



Diesel Air Car Parking Heater

User Manual



Diesel



SUV



New Energy Vehicle



RV



Engineering Vehicle



Truck



Indoor



RV tent

NOTE: Please read this manual carefully before use to understand the function and operation requirements of the product.

Languages

English 01-20

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1. Contact us

Thank you for your support and trust in Hcalory. Parking heaters are complex, and you may use them in a variety of outdoor or indoor environments, so you may encounter a variety of unexpected situations. When you encounter difficulties that you can't solve, you can contact us, and we will guide you to adjust or repair.

If you need our after-sales technical support, or if you have any questions about Hcalory products, you can email **hcalory@hcalory.com** or contact our after-sales staff through the sales platform where you purchased the product, and we will provide you with more detailed instructions or how-to videos. Thank you for your feedback and support.

2. Function introduction

2.1 Product Overview

Diesel heaters are on-board heating devices that are independent of the automobile engine, and have their own fuel lines, circuits, combustion heating devices, and control devices. Originally, the machine was often used to preheat the engine and cab of a car parked in a cold and cold environment in winter, as a way to eliminate cold start wear and tear of the car. Now diesel heaters have a wider range of uses, which can be used as space heating equipment in tents, indoors, and RVs, making users' living and traveling more comfortable.

2.2 Explanation of Principles (Heat Source, Heating, Control)

2.2.1 Heat source:

After the equipment is started, the ignition plug will continue to heat up, this process will take 1~3 minutes, and then the fan will be started to deliver air to the combustion chamber, and the diesel pump will also pump the diesel into the combustion chamber. After the atomized diesel is mixed with gas, it begins to burn after coming into contact with the high-temperature ignition plug, generating a large amount of heat. The high-temperature exhaust gases after combustion are discharged from the exhaust gas outlet below.

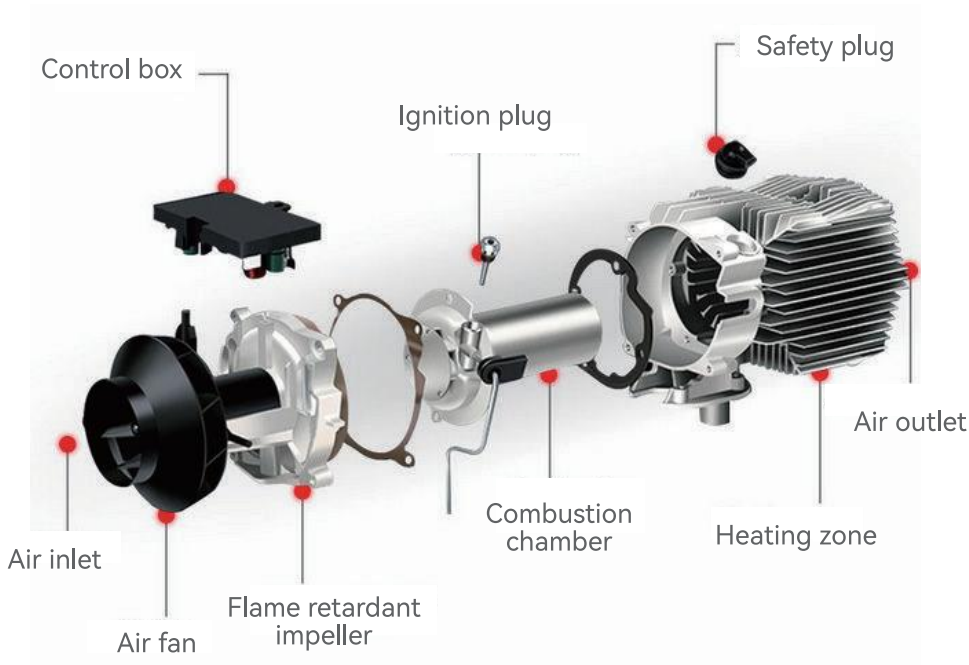
2.2.2 Heating:

The heat generated in the combustion chamber is quickly transferred to the aluminium heat exchanger and dissipated into the warm air duct via the aluminium fins. An external fan blows the gas around the heat exchanger, and the heated air is blown out of the warm air outlet.

