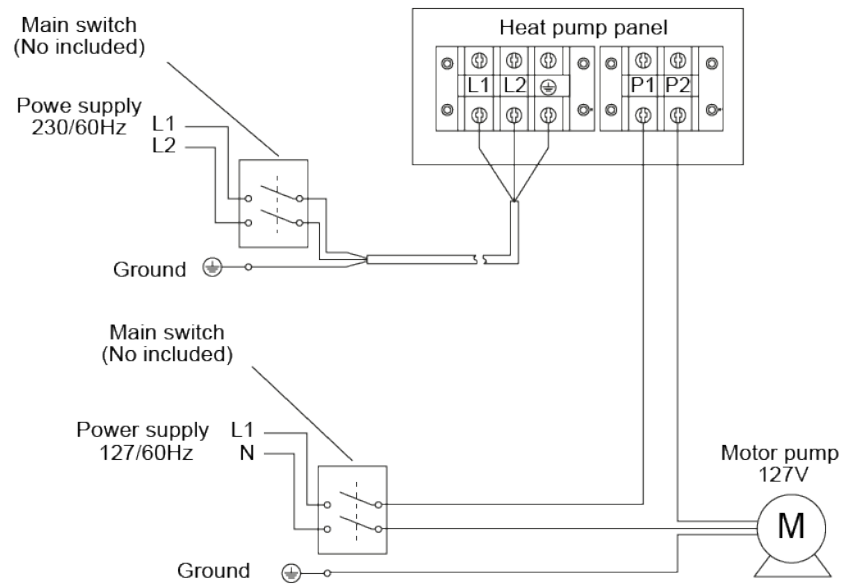
The EKC TRUE INVERTER series heat pump must be connected to a reliable physical ground.

### 5.2. WIRING

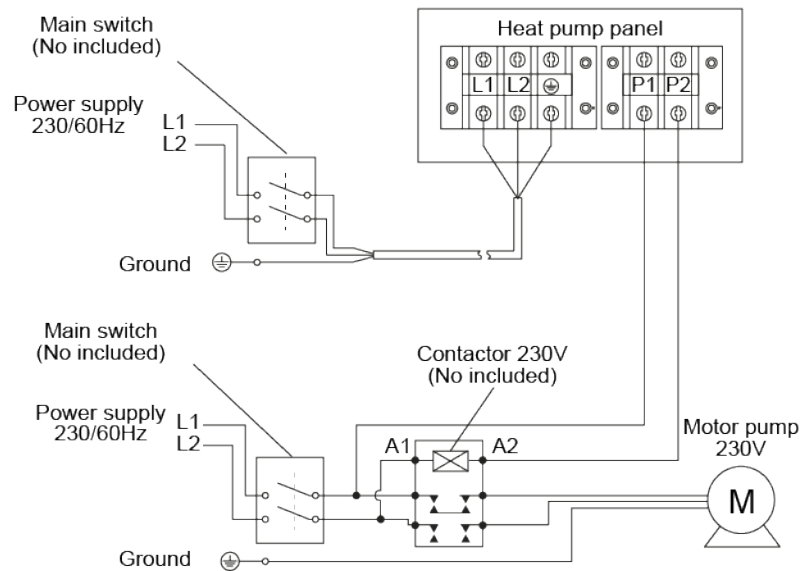
1. Ensure that the supply voltage matches the rated voltage of the equipment. Verify that the ground connection is secure.
2. Wiring should be performed by a qualified technician in accordance with the circuit diagram.
3. Ensure that the thermomagnetic switch meets the required capacity specifications.
4. Power and signal cables must be properly installed to prevent interference with the force and control circuits.

