

# **VEVOR®**

## **TOUGH TOOLS, HALF PRICE**

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### **DIESEL HEATER**

We continue to be committed to provide you tools with competitive price. "Save Half", "Half Price" or any other similar expressions used by us only represents an estimate of savings you might benefit from buying certain tools with us compared to the major top brands and does not necessarily mean to cover all categories of tools offered by us. You are kindly reminded to verify carefully when you are placing an order with us if you are actually saving half in comparison with the top major brands.

**VEVOR®**  
TOUGH TOOLS, HALF PRICE

## DIESEL HEATER

MODEL:ZM2003

MODEL:ZM8006



### NEED HELP? CONTACT US!

Have product questions? Need technical support? Please feel free to contact us:

**Technical Support and E-Warranty Certificate**  
**[www.vevor.com/support](http://www.vevor.com/support)**

This is the original instruction, please read all manual instructions carefully before operating. VEVOR reserves a clear interpretation of our user manual. The appearance of the product shall be subject to the product you received. Please forgive us that we won't inform you again if there are any technology or software updates on our product.

| Symbol                                                                            | Symbol Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-----------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|   | <b>Warning:</b> To reduce the risk of injury, the user must read the instructions manual carefully.                                                                                                                                                                                                                                                                                                                                                                                    |
|   | This symbol, placed before a safety comment, indicates a kind of precaution, warning, or danger. Ignoring this warning may lead to an accident. To reduce the risk of injury, fire, or electrocution, please always follow the recommendations shown below.                                                                                                                                                                                                                            |
|   | <b>CORRECT DISPOSAL:</b> This product is subject to the provision of European Directive 2012/ 19/EC. The symbol showing a wheeled bin crossed through indicates that the product requires separate refuse collection in the European Union. This applies to the product and all accessories marked with this symbol. Products marked as such may not be discarded with normal domestic waste, but must be taken to a collection point for recycling electrical and electronic devices. |
|   | <b>Warning:</b> Toxic material. Take care to avoid coming into contact with toxic material.                                                                                                                                                                                                                                                                                                                                                                                            |
|  | <b>Warning:</b> Flammable material. Take care to avoid causing a fire by igniting flammable material.                                                                                                                                                                                                                                                                                                                                                                                  |

## SAFETY INSTRUCTION



### WARNING:

Read all safety warnings, instructions, illustrations, and specifications provided with this diesel heater. Failure to follow all instructions listed below may result in electric shock, fire, and /or serious injury.



- The following measures shall not be adopted
  - Change the important component of the diesel heater.
  - Make use of spare parts from other manufacturers without permission.
  - Disobey the instruction and guide during installation or operation.

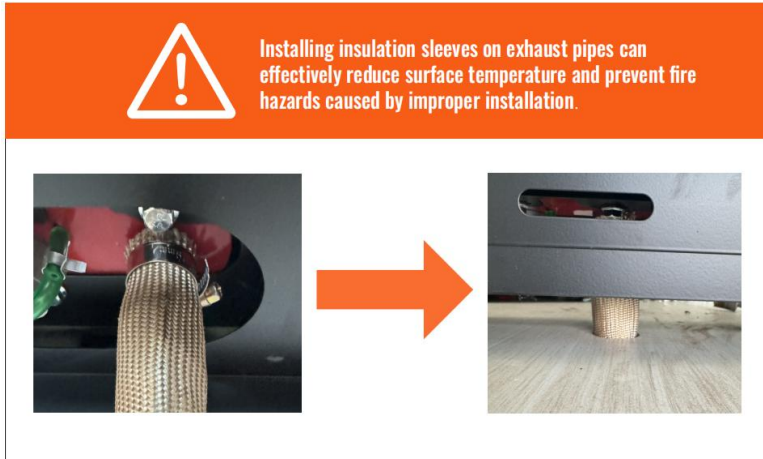
2. Only allow using original attachment and spare parts during installation and maintenance.
3. The heaters shall not be used in places where they may form flammable vapor or dust, for example:
  - Fuel depot
  - Carbon storehouse
  - Timber storehouse
  - Granary and similar sites
  - Diesel/petrol stationAnd keep away from fuel tanks, compression tanks, fire extinguishers, clothes, or other flammable objects.
4. Do not use cigarette lighter for startup.
5. Do not use the heater in closed and/or unventilated places.
6. The heaters shall be turned off when filling fuel.
7. Do not cut off the electric power in operation.
8. If the fuel leak or discharge from the fuel system of heaters, please contact VEVOR for repair.
9. Place the exhaust outlet outside to prevent any penetration of exhaust fumes.
10. In the process of work, it is forbidden to cut off the electric power directly to stop the heater from working.
11. Seal all gaps between the mounting plate and the car body.
12. The machine will stop heating after over-temperature protection. Please do not power off. After the machine is naturally cooled and turned off, it can be restarted.
13. After turning off the machine, please do not immediately disconnect the power supply. It takes 3-5 minutes for the machine to stop working completely.
14. After starting the machine for 3-5 minutes, it will work normally and heat up. Please wait patiently.
15. When the heater is just started, the current is relatively high, so an adapter with a voltage of 12V and a current of 15A or greater is required for the power supply.
16. This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved. Children shall not play with the appliance. Cleaning and user maintenance shall not be made by children without supervision.

## 17. WARNING: Flammable material



During installation/use, service, and disposal of the appliance, please pay attention that there should be no flammable substances around the exhaust pipe. The temperature of the exhaust pipe is very high when it is working. Take care to avoid causing a fire by igniting flammable material.

Please strictly follow the following methods to correctly install insulation sleeves on the exhaust pipe and reduce surface temperature:



This installation diagram is only applicable to machines with model ZM2003 and not to machines with model ZM8006.

## 18. WARNING: Toxic material



19. During installation/use, service, and disposal of the appliance, please install the appliance with space for ventilation to prevent carbon monoxide poisoning. Place the exhaust outlet outdoors to prevent exhaust gas from seeping in.

- ① To prevent the risk of carbon monoxide poisoning caused by improper installation, the product is equipped with a carbon monoxide alarm. When the carbon monoxide content in the enclosed space reaches 300ppm, the LCD switch will prompt CO to exceed the limit. When the content reaches 500ppm, an alarm will be triggered and the machine will be shut down. The leakage point needs to be checked and repaired immediately before starting up for use.
- ② The carbon monoxide alarm device is equipped with a 2m extension cable, which can install the probe in any position. It is not recommended to install it too far away from the diesel heater or too close.