2.2.3 Control:

The controller is embedded in the device, and the user can control the device through the switch panel connected to the controller, and the user can check the running status of the equipment, control the gear, and make an appointment through the switch panel. Users can also use the remote control or install the app developed by Hcalory for remote control. (KROAK and Hcalory are both our brands. So, you can use the "Hcalory" app to control your device)

2.3 Internal Key Parts Terminology (Read before Repair)



3. Installation instructions

3.1 Confirmation of Parts List



① Host



② AC-DC power apply
(Optional purchase)



③ Wire harness



④ Exhaust Silencer



⑤ Exhaust pipe



⑥ Intake pipe



⑦ Air Outlet Pipe



⑧ Air Filter



⑨ Vents



⑩ Manual



⑪ Fixture Accessories set



⑫ LCD Switch



⑬ Remote control

The installation difficulty of this toolbox compact is relatively low, as we've simplified many pipeline installation processes. All you need to do is to install the **exhaust pipe** and connect the **AC-DC power** apply, then you can start working. Please extend the exhaust pipe outside to expel the combustion exhaust gas.

Note: The discharged exhaust gas can reach temperatures as high as 400°C, please keep it away from your pets and children, and be aware of the gap from the ground to avoid damaging your floor or lawn.

3.2 Installation Location



The installation difficulty of this toolbox compact is relatively low, as we've simplified many pipeline installation processes. All you need to do is to install the exhaust pipe and connect the AC-DC power apply, then you can start working. Please extend the exhaust pipe outside to expel the combustion exhaust gas.

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4. Safety instructions(Read before use)

Read all safety warnings, instructions, illustrations, and instruction manuals provided with this diesel heater. Failure to follow all of the instructions below may result in electric shock, fire, or serious injury.

1. Do not replace the important parts of the diesel heater without authorization, if you need to repair or replace parts, please ask the customer service staff in advance to obtain the correct product specifications and product model (if you choose the wrong specification, it is likely to cause damage to the combustion system)

2. The heater must not be used in places where flammable vapors or dust may be formed, such as:

- ①. Fuel depots, carbon depots, timber depots, granaries and similar locations
- ②. Diesel/gas station, and keep away from fuel tanks, compression tanks, fire extinguishers, clothing, and other flammable items.

3. Please use the machine in a safe way and understand the hazards in it. Children are not allowed to play with this machine. Cleaning and maintenance must not be carried out unsupervised by children.

4. Do not go near flammable materials (the temperature is very high when the exhaust pipe is working)!

In the process of installation, use, maintenance and scrapping of this machine, there shall be no flammable and explosive materials around the exhaust pipe, and attention should be paid to avoid igniting flammable materials and causing fire.

5. Keep ventilation and keep the pipes open.

When installing, using, maintaining, and disposing of this equipment, leave a ventilated area on this equipment to prevent carbon monoxide poisoning. Place the metal exhaust pipe outdoors to prevent exhaust gases from entering the room.

6. Do not use the heater in an enclosed or unventilated place.

7. The heater should be turned off when adding diesel.

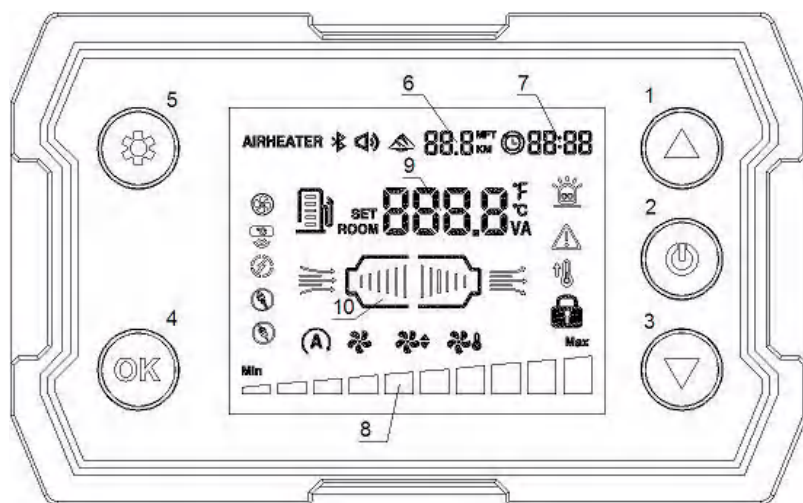
8. Do not cut off the power supply directly! After turning off the heating program, the equipment still needs to carry out a process of extinguishing and cooling, which needs to last for 3~5 minutes, please do not cut off the power supply directly during the normal operation of the machine! (Cutting off the power supply directly may cause the machine to shut down abnormally, which may have a bad impact on the next start).