### 5.3. ELECTRICAL WIRING DIAGRAM

#### Connection to a 127 Vac filter motor pump



#### Connection to a 230 Vac filter motor pump

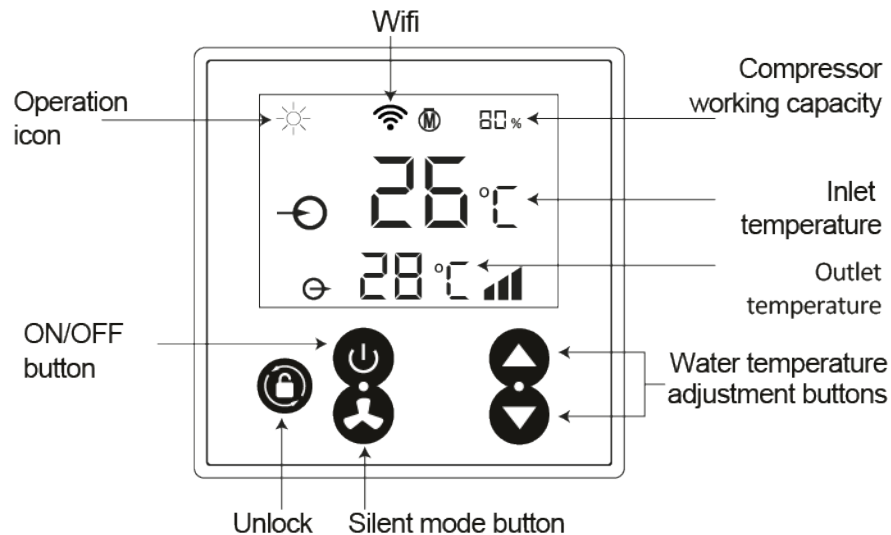






#### NOTE

The EKC TRUE INVERTER series heat pump must be connected to an effective physical ground.



## 6. DESCRIPTION OF THE TOUCH CONTROL



BUTTON	DESCRIPTION	FUNCTION
	ON/OFF	Press this button to turn the heat pump ON or OFF
	UP/DOWN	Pressing this button you can select an option in the different menus
	SILENT MODE	Pressing this button activates or deactivates the silent mode function
	UNLOCK/MODE	Press this button for 3 seconds to lock or unlock the screen. Press this button to alternate between Heat, Cool and Auto modes (EKCFINV140/1230 only)





### NOTE

- The outlet water temperature displayed on the touch controller screen is generally 33.8 or 35.6°F higher than the inlet temperature.

## 7. INSPECTION BEFORE COMMISSIONING

1. Verify that all equipment installation and pipe connections align with the pipe connection diagram.
2. Check the electrical wiring and grounding connection according to the provided diagram.
3. Ensure that the main switch is turned off before proceeding.
4. Inspect the fan's air outlet and intake to ensure they are clear and unobstructed.

## 8. OPERATING MODES

To switch between the different operating modes, the screen must be unlocked (press the button  for 3s to unlock), then press the button  to switch between Heat, Cool and Auto modes.



### NOTE

The Cool and Auto mode is only applicable to the EKCFINV140/1230 model.

After selecting the mode, using the buttons  And , you can set the desired temperature.

### Heat Mode

The pump will operate when the water temperature is below the set temperature. Once the set temperature is reached, the pump will stop operating. This cycle will repeat if the water temperature falls below the set temperature again.

The water temperature can be set in a range of 64.4°F to 104°F.

### Cold Mode

The pump will operate when the water temperature exceeds the set temperature. Once the set temperature is reached, the pump will stop operating. The cycle will repeat if the water temperature increases beyond the set temperature.

The water temperature can be set in a range of 53.6°F to 86°F.

### Auto mode





The pump will alternate between heat and cold modes as needed to reach the set temperature. Once the set temperature is met, the pump will stop operating. The cycle will repeat if the water does not reach the set temperature.

The water temperature can be set in a range of 53.6°F to 104°F.

## 9. OPERATING INSTRUCTIONS

The start-up can be carried out from the touch control of the heat pump or through the “Inverter Life” app (See [WIFI CONNECTIVITY \[12\]](#))

**Below are the steps for operating the heat pump:**

1. Once the heat pump is energized, it will be necessary to unlock the touch control by holding down the "button  " for 3s.
2. Press the "button  ", and the heat pump will send a signal to the filter motor pump to turn it on. After approximately 1 minute, the heat pump fan will begin operating. Then, after 3 seconds, the compressor will start gradually, reaching 100% of its operating capacity.
3. Set the desired temperature by pressing the "button  "to increase or"  "to decrease the value.