Carbon Monoxide Alarm



## SAVE THESE INSTRUCTIONS

### FCC INFORMATION

**CAUTION:** Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment!

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- 1) This product may cause harmful interference.
- 2) This product must accept any interference received, including interference that may cause undesired operation.

**WARNING:** Changes or modifications to this product are not expressly approved by the party. Responsibility for compliance could void the user's authority to operate the product.

**Note:** This product has been tested and found to comply with the limits for a Class B digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This product generates, uses and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this product does cause harmful interference to radio or television reception, which can be determined by

turning the product off and on, the user is encouraged to try to correct the interference by one or more of the following measures.

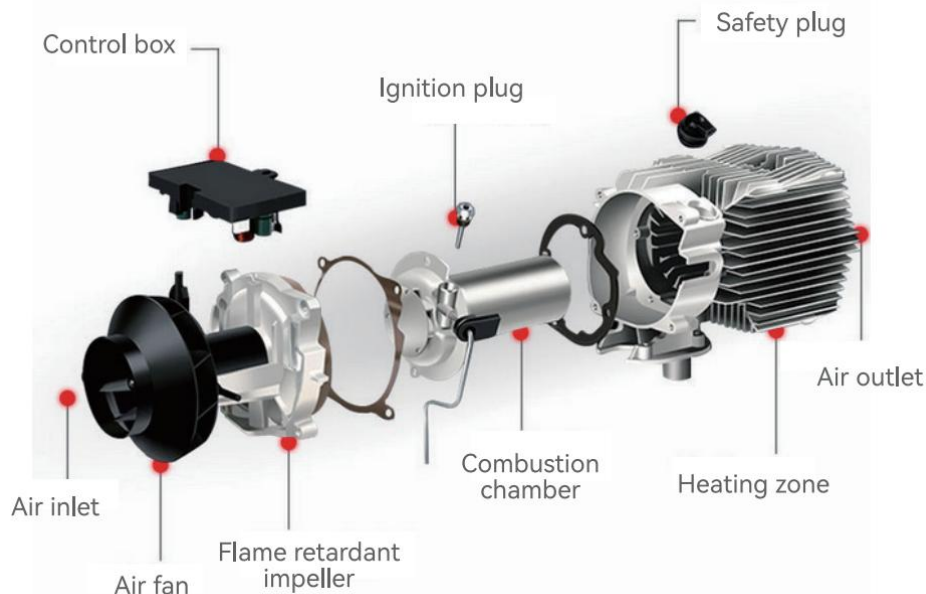
- Reorient or relocate the receiving antenna.
- Increase the distance between the product and the receiver.
- Connect the product to an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for assistance.

## **PRODUCT FUNCTION**

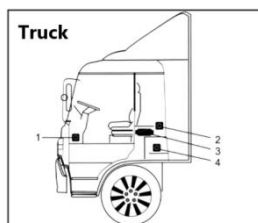
1. The diesel heater (hereinafter referred to as the heater) is independent of the original engine system. It makes use of a 12-24V direct current to drive. There are two kinds of control modes for the heater: Automatic control mode and Manual control mode. The heater adopts light diesel, which corresponds to the environmental temperature as fuel, and it can be started and operated normally at a temperature of above 40N. The inhaled fresh air is heated to hot air through the heat exchanger by the energy that comes from burning fuel, then blown to where it is needed. This type of heater has the advantage of compact structure, lightweight, high thermal efficiency, economy of electricity and fuel, and easy installation.

2. The heater gets rid of damage to the car caused by the sudden drop in temperature, improves the temperature inside the car, and preheats the engine coolant to avoid engine wear at low temperature. Conducive to car interior thawing, car start, and car glass defrost fog.

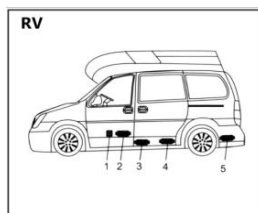
## INTERNAL STRUCTURE



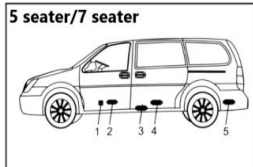
## INSTALLATION POSITION



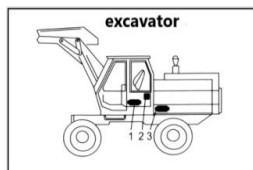
1. On the co-driver's legroom.
2. On the back wall of the cab.
3. Driver's seat backrest.
4. Within the tool box.



1. In front of the passenger seat.
2. Between the driver seat and passenger seat.
3. 3 & 4 under the container.
4. In the trunk.



The heater is mainly installed in the passenger room or baggage room of the vehicle. If it cannot be installed, fix the heater under the underside of the vehicle, but be ware of splashing.



1. Inside the driver's seat.
2. On the back wall of the cab.
3. Inside the protection box.



1. Installed in the garage against the wall
2. There should be no foreign objects blocking the front and rear air vents.
3. No flammable materials around the exhaust pipe



1. Installed against the wall of the warehouse
2. There should be no foreign objects blocking the front and rear air vents.
3. No flammable materials around the exhaust pipe



**The installation of the machine requires professional personnel to install it.**

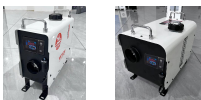


It is recommended to use high-grade diesel fuel when refueling the diesel heater. Other types of fuels, such as kerosene, vegetable oil, gasoline, waste oil, etc., cannot be used. Otherwise, the heater may have an unpleasant odor and malfunction during operation.

## MODEL

| Model          | ZM2003                                                                                     | ZM8006                                                                            |
|----------------|--------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Appearance     |           |  |
| Power ZWH      | 2KW                                                                                        | 8KW                                                                               |
| Heating medium | Air                                                                                        |                                                                                   |
| Fuel           | Diesel                                                                                     |                                                                                   |
| Ratings        | DC12-24V/40W                                                                               |                                                                                   |
| Adapter        | 100-125V~, 50-60Hz, 13V/12A For US users<br>220-240V~, 50-60Hz, 13V/12A For European users |                                                                                   |