9. If the fuel system of the fuel heater is leaking, please contact the after-sales personnel to get the parts and guidance required for repair.
10. Place the exhaust port outdoors to prevent exhaust gases from entering the room.
11. During the operation of the machine, it is strictly forbidden to directly cut off the power supply to stop the heater from working.
12. When installing the pipeline, please try to ensure that the pipeline is unblocked, not to be squeezed or blocked.
13. After overheating protection, the machine stops heating. Please do not turn off the power. Once the machine has cooled down naturally and is shut down, it can be restarted.
14. Please do not disconnect the power supply immediately after turning off the machine. It takes 3-5 minutes for the machine to stop working completely.
15. 3-5 minutes after turning on the machine is the preheating and ignition stage, during which the ignition plug, oil pump, and fan will work according to the preset program. Hot air will blow out from the warm air duct of the device after a few minutes, please be patient.
16. When the heater is started, the ignition plug requires a relatively large current to heat, so an adapter with a voltage of 12V and a current of 12A or greater is needed as a power supply. After successful ignition, the equipment only needs a current of 1~4A to work continuously.

5.Control Panel Operating Instructions



5.1 The control panel is shown below



- | | |
|------------------|-----------------------------|
| 1. Plus button | 6. Altitudes |
| 2. On/Off button | 7. Clock display |
| 3. Minus button | 8. Power levels |
| 4. OK button | 9. Display data, parameters |
| 5. Setup button | 10. Main body shape |

5.1.1 Icon Meaning

	1. Ventilator		9. Carbon Monoxide Alarm
	2. Sensor failure		10. High temperature alarm
	3. Power supply failure		11. Troubleshooting
	4. Ignition plug		12. Automatic start/stop
	5. Oil pumps		13. Ventilation status
	6. Bluetooth symbol		14. Manual mode
	7. Plateau state		15. Power supply failureev
	8. Alarm clock		

5.2 Operating instruction

5.2.1 Power on/off operation

① Boot-up operation

In the off state, long press the  key for 2S, the device is turned on.

② Shutdown operation

In the power-on state, press and hold down the  key for 2S, the device enters the process of shutting down and blowing cold, and "OFF" is displayed. The device will be shut down after blowing cold. Please do not force the machine to power off when "OFF" is displayed. "Powering off the machine will damage the parts because the temperature inside the machine is too high to dissipate the heat. Do not turn off the power until the display shows "OFF"!

③ Manual mode operation

Manual mode has a total of 10 gears (H1-H10), H10 indicates the maximum power, press the  or  key, up/down gear level, then the status display will show  .

④ Constant temperature mode operation

Constant temperature mode, press  or  key, add or subtract the temperature value,setting range 0 to 40°C. Then the status display will show  . Press and hold the  key for 2S to switch between manual/thermostat mode.

5.2.2 Ventilation operation

In the shutdown state, hold down the  key for 2s to turn on the ventilation state. Then the status display will show .

- 1 Press the  or  key to adjust the fan speed gear.
- 2 Long press the  or  key for 2s to exit from ventilation.

5.2.3 Switch the power-on display data

In the startup state, press the **【OK】** key to switch the display data, and the switching sequence is: gear (or set temperature)-> housing temperature -> working voltage -> ambient temperature.

5.2.4 Temperature unit switching

At the same time, long press the  +  key for 2s to switch °C/°F.

5.2.5 Elevation unit switching

At the same time, long press the  +  key for 2s to switch Km/MFT.

5.2.6 Manual oiling operation

In the off state, simultaneously press  +  key for 2s, Manually control the oil pump, release the button to stop the oil.

 Please use with caution!

5.2.7 The altitude enables operation

Simultaneously press  + **【OK】** key for 2s, icon  display indicates altitude enable: equipment air oil ratio to add altitude conversion. If you press  Off again, the altitude is disabled.

5.2.8 Timed on/off operation

Simultaneously press **【OK】** +  key for 2s, if no timing is enabled, the timing Settings screen is displayed, and the indicator symbol  is displayed. The display data (9) area displays "OPEN" for setting the startup time and "CLOS" for setting the shutdown time. If timing is enabled, all timing is disabled, and the symbol  is off.