### NOTE




The filter motor pump must always start before the heat pump. The heat pump must always be turned off before the filter motor pump. The above must be fulfilled, otherwise the heat pump may be seriously damaged



### WARNING

After starting the heat pump, check for possible leaks in the hydraulic system and for abnormal sounds.

## 10. SILENT MODE

- When the heat pump is turned on, it will operate at the maximum level. The noise derived from this will be displayed on the screen with the following icon. “ ”.
- To activate silent mode, press the "button  "and the following icon will appear on the screen"  "indicating that the noise level has been reduced. Press once more to return to the maximum level.

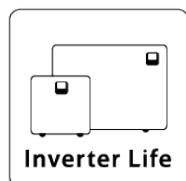


### NOTE

Keep in mind that by reducing noise, the operating capacity will be reduced to 80%

## 11. WIFI CONNECTIVITY

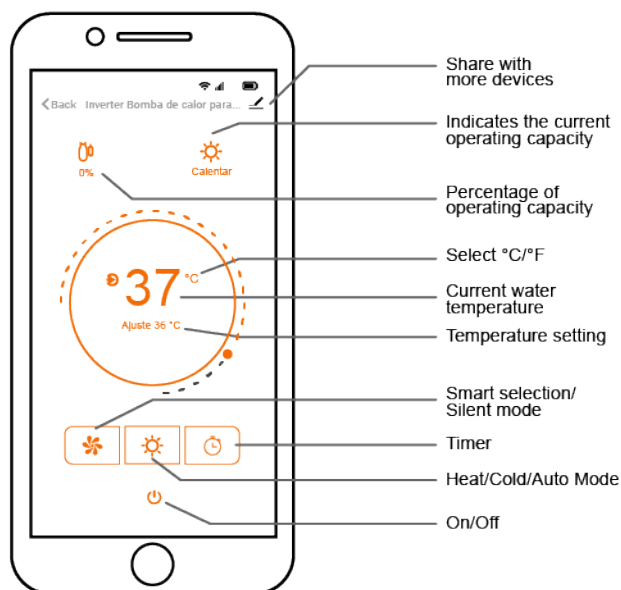
As with the touch control of the heat pump, you can perform the same operations for operation through the Inverter Life app.



Available for download on the following platforms:



### 11.1. INVERTER LIFE APP DESCRIPTION

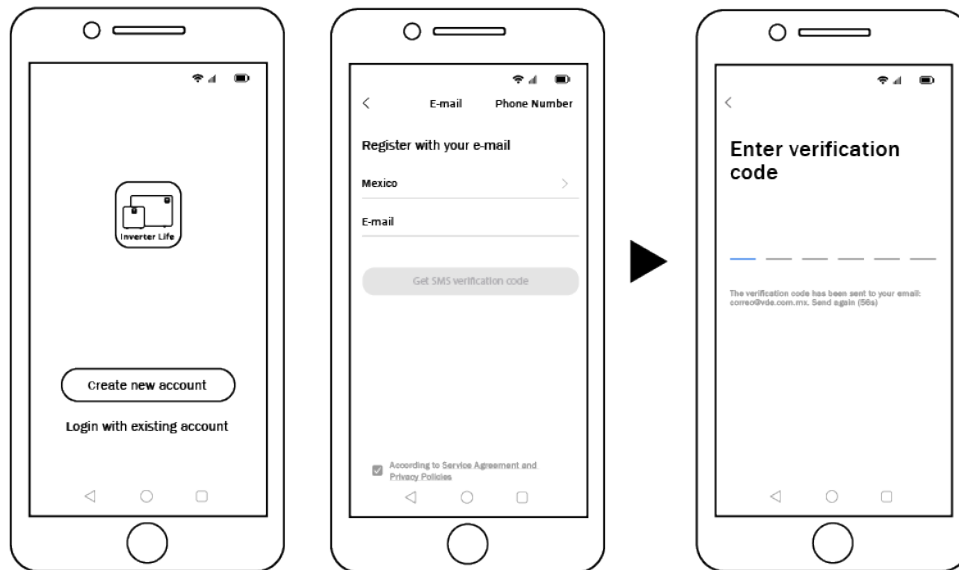


#### NOTE

Cold and Auto modes are only available for model EKCFINV140/1230

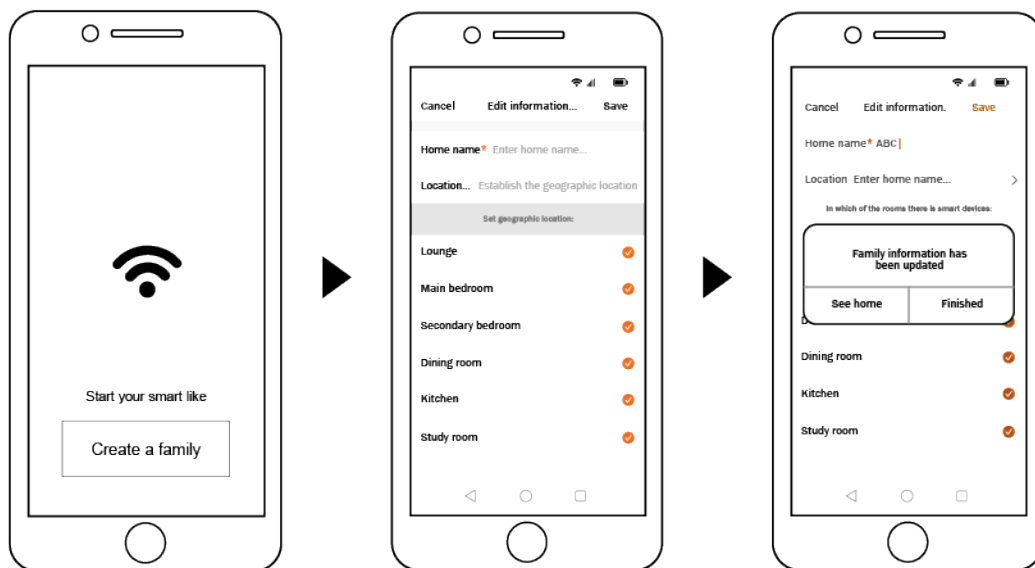
## 11.2. STEPS FOR USING THE INVERTER LIFE APPLICATION

1. Open the app and an account using your phone number or email



2. **Household Management**

Set the name of the household and choose the location of the device.



### 3. Application linking

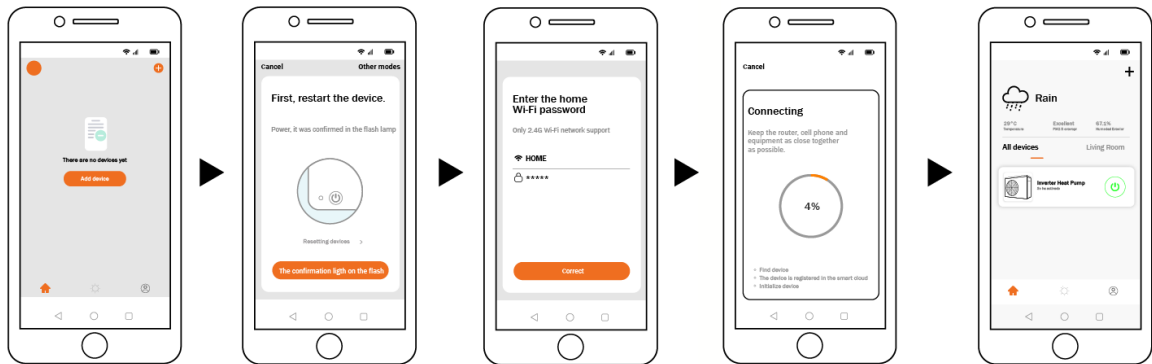
Make sure your cell phone or tablet is connected to Wi-Fi.

#### Wifi connection

- a. Press "🔒" for 5 seconds to unlock the display, then press "🔌" for 5 seconds, it will start to flash "📶" to enter the Wi-Fi connection program



- b. Click on "Add Device", then follow the on-screen instructions to complete the pairing process. Once the device icon appears on the screen, the Wi-Fi connection will be successfully established.



