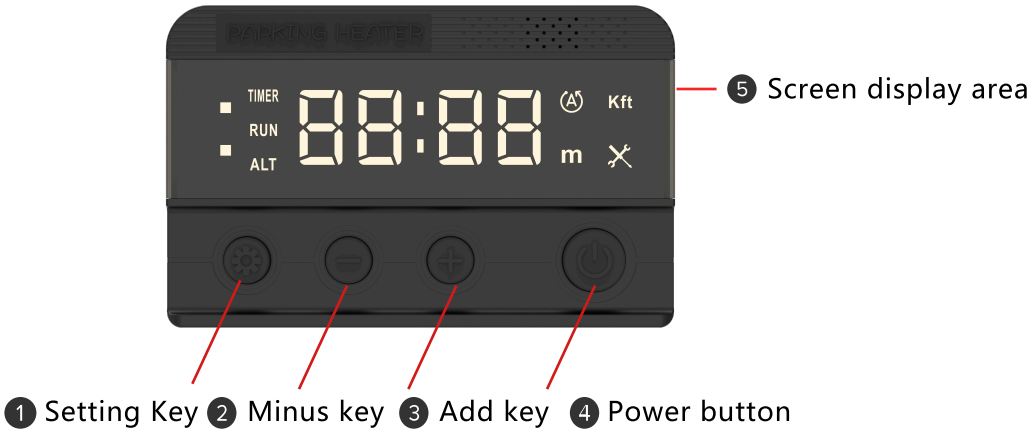

Operation Mode Description

- **Gear mode:** Heating according to the set gear, the setting range is 1~10.
- **Temperature control mode:** Automatically adjust the current operating gear according to the difference between the set temperature and the current ambient temperature. The lowest operating gear is 1st gear, without stopping. The temperature setting range is 8~36°C.
- **Constant temperature mode:** The operation mode is the same as the temperature control mode. When the ambient temperature is 2°C higher than the set temperature, the heating stops. The heater enters the standby mode. When the ambient temperature is 2°C lower than the set temperature, the heater automatically turns on and continues heating.
- **Ventilation mode:** Only the fan works, no heating. The wind speed can be set from 1 to 10. (Applicable to some motherboards).
- **High Heat Mode:** The heater runs at maximum output power, with a maximum continuous operating time of 2 hours (applicable to some motherboards).

Operation method

- **Power on:** In shutdown mode, press the power button to turn on the device. The screen display area will light up, showing the current operating status and data.
- **Shutdown:** When the device is powered on, press the power button to shut it down. The screen display area will turn off after the shutdown action is completed.

- **Mode switch:** In the running state, press the setting button to switch between temperature control mode and gear mode.

  The constant temperature mode needs to be set in the setting mode, and it will replace the temperature control mode after the setting is successful.

  Ventilation mode can be entered by simultaneously pressing the plus/minus and power buttons while the computer is powered off or on (applicable to some motherboards).

  To enter the high-heat mode, press and hold the minus key and the power button simultaneously while the computer is powered on (applicable to some motherboards).

- **Parameter adjustment:** Press the plus/minus key to adjust the setting gear or temperature.

Setting mode

In the power-on state, press and hold the setting key for 3 seconds to enter the setting mode, and press the plus key to increase the setting items in sequence. The specific setting items are as follows:

Project 1: Current time setting
Project 2: Scheduled start time setting
Project 3: Setting the running time after timing start
Project 4: Setting the timing function on or off
Project 5: Voice broadcast language setting
Project 6: Ambient temperature compensation setting
Project 7: Constant temperature mode function setting
Project 8: Temperature unit switch setting
Project 9: Altitude unit switch settings
Project10: Unbinding from APP
Project11: CCID number of the local card
Project12: IMEI number of the local card

Function settings

- **Scheduled startup**:

  1. Set the current time: When the device is powered on, long press the setting button to enter the setting mode. Item 1 is the current time. Press the setting button to modify it and press the setting button again to confirm.

  2. Set the start time: When the device is powered on, long press the setting button to enter the setting mode, adjust to item 2, set the timer start time, press the setting button to modify, and press the setting button again to confirm.

  3. Set the running time: Press and hold the setting key to enter the setting mode when the machine is powered on, adjust to the running time after startup of item 3, press the setting key to modify, and press the setting key again to confirm.

  4. Set the timer on/off: Press and hold the setting key to enter the setting mode when the device is powered on, adjust to item 4, timer function on/off, press the setting key to modify,
  OF for off, ON for on, press the setting key again to confirm.

- **Voice broadcast setting:** When the device is powered on, long press the setting key to enter the setting mode, adjust to item 5 Voice broadcast language setting, press the setting key to modify,
  EN is English, GE is German, rU is Russian, OF is off, press the setting key again to confirm.