## PACKING LIST

| Model                                     |                                                                                     | ZM2003 | ZM8006 |
|-------------------------------------------|-------------------------------------------------------------------------------------|--------|--------|
| Main engine                               |    | 1      | 1      |
| Carbon monoxide module                    |    | 1      | 1      |
| Exhaust pipe                              |  | 1      | 1      |
| Blowpipe                                  |  | 1      | 1      |
| Power cord                                |  | 1      | 1      |
| Remote control                            |  | 1      | 1      |
| Silencer with 1 fixing piece and 2 screws |  | 1      | 1      |
| clamp                                     |  | 4      | 2      |

|                              |                                                                                     |    |    |
|------------------------------|-------------------------------------------------------------------------------------|----|----|
| Pipe clip                    |     | 2  | 2  |
| Air filter element           |    | 1  | /  |
| The screw for the lock catch |    | 4  | 4  |
| Machine fixing screws        |    | 4  | 4  |
| Liquid crystal switch        |    | 1  | 1  |
| Rotary tuyere                |    | 1  | 1  |
| User Manual                  |    | 1  | 1  |
| Extension line               |    | 1  | 1  |
| Machine fixing piece         |    | 4  | 4  |
| Nut                          |    | 4  | 4  |
| screw                        |    | 10 | 10 |
| Adapter                      |   | 1  | 1  |
| Quick connector              |  | 1  | 1  |
| Protective sleeve            |  | 1  | /  |

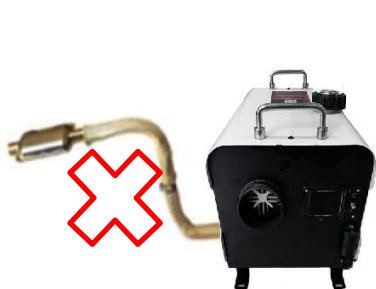
Refer to the installation diagram below and carefully read the precautions when installing or using:

### 1. No Side Installation:

※ Side installation of the diesel heater will result in oil leaks inside the machine after a period of use, producing a large amount of smoke and carbon monoxide poisoning. During installation, leave a space of 10cm around the heater to ensure good ventilation.

※ If installing the heater inside a building:

- ① With the heater placed indoors: Make holes in the wall for the exhaust pipe to be placed outdoors. Pay attention to insulating the exhaust pipe as it can become very hot and could cause a fire.
- ② With the heater placed outdoors: It's necessary to extend the exhaust pipe to avoid the exhaust from being sucked into the building from the back fan position of the heater, which can lead to carbon monoxide poisoning.



Incorrect Installation Direction



Correct Installation Direction

## 2. Precautions for the power supply:

※ The power supply for the diesel heater must meet the following requirements: Voltage: 12V; Current:  $\geq 20A$ , either from a direct power source or a battery. When powered by a battery, do not charge the battery while using the heater as insufficient current can cause malfunction. Ensure a firm and secure connection to the battery. Using clamps for fixation can result in poor contact.

※ When extending the power cable for the diesel heater, the wire diameter should be  $> 2mm^2$ . Using a thin wire can lead to insufficient current, causing the heater not to work. After connecting, use insulating tape to protect the connection and prevent electrical leakage, which might lead to fires.

※ Do not disconnect the power when the diesel heater is operating at high temperatures. This can cause backfire due to high temperatures. Repeatedly doing so can cause permanent damage. Solutions:

- If power is cut and you immediately turn on the heater: Wait until the internal heat of the heater has completely dissipated before turning it on for normal operation.

- If the heater is turned on a long time after a power cut: Incomplete combustion inside may produce a large amount of smoke. Wait for the smoke to clear, and the heater will automatically start and operate normally.



It is recommended to use high-grade diesel fuel when refueling the diesel heater. Other types of fuels, such as kerosene, vegetable oil, gasoline, waste oil, etc., cannot be used. Otherwise, the heater may have an unpleasant odor and malfunction during operation.

## PRODUCT INFORMATION

**Model: ZM003**



|   |                       |   |                 |
|---|-----------------------|---|-----------------|
| 1 | liquid crystal shutte | 2 | Outlet          |
| 3 | Carbon Monoxide Alarm | 4 | Fuel tank scale |
| 5 | Power supply port     | 6 | Air inlet       |
| 7 | footing               | 8 | Fuel tank port  |

**Model: ZM8006**



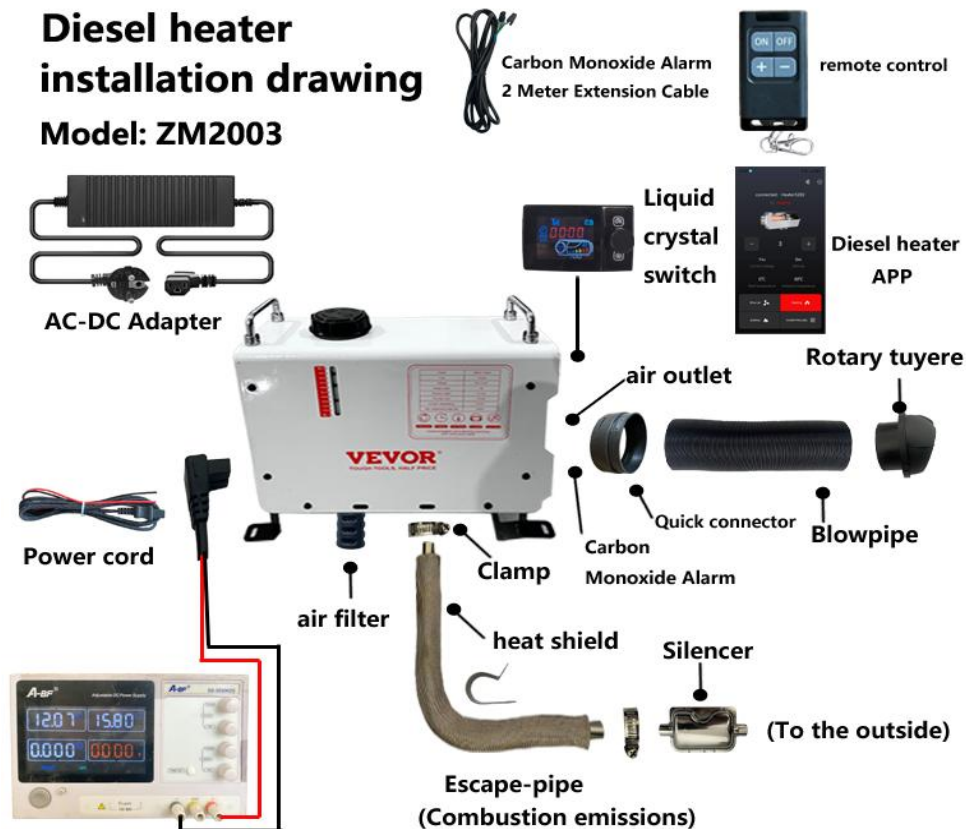
|   |                       |   |                        |
|---|-----------------------|---|------------------------|
| 1 | Outlet                | 2 | liquid crystal shutter |
| 3 | Carbon Monoxide Alarm | 4 | Fuel tank scale        |
| 5 | Fuel tank port        | 6 | Air inlet              |
| 7 | Power supply port     | 8 | footing                |
| 9 | exhaust port          |   |                        |