10:00

- 1 Press  or  key to adjust time value, the value ranges from 00:00 to 23:59.
- 2 Press  key, to switch the adjustment digit and the corresponding digit blinks.
- 3 Press **【OK】** key, save the settings. If the startup time is set, switch to the shutdown time setting, otherwise exit this interface.
- 4 Save the set value and exit the interface after 10s of keyless operation.

⑤ Press  key, don't save the settings. If the startup time is set, switch to the shutdown time setting, otherwise exit this interface.

After the timer is turned on, the symbol  flashes. When the clock reaches the fixed startup time, it will be turned on automatically; Reach the scheduled shutdown time, automatic shutdown.

⑥ After the timing is enabled, press  key to view all timing times on the current day.

5.2.9 The clock operates on time

Press and hold the **【OK】** key for 2s. The clock adjustment screen is displayed. "CLOC" is displayed in the Data display (9) area.

① Press the **【▲】** or **【▼】** key to adjust the time. The value ranges from 00:00 to 23:59.

② Press the **【⏻】** key to switch the adjustment digit, and the corresponding digit blinks.

③ Press the **【OK】** key to confirm the time and enter the setting week.

④ Press the  key to enter the Setting Week.

⑤ The clock adjustment screen exits 10 seconds after you perform this operation without pressing a button.

Set weekly operation

Digital display "EE-1"

① Press **【▲】** or **【▼】** key to adjust the mantissa.

② Press the **【OK】** key to confirm the time and exit the clock adjustment screen.

③ Press  or no key for 10s to exit the clock adjustment page.

When the APP opens and connects to Bluetooth, it automatically synchronizes the phone time.

5.2.10 Altitude compensation operation

In the heating state, long press the "+" key 2s at the same time to enter the altitude compensation interface, and "CALt" is displayed in the display data (9) area.

① Press **【▲】** or **【▼】** key to adjust value, and the adjustment range: 0 ~ ±3.0 Km

② Press the **【OK】** key to notarize value, and exit the screen.

③ Press the  key to switch positive/negative.

④ The screen automatically exits after 10S of key less operation.

The compensation value is limited to the altitude value range of 0 ~ 6.0 Km after compensation.

5.2.11 Wireless remote control matching operation

In the shutdown state, hold down the  +  key for 2s to display HFA1.

- ❶ Press  or  key to adjust the 4th digit, which is the remote control number, the range of 1 to 4, corresponding to 4 remote controls.
- ❷ Select the remote control number, press the remote control button to check the code, and exit the code state after success.
- ❸ Press the  key to exit the remote control code alignment.

*Remote control requirements: frequency band 433MHZ, 24-bit code.

5.2.12 This panel supports the mobile APP to control the device through Bluetooth.

The Bluetooth symbol  is not displayed when the mobile APP is not connected, and the Bluetooth symbol  is displayed after the mobile APP is successfully connected.

5.2.13 Failure warning

Digital display "E021"

The fault symbol blinks and the icon of the device where the fault occurs blinks. The data displayed is a fault code. For details, see the fault table.

6. Rules of use

- ❶ Prohibit in high humidity; Conductive dust; Flammable and explosive gases, dust, materials; Corrosive media; Have strong light irradiation; It is used in the environment of strong magnetic, high voltage and high current equipment operation nearby.
- ❷ Power supply voltage range: DC24V controller for (18 ~ 32) V; DC12V controller is suitable for (9 ~ 16) V; Different voltage controllers are not common. Do not use them beyond the applicable voltage range.
- ❸ The 5kW controller can only be used on the 5kW body; The 2kW controller can only be used on 2kW airframes.
- ❹ The controller or external device is damaged, must choose the same model and parameter device, professional replacement.
- ❺ It is forbidden to open the controller shell without permission.
- ❻ The equipment must be installed in strict accordance with the requirements and must be used under safe operating conditions.
- ❼ The company is not responsible for the loss and liability caused by the misconnection, short circuit or damage of the controller due to external devices and lines.

⑧ When the body is at high temperature and the fan cannot operate normally, the body must be cooled quickly. Cold air is blown into the air inlet from the combustion aid to cool down the body temperature below 80 °C. Prevent high temperature from burning parts or causing fire.

