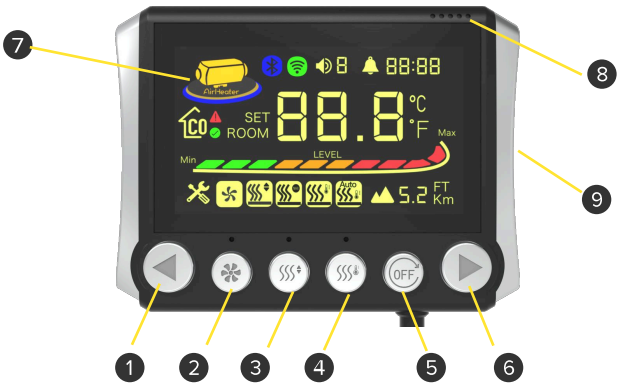
2409PW Switch

Instruction Manual

Instructions A2409PW

1. Reduce the keys
2. Ventilation buttons
3. Gear key/ strong hot button
4. Temperature/ thermostat buttons
5. Power off button



6. Add button
7. LCD display window
8. Ambient temperature sensor vent
9. speaker

Operation Mode Description

Ventilation mode: Only the fan works, no heating. The wind speed can be set from 1 to 10. (Applicable to some motherboards).

Gear mode: Heating according to the set gear, the setting range is 1~10.

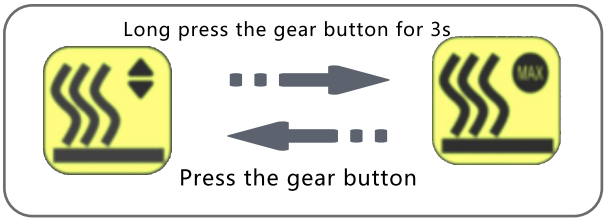
High Heat Mode: The heater runs at maximum output power, with a maximum continuous operating time of 2 hours (applicable to some motherboards).

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.

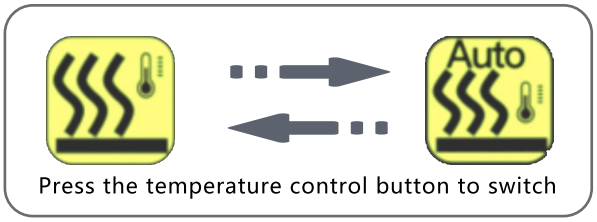
Constant Temperature Mode: Operates in the same manner as Temperature Control Mode. When the ambient temperature rises 2°C above the set point, heating stops. The heater enters standby mode. When the ambient temperature falls 2°C below the set point, the heater automatically turns on and resumes heating. (You can set the temperature difference between on and off.)

Operation method

- **Power on:** In shutdown mode, simply press the desired mode to power on. The LCD screen will light up to display the current operating status and data.
- **Shutdown:** In the running state, press the shutdown button to shut down the machine. The LCD display window will turn off the LCD screen after the shutdown action is completed.
- **Mode switching:** In the running state, press the mode button to switch between different modes.



⚠ Applicable to some motherboards



- **Parameter adjustment**: Press the decrease/increase button to adjust the setting gear or temperature.

Setting mode

In the running state, press and hold the power button for 3 seconds to enter the setting mode. Press the increase/decrease button to switch the setting items. The specific setting items are as follows:

F0: Current time setting
F1: Timing start time setting
F2: Set the running time after timing start
F3: Timing function on or off
F4: Voice broadcast language setting
F5: Ambient temperature compensation setting
F6: Constant temperature mode function setting
F7: Temperature unit switch setting
F8: Altitude unit switch setting
F9: Screen brightness adjustment
FA: Network configuration with sub-devices
FB: and the ambient temperature of the sub-device
Fb: The value of the sub-device ambient temperature
FC: Temperature difference for automatic start-up in constant temperature mode
Fd: Temperature difference for automatic shutdown in constant temperature mode
FE: WIFI function on/off
FF: WIFI configuration (WIFI connection, OTA upgrade, unbinding from APP, pre-registration, connection status)

Function Settings

- **Time setting**: In the running state, press and hold the power button for 3 seconds, F0 will be displayed in the lower right corner of the LCD screen, and it will enter the setting mode.Press the Increase/Decrease button to switch between settings. Press the Ventilation button to enter the settings. When the setting flashes, press the Increase/Decrease button to adjust the setting. The time format is HH:MM, 24-hour format. Press the Ventilation button again to confirm.



Current time

Scheduled start time: The time you want to schedule start

Run duration after timer start (Setting range: 00:00~10:00, adjustment steps: 30 minutes, 00:00 indicates unlimited run time)

Function switch: Set to 0N to enable the timer, and 0F to disable the timer.

- **To switch the broadcast language:** During operation, press and hold the down button for 3 seconds. F4 will appear in the lower right corner of the LCD screen to enter the setup mode. Press the ventilation button. The language will flash. Press the up/down button to switch the language. Press the ventilation button again to confirm.