## INSTALLATION DIAGRAM

ZM2003

### Diesel heater installation drawing

Model: ZM2003

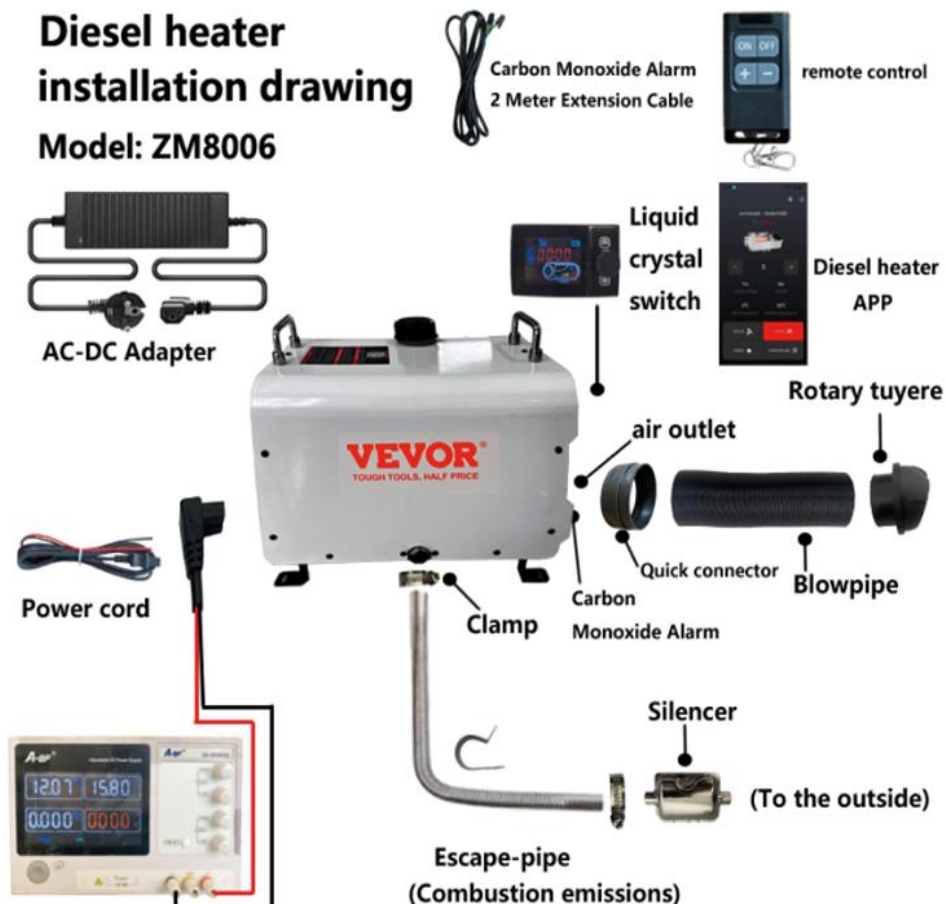


When the heater is just started, the current is relatively high, so an adapter with a voltage of 12-24V and a current of 12A or greater is required for the power supply.

ZM8006

# Diesel heater installation drawing

Model: ZM8006



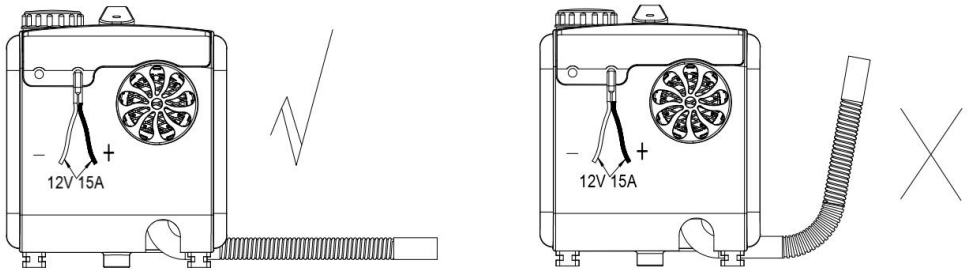
When the heater is just started, the current is relatively high, so an adapter with a voltage of 12-24V and a current of 12A or greater is required for the power supply.



## Warning:

1. The air inlet shall not be blocked, and keep the inlet open and clear.
2. Keep the exhaust pipe clear. The exhaust pipe outlet shall be kept away from anything flammable, and avoid heating and igniting the flammable goods and loading cargo on the ground.

3. To ensure optimal combustion, please remember that the smoke exhaust pipe cannot be placed upward, but must be placed horizontally or downward.



## Panel operation instructions

1. The control panel is shown in the following figure

- OK key
- On/Off button and Encoding switch;
- Set key;
- Host schematic diagram;
- State symbols;
- Display data and parameters;
- Plateau symbol;
- Fault symbols;
- data unit;

Display time: The time displayed in standby mode is natural time;

Run time: The time displayed in the startup state is the time when the machine starts running from startup.

## 2. Usage operation

### 1. On/off Operation

|                  |                               |                                  |
|------------------|-------------------------------|----------------------------------|
|                  |                               |                                  |
| Power off status | Power on status (manual mode) | Power on status (automatic mode) |

## 1) Power on operation

In the shutdown state, press and hold the " button for 2 seconds to turn on the device, and the display will show "Power on status" as shown in the above picture.

## 2) Shutdown operation

In the power on state, long press the " button for 2 seconds, and the device enters the shutdown and cooling process, displaying "OFF". After the device cools down, it shuts down and displays the "shutdown status" as shown in the above picture. Do not force power off when displaying "OFF". Power off may damage accessories due to high temperature inside the machine and inability to dissipate heat! Wait until the machine is displayed in the shutdown state before powering off!

## 3) Manual mode operation

The manual mode consists of 6 gears (H1-H6). H6 represents the maximum power, as shown in the "power on state" in the figure above, Rotating encoding switch key to increase/decrease the gear.

## 4) Constant temperature mode operation

Constant temperature mode, as shown in the above figure, set to 18°C. Rotate the encoding switch to add/subtract temperature values, with a set range of 0-40°C. Press and hold the " key for 2 seconds to switch between manual/constant temperature mode.

Automatically upshift/downshift outside the set temperature range of  $\pm 3^{\circ}\text{C}$ .