- **Temperature compensation setting:** When the ambient temperature displayed by the heater deviates greatly from the actual ambient temperature, the error can be reduced by setting the temperature compensation value. The factory default value is 0°C. The operation is as follows: Press and hold the setting key in the power-on state to enter the setting mode, adjust to item 6 voice broadcast language setting, press the setting key to modify, the adjustment range is -15°C~15°C, press the setting key again to confirm.
- **Constant temperature mode setting:** When the machine is powered on, long press the setting key to enter the setting mode, adjust to item 7, press the setting key to modify,
  ON to turn on this function, OF to turn off this function, press the setting key again to confirm.

  ⚠ When the constant temperature mode is turned on, it is replaced by the temperature control mode.

- **Temperature unit switching:** When the device is powered on, long press the setting button to enter the setting mode, adjust to item 8, and press the setting button to modify. You can switch between Fahrenheit (°F) and Celsius (°C). After the modification is completed, press the setting button again to confirm.

- **Switching the altitude unit:** When the device is powered on, long press the setting key to enter the setting mode, adjust to item 9, and press the setting key to modify. You can switch between meters (m) or thousands of feet (Kft). After the modification is completed, press the setting key again to confirm.

- **Binding the switch to the APP:** First open the APP and add the device. You can choose to scan or add manually. Scan the IMEI code on the back of the switch. You can also manually add the IMEI number of the switch. The switch enters the setting mode and adjusts to the interface of item 12 "-E1-", then press the setting button again to start the query. There are 15 digits in total. Once the input is successful, the device can be bound.

  ⚠ Note: When the ALT light on the switch is on, it means the network has been successfully connected, and then you can bind.

- **Disconnect the switch from the APP:** When the device is powered on, long press the setting button to enter the setting mode, adjust to item 10, the interface displays C L r, and then long press the setting button. When C L r flashes, it means that the switch is disconnected from the APP.

- **Forced oil pumping:** When the heater is installed for the first time or the fuel line is not completely filled with fuel, you can use the forced oil pumping mode to quickly fill the fuel line.
  The operation method is as follows:
  After disconnecting the switch power supply and waiting for more than 10s, connect the power supply, and then press and hold the plus key to enter the forced oil pumping mode. The oil pump will work at a higher frequency. The screen starts counting down from 300s. When the countdown ends, exit the forced oil pumping mode or press the shutdown button to exit the forced oil pumping mode.

View running parameters

When the machine is powered on, press and hold the plus and minus keys simultaneously to enter the engineering mode and view the heater operating status. The specific parameters are as follows:

F01: Heater main board firmware version
F02: Fault code (if any)
F03: Furnace temperature
F04: Supply voltage
F05: Current operating gear
F06: Switching ambient temperature
F07: Altitude
F08: Mobile phone signal

Firmware upgrade

When the switch is powered off, press and hold the plus and minus keys at the same time, then turn on the power. The screen will display OTA until the last four digits of the switch ID number appear. Then proceed in the WeChat applet.
After the applet prompts that the upgrade is complete, turn on the power again to complete the OTA upgrade.

Fault code table

When a fault occurs during the operation of the heater, the LCD screen will display a fault code. The fault code and its meaning are as follows:

Code	Cause	Workaround
E01	Abnormal voltage	1. Check whether the heater power supply voltage type is consistent with the actual vehicle voltage; 2. For the 24V version, check whether the power supply voltage is higher than 32V or lower than 18V; 3. For the 12V version, check whether the power supply voltage is higher than 18V or lower than 9V; 4. Check whether the main wiring harness connector is loose or not;

E03	Ignition plug abnormality	1. Check whether the ignition plug is loosely connected; 2. If the ignition plug is faulty, replace the ignition plug; 3. If the mainboard is faulty, replace the mainboard;
E04	Oil pump abnormality	1. Check if the oil pump plug is loose or not; 2. Check if the main wiring harness is broken; 3. If the oil pump is faulty, replace the oil pump;
E05	Overheat protection	1. Check whether the air inlet of the heater is blocked 2. Check whether the air outlet of the heater is blocked
E06	Fan abnormality	1. Check if the fan impeller is stuck; 2. Check if the fan plug is loose or not connected properly; 3. If the fan is faulty, replace the fan; 4. Check if the fan wheel induction magnet is missing or has the wrong polarity; 5. If the mainboard is faulty, replace the mainboard;
E07	Air intake sensor abnormality	1. Mainboard failure, replace the mainboard
E08	Lack of oil and flameout	1. The fuel tank is short of oil;

E09	Overheat sensor abnormality	1. Check if the temperature sensor connector is loose or not; 2. If the sensor is faulty, replace the sensor; 3. If the mainboard is faulty, replace the mainboard;
E10	Startup failure	1. Check whether the oil pump is working; 2. Check whether the interfaces of the oil circuit are waxed or blocked;

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