⑨ When the equipment is heated, it is necessary to ensure that the air duct is unblocked and the pipeline is not broken, pressed or blocked, so as to effectively ensure the heating efficiency and normal operation of the equipment. Unblocked channels will cause high temperature of the body, reduce heating efficiency, shorten the service life of the equipment or damage the equipment. The use of standard fuel can ensure the normal use and service life of the equipment.

*The company shall not be responsible for any loss or liability caused by failure to install and use in accordance with the above conditions.

*The burning point of cotton and sponge is 150°C, the burning point of paper is 130°C, the burning point of cloth is 270°C, and the burning point of diesel is 220°C. The hot air outlet can be higher than 150°C, and the exhaust pipe air can be higher than 270°C.

Fault code	Failure cause	Treating method
E021	Power supply voltage is too low	1)Check whether the battery connection wire is damaged and whether the connector is secure. 2)Check whether the fuse is aged.
E022	Power supply voltage is too high	If the power supply voltage is too high, check the battery output voltage range.
E023	Abnormal supply voltage	If the power voltage is abnormal, the system prompts you to check the battery output voltage range.
E031	Open ignition plug	1) Check whether the wiring and connector of the ignition plug are loose or disconnected. 2) Check whether the ignition plug connector is loose. 3) Connect the ignition plug separately to check whether it is damaged.
E032	Ignition plug short	1) Check whether the connection line of the ignition plug is short-circuited. 2) The ignition plug is damaged or the motherboard is misread.
E041	Open oil pump	1) Check whether the connecting line and connector of the oil pump are damaged, loose or disconnected. 2) Check the oil pump for damage.
E042	Short circuit of oil pump	1) Check whether the connection line of the oil pump is short-circuited. 2) Check whether the oil pump is blocked and damaged.

E05	High temperature alarm (case >230°C)	1) Check whether the cold air inlet is blocked. 2) Check whether the hot air outlet pipe is bent or blocked. 3) Check whether the fan runs normally. 4) Check whether the sensor is damaged.
E061	Motor open circuit	1) Check whether the connecting wire of the motor is open. 2) Check whether the connecting lead connector of the motor is loose. 3) Connect the motor separately to check whether it rotates.
E062	Short motor test	1) Check whether the connecting wire of the motor is short-circuited. 2) The motor is damaged or the motherboard is misread.
E063	Abnormal fan speed	1) Check whether the impeller is stuck. 2) The gap between the magnet on the wind wheel and the Hall sensor on the controller is too large.
E07	The communication between the mainboard and the remote control switch board is abnormal	1) Check whether the connection port of the remote control switch is loose. 2) Check whether the connection line of the remote control switch (blue) is open.
E08	Flame out	1) Check whether there is lack of oil, oil freezing at low temperature, oil circuit blockage, oil pipe folding, too much drum in the oil pipe, oil pump stuck. 2) Check whether the oxygen intake and exhaust air ducts are smooth. 3) Check whether the casing temperature sensor is in full contact with the casing and whether the pressure spring is strong. 4) Check whether the sensor is damaged.
E091	Temperature sensor open circuit	1) Whether the temperature sensor cable and connector are damaged or loose. 2) Check whether the sensor is damaged.
E092	Temperature sensor short circuit	1) Whether the temperature sensor cable is short-circuited. 2) Check whether the sensor is damaged.
E10	Boot failure	1) The temperature of the shell is too high, and the shell cannot be blown cold for 3 minutes after starting 2) There is a lot of white smoke at the exhaust outlet ① Check whether the filter beside the ignition plug is clean, and clean or replace it if it is not clean ② Check whether the oil injection pump is strong ③ Check whether the ignition plug is aged 3) There is a small amount of white smoke or smoke-free exhaust gas ① Check whether there is a lack of oil, the oil line is frozen or blocked ② Check whether the oil pump is stuck or damaged ③ Check whether the combustion intake and exhaust channels are smooth ④ Check whether the ignition plug is damaged ⑤ Whether the internal wind wheel clearance is too large 4) Ignition normal but still reported ignition failure fault Check whether the casing temperature sensor is in full contact with the casing, and whether the pressure spring is strong, The sensor is normal.