## 2. Switching to display data on startup

Power on status, Short press the "OK" button to switch between displaying data in the following order:

gear(or set temperature)->shell temperature ->working voltage ->ambient temperature ->Carbon monoxide concentration

## 3. Plateau mode operation

Simultaneously press and hold the "OK" and " keys for 2 seconds to enter the plateau mode. The icon " displays the start of plateau mode. In plateau mode, the wind oil ratio decreases to adapt to the oxygen concentration in the plateau. Then press and hold the "OK" and " keys for 2 seconds to exit plateau mode.

## 4. Function setting operation

In the shutdown state, press and hold the "OK" button for 2 seconds to enter the function selection interface. Rotate the "Encoding switch" to switch the function selection in the following order:

Adjusting the clock "AC" -> Set timing " -> Manual pump oil "Po" -> Remote control matching "rF" -> Temperature unit switching "Un" -> Bluetooth number "n0"(switch with Bluetooth); Select the function and press the "OK" button to enter the corresponding function.

## 4.1. Adjust clock operation

The indicator symbol "" is displayed.

1) Press the "Encoding switch" key to adjust the time value. The time adjustment range is from 00:00 to 23:59

2) Press the " key to switch and adjust the number position, and the corresponding number will flash.

3) Press the "OK" button to confirm the time and enter the week setting.

4) Press the " key to enter the week setting.

5) Exit the clock adjustment interface after 10 seconds without button operation.

Automatically synchronize phone time when connecting to the app.

### 4.1.1. Setting the Week Operation

Digital display "EE-1"

1) Rotate the "Encoding switch" to adjust the tail number,

2) Press the "OK" button to confirm the time and exit the clock adjustment interface.

3) Press the " key, or operate without a key for 10 seconds to exit the clock adjustment interface.

## 4.2. Set timing

The indicator symbol " " is displayed. Display " to set the shutdown time, not to set the startup time. If the timing function is already enabled, turn off the timing function and the " symbol will be turned off.

1) Adjust the time value by rotating the "Encoding switch" , with a time adjustment range of 00:00 to 23:59.

2) Press the " key to switch and adjust the number digits, and the corresponding digits will flash.

3) Press the "OK" button or operate without a button for 15 seconds to save the set value. If setting the startup time, switch to the shutdown time setting. Otherwise, exit the timer setting.

4) Press the " key to not save the set value. If setting the startup time, switch to the shutdown time setting. Otherwise, exit the timer setting.

5) In the non set state, press the " key to cycle through the display of the scheduled time for the day.

After activating the timer function, the clock will automatically turn on when it reaches the scheduled startup time; Upon reaching the scheduled shutdown time,

it will automatically shut down. The panel is set to loop mode 'Execute Every Day'.

#### 4.3. Manual oiling operation

Display "HOIL". Press any key or after 3 minutes, exit the manual oil pump state.

#### 4.4. Remote control matching operation

Display "HFA1".

1) Rotate the "Encoding switch" to adjust the storage address: HFA1、HFA2、HFA3、HFA4, corresponding to four remote controls.

2) Press any key on the remote control, the machine will successfully match the code and exit the remote control matching status.

3) Press the "⚙️" key to exit the remote control matching status.

\*Remote control requirements: frequency band 433MHz, 24 bit code.

#### 4.5. Bluetooth number (switch with Bluetooth)

Displayed as "1234" is the 4-digit number of the Bluetooth name for this switch.

Press any key or exit after 3 seconds.

#### 4.6. Set CO alarm value

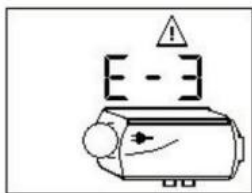
Display "Co20", the last two digits represent the CO concentration alarm value of 20, indicating 200PPM

1) Rotate the "Encoding switch" to adjust the alarm value, ranging from 50 to 500.

2) Press the "OK" button to save the set values and exit.

### 5. Fault alarm

As shown in the figure below, the corresponding fault symbol flashes, and the corresponding faulty component icon flashes. The displayed data is the fault code, and its meaning can be found in the fault table.



\*Spark plugs, oil pumps, fans, sensors, power supplies, and other symbols flash to indicate that the corresponding components have malfunctioned.

### 6. CO alarm value setting (password: 7070)

L500: Indicates that the CO alarm concentration value is 500PPM. If the CO concentration exceeds this value, the equipment will automatically stop heating. If it exceeds this value by 60%=300PPM, an alarm will be triggered.

1) Press the "▲" or "▼" key to adjust the numerical value, with a range of 50-999PPM.

2) Press the "⏻" key to switch and adjust the number digits, and the corresponding digits will flash.

3) Press the "OK" button to save the alarm value and exit this interface

4) Press the "⚙️" key to exit this interface.

## **Instructions for use**

1. It is prohibited to use in environments with high humidity, conductive dust, flammable and explosive gases, dust, materials, corrosive media, strong light exposure, and strong magnetic, high-voltage, and high current equipment in the vicinity.

2. Power supply voltage range: DC24V controller applicable(18-32)V; DC12V controller is suitable for(9-16)V; Different voltage controllers are not interchangeable and are prohibited from exceeding the applicable voltage range.

3. Do not open the controller shell without permission.

4. The equipment must be installed strictly according to requirements and used under safe conditions.

5. When the body is hot and the fan cannot operate normally, it is necessary to quickly cool down the body, Blow cold air into the combustion intake hole to cool down and lower the body temperature below 80℃. Prevent high-temperature damage to components or fire.

When heating the equipment, it is necessary to ensure that each air duct is unobstructed and that the pipeline is free of bends, pressures, and blockages in order to effectively ensure the heating efficiency and normal operation of the equipment. Blocked channels can cause high temperatures in the body, reduce heating efficiency, shorten equipment lifespan, or damage equipment. The use of qualified fuel is essential to ensure the normal use and lifespan of the equipment.