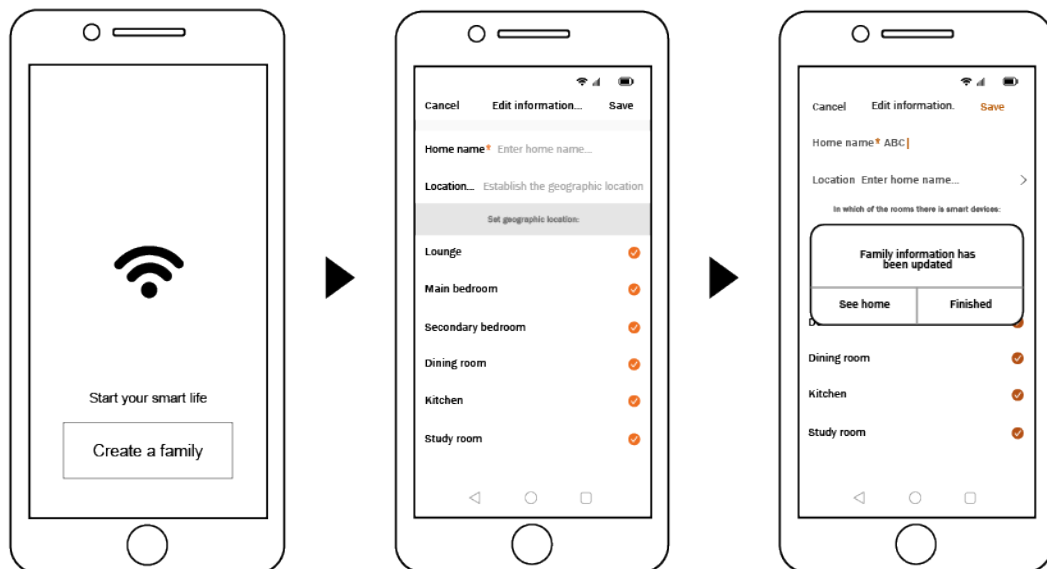
- c. If the connection fails, verify that your network name and password are correct. Additionally, ensure that your router, mobile phone, and device are positioned as close as possible to each other.
- d. **Wifi relink (When you change the Wi-Fi password or change internet settings):**  
Press "🔌" for 10 seconds, it will flash "📶" slowly for 60 seconds. After "📶" will turn off and the original link will be deleted.  
Follow the previous step to relink.  
Ensure that the router is configured to operate on the 2.4 GHz frequency band.

#### 4. Share devices to members of your home

After pairing, if your household members also want to control the device. Allow them to register in the APP first; Once this is done, the administrator can use it as follows:



Members of your home can then log in as follows:



#### NOTE

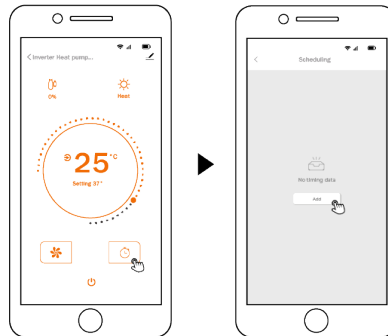
- The weather forecast is for reference only.
- The application may be updated without prior notice.

## 12. TIMER

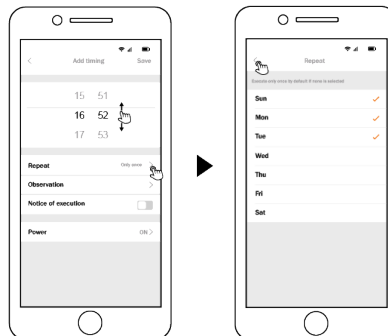
The timer function can only be activated through the "Inverter life" app.

The steps to be able to configure the timer will be shown below.

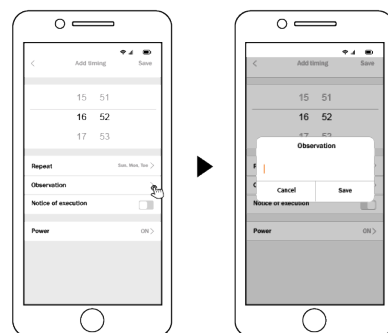
1. Once you have completed the "WIFI CONNECTIVITY" steps, press the "Timer" icon. Then a screen called "Programming" will appear, press "add".