7. Instructions for App Operation

If you buy the version with Bluetooth, you can also control your parking heater through the app (if you are not sure whether the product you purchased is equipped with Bluetooth, you can ask our after-sales service staff on the purchase page)

7.1 How to download an app?



- For Android -

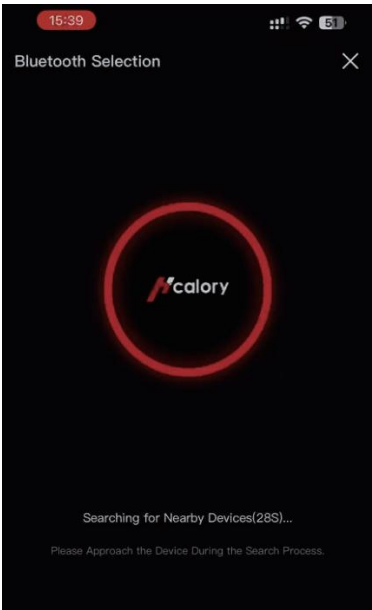


- For iOS -

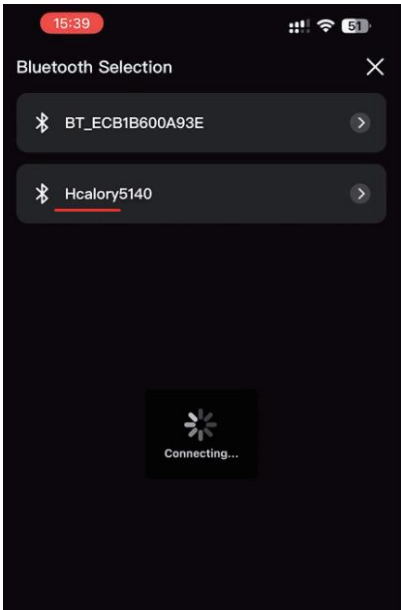
Android users can download the installation package from the **Google Play store**, while Apple users can do so from the **App Store**, or by scanning a QR code to install the "**Hcalory**" APP.

Note: If you are in Europe, you may have purchased a product from the KROAK brand, but you can still use the Hcalory APP to control the device.

7.2 Instructions for App Operation



7.2.1

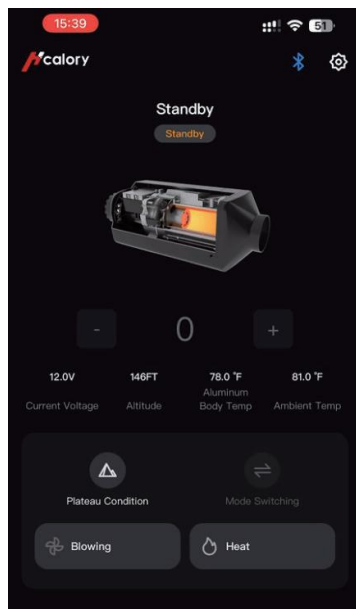


7.2.2

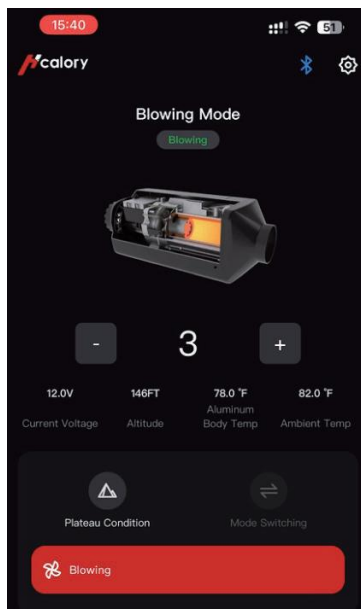
7.2.1. The first time you click on the App icon, you will directly enter the Bluetooth pairing page.

7.2.2. If the Bluetooth interface does not pop up, you can click on the [Bluetooth icon], allowing the phone to search for nearby Bluetooth devices, and select a device with "hcalory" in the name. If a phone has already connected to a device at this time, other phones cannot connect at the same time until the phone exits the connection with the device.