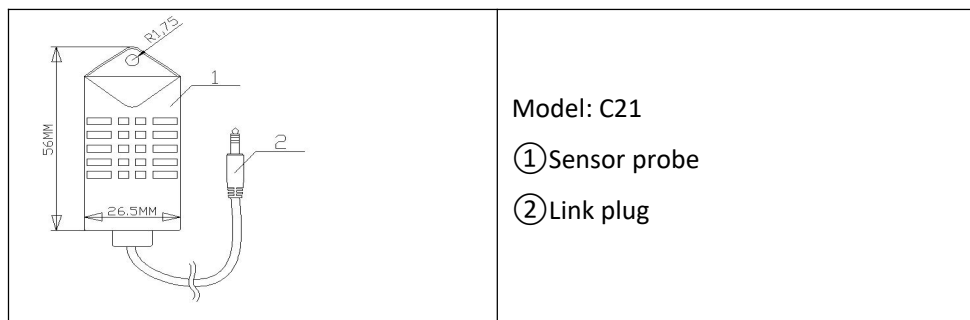
### Fault table

| Fault code | Cause of malfunction                                | treatment                                                                                                                                                                                                                                                                                          |
|------------|-----------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| E-2        | Power supply voltage range                          | Normal range:24V(18-32V), 12V(9-16V)Check if the battery or generator is functioning properly,and check if the fuse is aging                                                                                                                                                                       |
| E-3        | Ignition plug malfunction                           | 1) Check if the ignition plug connection plug is loose or if the wire is short circuited to the casing<br>2) Check if the ignition plug is damaged                                                                                                                                                 |
| E-4        | Oil pump malfunction                                | Check if the oil pump connection wires and connectors are damaged, loose,oxidized,short circuited,or disconnected.                                                                                                                                                                                 |
| E-5        | High temperature alarm (inlet air>50℃; casing>230℃) | 1) Check if the heating air duct is unobstructed<br>2) Check if the fan is running normally<br>3) Check if the temperature sensor is functioning properly                                                                                                                                          |
| E-6        | Fan Failure                                         | 1)Check if the impeller is stuck<br>2)Check if the connecting plug is loose<br>3) The gap between the magnet on the wind turbine and the Hall sensor on the controller is too large<br>4)Whether the circuit is short circuited or open circuited; Motor leakage                                   |
| E-7        | Communication Failure                               | Detecting wiring harnesses                                                                                                                                                                                                                                                                         |
| E-8        | Turn off the engine                                 | 1) Check for oil shortage,low temperature solidification of oil, blocked oil circuit, and stuck oil pump<br>2) Check if the oxygen intake and exhaust ducts are unobstructed<br>3) Check if the casing temperature sensor is in full contact with the casing and if the pressure spring is strong. |
| E-9        | Sensor fault                                        | Is the temperature sensor connection wire and connector damaged or loose, and is the sensor damaged                                                                                                                                                                                                |
| E-10       | Unsuccessful startup                                | 1) The temperature of the casing is too high, and it failed to cool the casing after starting for 3 minutes<br>2) There is a large amount of white smoke in the exhaust gas<br>2.1)Check if the filter screen next to the ignition                                                                 |

|                            |                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|----------------------------|----------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                            |                                                    | <p>plug is clean. If it is not clean, clean or replace it</p> <p>2.2) Check if the oil pump sprays oil forcefully</p> <p>2.3) Check if the ignition plug is aging</p> <p>3) There is a small amount of white smoke or no smoke in the exhaust gas</p> <p>3.1) Check for oil shortage, frozen or blocked oil circuits</p> <p>3.2) Check if the oil pump is stuck or damaged, and if the oil pump is not functioning properly</p> <p>3.3) Check if the combustion intake and exhaust channels are unobstructed</p> <p>3.4) Check if the ignition plug is damaged</p> <p>3.5) Is the clearance between the inner wind turbine too large</p> <p>4) Ignite normally but still report ignition failure fault</p> <p>Check if the casing temperature sensor is in full contact with the casing, if the pressure spring is strong, and if the sensor is functioning properly</p> |
| The exhaust pipe turns red | Abnormal combustion chamber or oil pump            | Immediate shutdown is required, and the aluminum body should be disassembled to check if the internal combustion chamber is sealed or replaced;                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Abnormal noise             | Exhaust blockage                                   | It should be immediately shut down and checked for blockages in the exhaust pipe, muffler, and exhaust outlet. If there are blockages, clean them and resume normal operation;                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Oil leakage                | Internal oil leakage of the machine                | <p>1. The heater cannot be installed on the side, and the oxygen hole on one side of the ignition plug will allow oil to flow out along the hole. The correct installation method is to have the intake/exhaust ports facing downwards;</p> <p>2. Poor oil quality causes blockage of the ignition plug atomization network in the combustion chamber, which does not ignite and flows out along the exhaust pipe. The ignition plug atomization network should be replaced and high-grade diesel should be replaced;</p>                                                                                                                                                                                                                                                                                                                                                |
| Emitting black smoke       | Insufficient oxygen intake & carbon buildup in the | <p>1. Check if there is any blockage in the intake pipe causing insufficient oxygen intake;</p> <p>2. The small space of the air inlet position leads to air intake obstruction;</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

|                        |                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|------------------------|-------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ke                     | combustion chamber                  | 3. Disassemble the internal combustion chamber of the machine to check for carbon deposits, and replace the combustion chamber in a timely manner;                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Emitt ing blue smo ke  | Poor oil quality                    | Diesel heaters can only use high-grade diesel, and negative temperature diesel should be used in winter;                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Emitt ing white smo ke | Ignition failure                    | 1. Check if the internal pump oil volume of the machine is too high, causing the ignition plug to fail to ignite. The oil pipe should be removed and restarted 2-3 times before returning to normal, and then the oil pipe should be inserted;<br>2. Use a hair dryer to blow into the intake pipe for a period of time until it works properly;                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Dies el flavo r        | Diesel assisted combustion          | 1. Confirm that the fuel tank is filled with diesel, as other fuels may cause odor;<br>2. Open the machine casing to check for any oil leakage inside;                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Plast ic odor          | Whether to use external accessories | 1. Extension or modification requires the purchase of high-temperature resistant accessories, otherwise the high heat of the heater will cause an unpleasant and pungent odor;<br>2. The extension tube should not be bent or too long, as it will cause heat to be unable to be discharged and high internal temperature will produce a plastic odor;<br>3. The installation of perforated exhaust pipes does not require protection. Normally, exhaust gas is discharged through the exhaust pipes. If it is a wooden floor, large holes need to be opened and iron plates need to be used for protection. The heat of the exhaust pipe can reach up to 400 degrees and adhesive substances cannot be applied on the surface, otherwise it will cause unpleasant odor and even carbon monoxide production. High temperature resistant materials need to be purchased for sealing |

## CO CONTROLLER OPERATION INSTRUCTIONS



### Product specifications/parameters

1. To prevent the risk of carbon monoxide poisoning caused by improper installation, the product is equipped with a carbon monoxide alarm. When the carbon monoxide content in the enclosed space reaches 300ppm, the LCD switch will prompt CO to exceed the limit. When the content reaches 500ppm, an alarm will be triggered and the machine will be shut down. The leakage point needs to be checked and repaired immediately before starting up for use.

2. The carbon monoxide alarm device is equipped with a 2m extension cable, which can install the probe in any position. It is not recommended to install it too far away from the diesel heater or too close.