2. Later, the "Add Timing" screen will appear, allowing you to set the automatic start or shutdown time. Slide up or down to select the hour (left digits) and minutes (right digits). To specify the days on which the device should turn on or off, tap ">" in the "Repeat" section (as shown in the screenshot). A new screen will appear where you can select the desired days. Press "<" to return to the previous screen.



3. Press ">" in the "Observation" section. This option allows you to add a note.

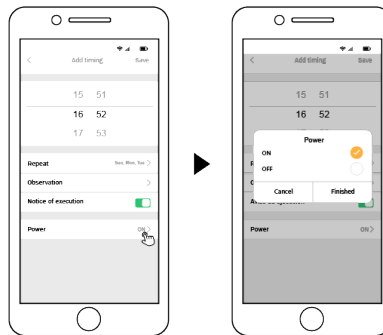


4. Execution warning: When you activate this option, you will receive a notification each time the heat pump starts and stops working.

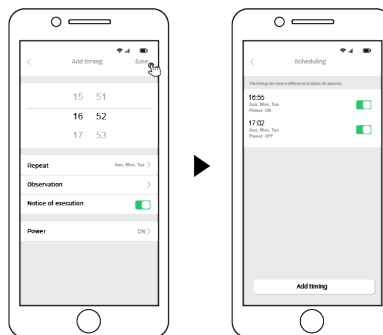




5. Press ">" in the "Power" section. Based on the time settings, days, etc., select one of the two options: "ON" to set the equipment to turn on, or "OFF" to set it to turn off. Then click on "Done."



6. Finally, press "Save." You will be redirected to the "Programming" screen, where the configurations you have saved will appear. Each time you access the Timer, you can enable or disable the settings from the "Schedule" screen.



## NOTE

The steps mentioned in the "Timer" section were carried out using the Inverter Life application version 1.0.4 for Android. The interface of the Inverter Life application on iOS and Android (in previous or future versions) may vary when reading this installation manual. For any questions or comments regarding the functionalities of the Inverter Life application, please contact your authorized dealer.

## 13. DEFROSTING

When the air temperature drops below 59°F (15°C), the pump will automatically activate its defrosting function. This process involves stopping the operation of the fan and running only the compressor to generate heat within the pump, preventing it from freezing.

### Automatic defrosting

When the pump activates automatic defrost, the icon ☀ it will start to blink. Once this function is finished, the icon ☀ it will stop blinking.

### Forced defrosting

When the pump is in operation, using the combination of buttons ⏻ And 🔍 and by holding them down for 5 seconds, it is possible to activate the defrost function, the icon ☀ it will start to blink. Once this function is finished, the icon ☀ it will stop blinking.

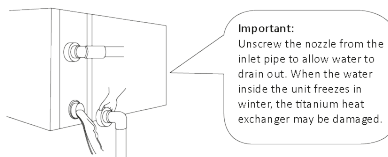


### NOTE

Forced defrosting intervals should last no less than 30 minutes, with the compressor operating for a minimum of 10 minutes during each defrosting cycle.

## 14. MAINTENANCE

1. Before performing any maintenance, ensure the heat pump switch is turned off.
2. During the winter season, disconnect the power supply, drain the water from the equipment to avoid damage, and cover the heat pump with plastic to prevent dust from entering.



3. Clean the equipment using household detergents or clean water. NEVER use gasoline, thinner, or any other similar fuel.
4. Regularly check screws, cables, and connections for proper function and safety.

## 15. POSSIBLE ANOMALIES, CAUSES AND SOLUTIONS

ANOMALIES	CAUSE	SOLUTION
Doesn't turn on	The pump is not energized	Wait for the power to be restored
	Switch off	Turn on the switch
	Blown fuse	Replace
	The circuit breaker is deactivated	Activate the switch again
There is air outlet but the heat is not enough	Blocked air intake	Remove obstacles
	Blocked air outlet	Remove obstacles
	3-minute delay protection	Wait
	Very low temperature setting	Increase the temperature in settings



### NOTE

Do not attempt to disassemble or repair the heat pump yourself. Please contact your authorized dealer for assistance.

If the issues persist after troubleshooting, contact your authorized dealer and provide the model, serial number, installation details, and a description of the fault.