7.2.3. After successful connection, the device can carry out various operations.



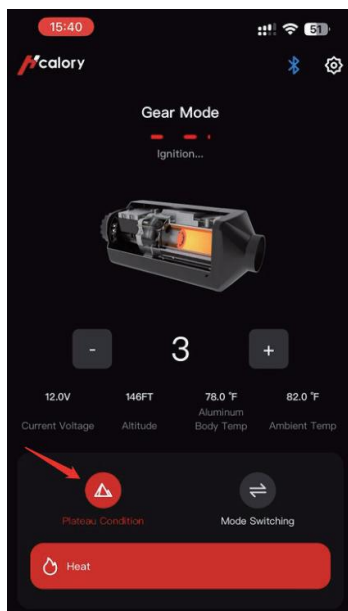
①



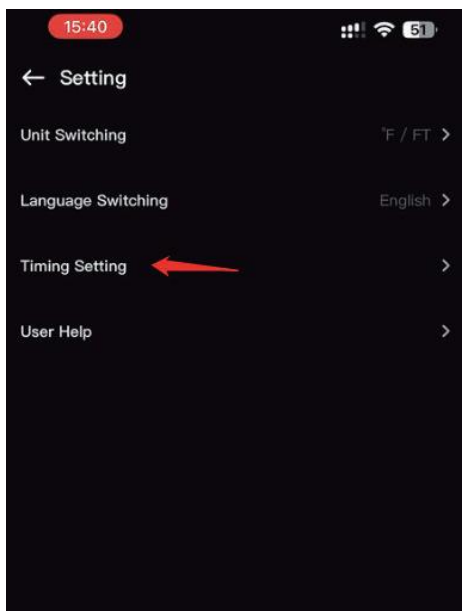
②

①. **[Start heating]:** Click the [heating button] to start the regular heating mode. In the heating mode, you can choose the [temperature mode] or [gear mode] for heating control. In temperature mode, the device will intelligently control the gears based on the set target temperature. When the ambient temperature is far lower than the target temperature, the gear is at its highest, and it drops to the lowest after it is higher than the target temperature. Temperature mode is more suitable for indoors. If you choose the [gear mode], the device will run at a fixed gear. Gear mode is more suitable for open areas or tents with poor insulation.

②. **[Fan mode]:** In fan mode, the fan will start independently, and the device does not perform the combustion program. It can be used as a fan or exhaust fan.



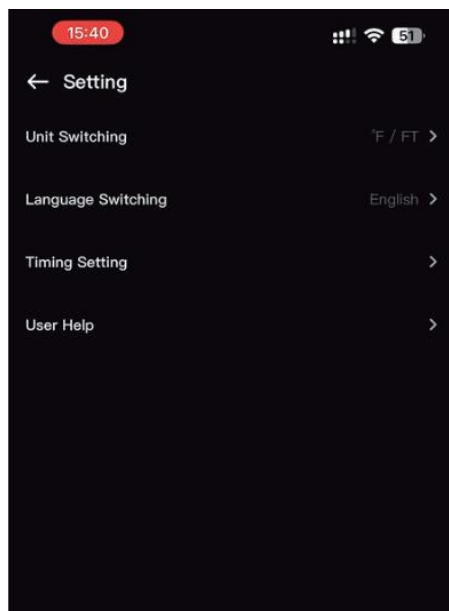
③



④

③. **[Plateau button]:** Because the air pressure and oxygen content in the plateau area are low, the air/diesel ratio for combustion will be different from that in the plains. After the plateau button is lit, the device will simulate the working environment at an altitude of 3500~4500 meters and adjust the oil pump frequency. (Under normal circumstances, we recommend turning on the plateau mode when the device can be used at an altitude of 3000~5000 meters, but the outdoor environment is more complex. Humidity, temperature, and diesel quality will also affect the ignition and combustion of the device. In the absence of spare parts, we do not recommend users to stay at an altitude above 4000 meters for a long time.)

④. **[Scheduled timing]:** The device can set one group of daily cyclic timing on and off. Please note that if you want the scheduled timing function to take effect, do not power off the heater device. If a power outage occurs, the controller will not be able to execute the timer switch command.



⑤

⑤. **[Other settings]**: We also have other setting buttons, and users can set the interface information to the language/temperature mark they need according to the information prompts in the app. If you have other suggestions, you can also send us an email through the [User Feedback] in the app.

FCC Warning Statement: Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment. This equipment 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 equipment 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 equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment 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 separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

FCC Radiation Exposure Statement

The antennas used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co - located for operating in conjunction with any other antenna or transmitter.