Configuration Table - Model: **C21**

| NO. | Function             | Parameter     | NO. | Function              | Parameter                                |
|-----|----------------------|---------------|-----|-----------------------|------------------------------------------|
| 1   | detection range      | 0-990ppm      | 7   | operation temperature | -20~50℃                                  |
| 2   | Detecting overload   | 2000ppm       | 8   | Pressure Range        | Standard atmospheric pressure $\pm 10\%$ |
| 3   | repeatability        | $\pm 3\%$     | 9   | Supply Voltage        | 5.2V $\pm 0.5$ V                         |
| 4   | Response time (t90)  | $\leq 30$ s   | 10  | consumption           | $< 10.0$ mA                              |
| 5   | Resolution ratio     | $\leq 5$ ppm  | 11  | Extension line        | 2m                                       |
| 6   | Zero drift (-20~40℃) | $\leq 10$ ppm | /   | /                     | /                                        |

## **Emergency response methods for controller alarms**

1. When the CO concentration within the detection range of the controller exceeds the limit, the switch will display a fault/the controller indicator light will flash, and the switch will automatically turn off the heater to avoid a continuous increase in CO concentration; Ventilation should be done immediately (if the environment is narrow and conditions permit, open the ventilation openings to create an open environment as much as possible. When the environment is open or ventilation is inconvenient, it is recommended to increase ventilation equipment to accelerate air circulation and discharge CO gas), and personnel in the environment should evacuate immediately from the environment where the current CO concentration exceeds the standard;
2. If the installation and usage environment is correct, it is recommended that personnel return to the working area and restart to check the CO concentration to see if it meets the standards.
3. During the use of this product, it is important to maintain long-term air circulation and regularly check the concentration of carbon monoxide (international standard  $50\text{mg/m}^3 \approx 40\text{PPM}$ ) to ensure personal safety. If symptoms of carbon monoxide poisoning occur (such as dizziness, headache, nausea, etc.), one should immediately stay away from the source of pollution, breathe fresh air, and seek medical assistance.
4. This product uses electrochemical sensors, which are easily affected by local temperature and humidity interference, resulting in slight impact on detection accuracy. Therefore, to ensure your safety, please use this product objectively and reasonably. Its service life is affected by the environment, and the accuracy of the sensor is regularly tested. If the error is too large, please replace the sensor.
5. Even if a carbon monoxide alarm is installed, the room must be properly ventilated to prevent excessive CO emissions during sleep from not being dealt with in a timely manner.

## **Precautions and usage specifications**

1. Please do not open the product casing at will; Prevent external forces from damaging the sensor;
2. Products should avoid contact with organic solvents (including silicone rubber and other adhesives), coatings, chemicals, fuel oils, and high concentration gases;
1. The product should not be completely encapsulated with resin materials during use and storage, nor should it be immersed in an anaerobic environment for a long time, otherwise it will damage the performance of the sensor; Affects the detection accuracy of the product;

2. This product cannot be used for a long time in environments containing corrosive gases;
3. During installation and use, it is necessary to avoid vertical air intake from the front;
4. The product air inlet must not be blocked or contaminated;
5. This product needs to be installed firmly and not subjected to excessive impact or vibration;
6. Do not use if the shell is damaged or deformed;
7. Prohibit long-term storage and use of this product in high concentration alkaline gases;
8. Please replace the controller with a new one in a timely manner when it reaches its expected service life;
9. Prohibit long-term storage and use of this product in high concentration alkaline gases;
10. Please replace the controller with a new one in a timely manner when it reaches its expected service life;

## BLUETOOTH OPERATION

Search and download the corresponding APP name "**AirHeaterCC**" ;  
Alternatively, scan the QR code below with your phone and click on the corresponding system to download, then follow the steps below to connect and control the device with your phone.



### Download AirHeaterCC

Get the best experience on your mobile device!

1

Download Android

2

Download on Google Play

3

Download on the App Store

【1】 Option is for Android system

【2】 Option is Google Download

【3】 Option is IOS system

1. Turn on the Bluetooth function of the phone, run the APP



program to enter the following interface:



- 1,Bluetooth link button,
- 2,Set buttons,
- 3,Bluetooth connection status,
- 4, Equipment status and fault description,
- 5,-key,
- 6,Set gear or temperature,
- 7,+key,
- 8,working voltage,
- 9,altitude,
- 10,Machine aluminum body temperature ,
- 11,Equipment ambient temperature ,
- 12,Ventilation button,
- 13,Heating button,
- 14,Plateau button,
- 15,Mode switching button.

## 2. Device connection via Bluetooth:

Press 【 Bluetooth link button】 to enter the following page:



Select 1 as "Heater+Machine Code" (when the device is powered on, short press the OK button on the switch panel to display it), (The machine code on the picture is for reference only, and the actual displayed machine code shall prevail.)

2 is the Bluetooth signal strength (as shown in signal 68 above, the smaller the value, the stronger the signal). If no device is found, check if there are other phones already connected to this device (each device can only be connected to one phone), or power on the device again and turn on the Bluetooth function of the phone before proceeding to the first step.

**3. After successful linking, it will be displayed as shown in the following figure:**



Shutdown status



Power on status  
(manual mode)



Power on status  
(temperature mode)

**1) Power on operation**

In shutdown mode, press the [heating button], The device is turned on for heating and displays the "power on status" as shown in the above picture. Press the [+] button to upshift the device, press the [-] button to downshift the device, press the [mode switch] button to switch between manual/constant temperature mode (0-40 degrees), and press the [plateau button] button to switch between plateau/plain mode.

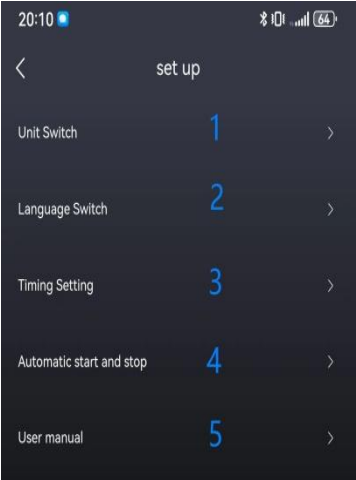
**2) Shutdown operation**

In the power on state, press the [heating button], and the device enters the shutdown and cooling process, displaying "cooling in progress". The device can only be powered off after being cooled down and displaying the "shutdown status" as shown in the above picture.