## 16. FAULTS CODES

TOUCH CONTROL SCREEN	DESCRIPTION OF THE ANOMALIES	POSSIBLE REASON FOR THE FAILURE
E3	Lack of water flow.	A. Check the filter motor pump. B. Check the control card wiring. C. Check the water flow sensor.
E5	The power supply exceeds the operating range.	A. The code should disappear once the power supply returns to normal. B. Damage to the control card.
E6	Excessive temperature difference between the water inlet and outlet (insufficient water flow protection).	A. Check the filter motor pump.
Eb	Protection from too high or too low ambient temperature.	A. Outside the range of the application.
Ed	Anti-freeze reminder	A. Wait for the automatic reset.
E1	High pressure protection.	A. Installation conditions. B. Check the filter motor pump. C. Check the wiring. D. Check the high pressure sensor.
E2	Low pressure protection.	A. Check the wiring. B. Presence of a gas leak. C. Check the low pressure sensor.
E7	Water outlet temperature too high or too low protection.	A. Installation conditions. B. Check the filter motor pump. C. Check the temperature sensor at the water outlet. D. Damage to the control card.
E8	High temperature exhaust protection	A. Installation conditions. B. Check the filter motor pump. C. Presence of gas leak. D. Check the gas exhaust temperature sensor.
EA	Evaporator overheat protection (cooling mode).	A. Installation conditions. B. Check the fan. C. Check the fan motor.
F1	Compressor module failure.	A. Check the wiring. B. Check the inverter card. C. Check the control card.
F2	Failure of the power factor module.	A. Check the inverter card. B. Check the control card.

TOUCH CONTROL SCREEN	DESCRIPTION OF THE ANOMALIES	POSSIBLE REASON FOR THE FAILURE
F3	Compressor start failure.	A. Check the compressor wiring. B. Check the inverter card. C. Check the compressor.
F4	Compressor failure.	A. Check the compressor cabling. B. Check the inverter card. C. Check the compressor.
F5	Inverter board on current protection.	A. Check the wiring. B. Check the inverter card. C. Check the control card.
F6	Inverter board protection against overheating.	A. Check the wiring. B. Check the inverter card. C. Check the control card.
F7	Current protection.	A. Turn off and on again. B. Check the inverter card. C. Check the compressor.
F8	Cooling plate against overheating.	A. Turn off and on again. B. Check the fan motor. C. Check the cooling plate.
F9	Fan motor failure.	A. Check the JP1 terminal on the control board.
Fb	Power filter plate.	A. Damage to the inverter card.
FA	Power factor module overcurrent protection.	A. Turn off and on again. B. Damage to the inverter card.
P0	Controller communication failure.	A. Check the wiring. B. Damaged touch control. C. Damage to the control card.
P1	Water inlet temperature.	A. Check the cabling. B. Damaged temperature sensor. C. Damage to the control card.
P2	Failure of the water outlet temperature sensor.	
P3	Failure of the gas exhaust temperature sensor.	
P4	Failure of the evaporator coil tube temperature sensor.	
P5	Failure of the gas return temperature sensor.	
P6	Failure of the cooling coil tube temperature sensor.	
P7	Ambient temperature sensor failure.	
P8	Failure of the cooling plate sensor.	A. Damage to the inverter card.

TOUCH CONTROL SCREEN	DESCRIPTION OF THE ANOMALIES	POSSIBLE REASON FOR THE FAILURE
P9	Current sensor failure.	A. Check the wiring. B. Damage to the inverter card.
PA	Reset the memory failure.	A. Revise the order of the DIP switches. B. Damage to the inverter card.

## 17. USES AND PROHIBITIONS

### USES

Heating of water for residential or commercial swimming pools.

Outdoor Installation with Good Ventilation

Operation must be within the established temperature ranges: Heating Mode: 18 °C to 40 °C/Cooling Mode: 12 °C to 30 °C

### PROHIBITIONS

Please do not place objects that obstruct the air inlets or outlets.

Do not operate if there are odors, abnormal noises, smoke, or leaks; contact the distributor.

Do not modify the wiring or repair the equipment yourself.

Do not operate if the water flow is insufficient or nonexistent.