**3) Ventilation operation**

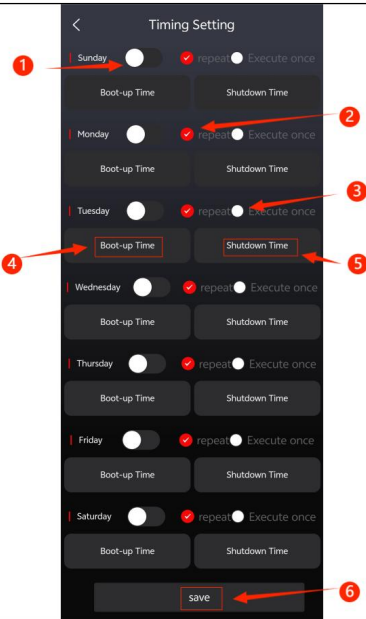
In the shutdown state, press the ventilation button to turn on/off ventilation, and adjust the fan speed by pressing [+] or [-].

4. Set Page Description:

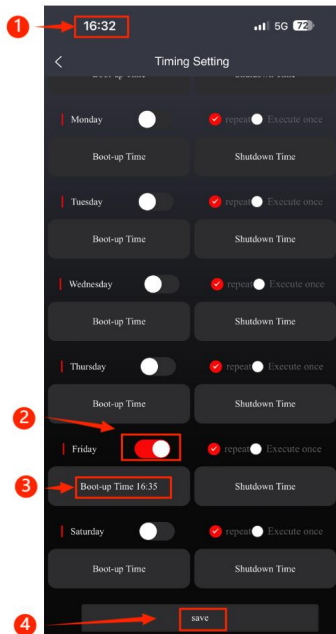


- ① Unit settings include: Fahrenheit, Celsius, feet, meters。
- ② Language settings include: Chinese, English, Spanish, French, German, Italy, Poland, Netherlands, Sweden, Russian。
- ③ The timing function includes: Monday to Sunday, and can be set to start time, close time, single time, and cycle mode.
- ④ Automatic start stop function: After being turned on, the machine works effectively in constant temperature mode (some devices do not have this function).
- ⑤ The user manual includes fault codes and troubleshooting methods.

5. Timed page description:

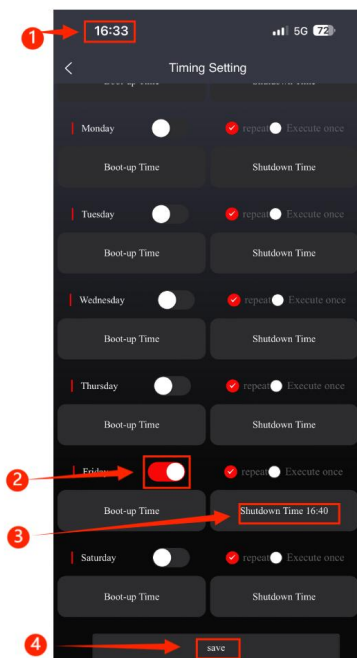


- 【1】 On/Off button
- 【2】 loop execution
- 【3】 Execute once
- 【4】 【5】 Equipment on and off time
- 【6】 Save.



Set the startup time in the shutdown state, as shown in the left figure.

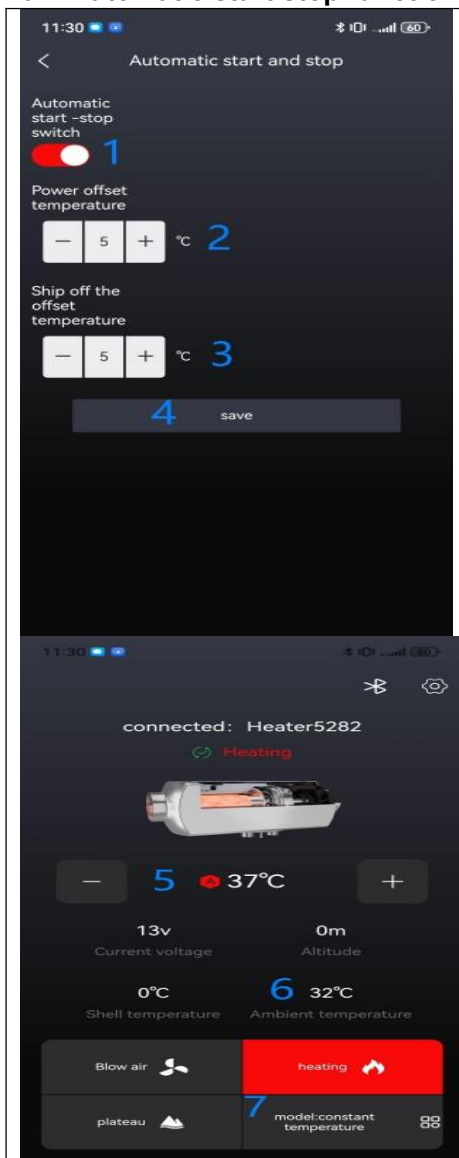
- 【1】 Current time
- 【2】 Open timer
- 【3】 Set timed start time
- 【4】 Save



Set the shutdown time in the power on state, as shown in the left figure.

- 【1】 Current time
- 【2】 Open timer
- 【3】 Set timed shutdown time
- 【4】 Save

## 6. Automatic start stop function page description:



- 1.Button on、
- 2.Select the device startup temperature (3-10 °C)
- 3.Select device shutdown temperature (3-10 °C)
- 4.Save
- 5.(A-Automatic) Working in automatic power on/off mode, the required temperature can be adjusted by pressing the [+] and [-] buttons (0-40 °C)、
- 6.The surrounding temperature of the equipment is the reference temperature 、
- 7.Automatic start stop is only effective when working in constant temperature mode. The above diagram shows: set the temperature to 37 °C , turn on the temperature to 5 °C , turn off the temperature to 5 °C , stop heating when the surrounding temperature of the equipment is 42°C, and turn on heating when the surrounding temperature of the equipment is 32°C (the timed on/off function is also effective)。

**Manufacturer:** Shanghaimuxinmuyeyouxiangongsi  
**Address:** Shuangchenglu 803nong11hao1602A-1609shi, baoshanqu, shanghai 200000 CN.  
**Imported to AUS:** SIHAO PTY LTD. 1 ROKEVA STREETEASTWOOD NSW 2122 Australia  
**Imported to USA:** Sanven Technology Ltd. Suite 250, 9166 Anaheim Place, Rancho Cucamonga, CA 91730

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YH CONSULTING LIMITED.  
C/O YH Consulting Limited Office 147,  
Centurion House, London Road, Staines-  
upon-Thames, Surrey, TW18 4AX

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E-CrossStu GmbH  
Mainzer Landstr.69,  
60329 Frankfurt am Main.

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