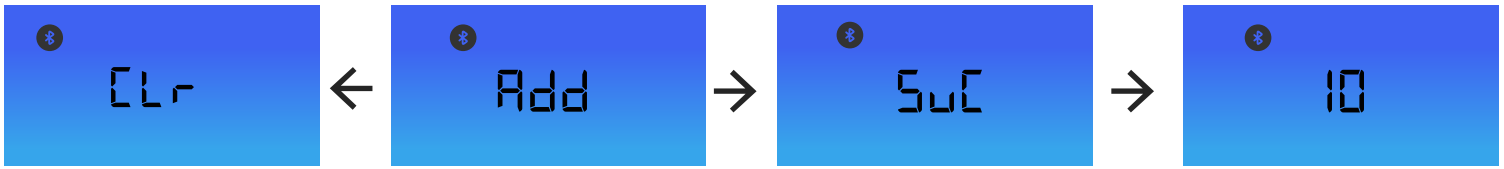
English German Russian Mute

- **Temperature Compensation Setting:** If the ambient temperature displayed by the heater deviates significantly from the actual ambient temperature, you can adjust the temperature compensation value to reduce the error. The factory default is 0°F. To do this:
  While the heater is running, press and hold the power button for 3 seconds. F0 will appear in the lower right corner of the LCD screen to enter the setup mode. Press the increase button to switch to F5. Press the ventilation button. The set value will flash. Press the increase/decrease button to adjust the temperature compensation value. The adjustment range is -27°F to 27°F.
- **Constant temperature function setting:** The constant temperature function is only applicable to the setting on or off on the app, and does not require separate setting on the heater.
- **Temperature unit switching:** In the running state, press and hold the increase button for 3 seconds to cycle between Fahrenheit (°F) and Celsius (°C).
- **To switch altitude units:** While the aircraft is running, press and hold the power button for 3 seconds. F0 will appear in the lower right corner of the LCD screen, entering setup mode. Press the increase button to adjust the altitude to F8. Press the ventilation button. The altitude unit will flash. Then press the increase/decrease button to switch between kilometers and thousand feet. Press the ventilation button again to confirm.
- **Backlight Brightness Level Setting:** To minimize the impact of the switch backlight on the user in dark environments, the backlight automatically dims after 120 seconds of inactivity. The reduced brightness is adjustable, with a factory default of 10. To set it:

  While the power is running, press and hold the power button for 3 seconds. F0 will appear in the lower right corner of the LCD screen, entering setup mode. Press the increase button to adjust the brightness to F9. Then, press the ventilation button. The backlight brightness level will flash. Then, press the increase/decrease button to adjust the backlight brightness.

  The adjustment range is 0 to 10, with 10 indicating no backlight dimming and 0 indicating no backlight dimming. Pressing any button will reactivate the backlight.

- **Sub-device network configuration:** With the device powered off, press and hold the power button and add button simultaneously for 3 seconds to enter sub-device network configuration mode. The LCD screen will flash "Add."After the sub-device enters network configuration mode and successfully connects to the network, the LCD screen will display "S U C"



Clear sub-device network access data

Flashing, waiting for the slave device to connect to the network.
Press the power button to exit network configuration.

The sub-device successfully joins the network

Automatically exit after 10 seconds or press the power button to exit immediately

⚠ When network configuration is unsuccessful or data is not synchronized, when the LCD screen displays Add, press and hold the decrease button for 3 seconds until the LCD screen displays C L r to restore the network configuration data to factory settings and re-enter network configuration mode.

- **Ambient temperature reading:** During operation, press and hold the power button for 3 seconds. F0 will display in the lower right corner of the LCD screen, entering setup mode. Press the increase button to adjust the value until Fb appears in the lower right corner of the LCD screen. Press the ventilation button; the value displayed in the upper right corner will flash. Use the increase or decrease button to adjust the value. oN represents the ambient temperature of the sub-device, and oF represents the ambient temperature of the control panel. The factory default setting is oN.

⚠ If set to On, when the control panel is disconnected from the sub-device, the control panel's ambient temperature is used.

- **Setting the Temperature Difference for On/Off in Constant Thermostat Mode: T**he default temperature difference for On/Off in Constant Thermostat Mode is 4°F. You can set the temperature difference for automatic on/off and automatic shutoff separately. To do this:While the appliance is running, press and hold the Power button for 3 seconds. F0 will appear in the lower right corner of the LCD screen to enter the setting mode. Press the Increase button to adjust the temperature to FC or Fd. Press the Ventilation button. The temperature value will flash. Then press the Increase/Decrease button to modify the setting. Press the Ventilation button again to confirm the change.

- **To turn Wi-Fi on/off:** While the device is running, press and hold the power button for 3 seconds. F0 will appear in the lower right corner of the LCD screen to enter setup mode. Press the increase button to adjust the setting to FE. Press the ventilation button. The setting will flash: ON for on, OF for off. Press the ventilation button again to confirm.

- **Remote Control Pairing/Clearing:** With the unit powered on, press and hold the Up and Down buttons simultaneously to enter Engineering Mode. Then, adjust the unit to the EN07 screen and press and hold the Ventilation button.The LCD will display P-1, "Waiting for Pairing." Press any button on the remote control to initiate pairing. Once paired, the unit will automatically return to the Operation screen.

⚠ When the control panel is powered off, press and hold the power button, then turn on the power. The LCD screen display changes from C L r to S U C, which means clearing the remote control matching information.

- **Forced Fuel Pumping:** When installing the heater for the first time or when the fuel lines are not completely filled with fuel, use the forced fuel pumping mode to quickly fill the lines.
  To do this: Disconnect the control panel power supply for at least 10 seconds, then reconnect the power supply. After the LCD screen turns off, press and hold the down button for about 3 seconds to enter forced fuel pumping mode. The fuel pump will operate at a higher frequency, and the LCD screen will begin counting down from 300 seconds. When the countdown ends, exit forced fuel pumping mode or press the power button to exit forced fuel pumping mode.

- **WIFI connection and APP binding:**

  1. Select the WIFI that the switch wants to connect to: First open the APP and add the device. The adding method is WIFI. At this time, the mobile phone must be connected to the available WIFI, then select WIFI (this WIFI is the WIFI that the switch wants to connect to), then enter the WIFI password and proceed to the next step.

  2. Switch to network configuration mode: According to the APP guidance, after the switch is powered on, long press the add button in the off state, and then when the screen lights up, the name of the device will appear in the upper right corner, and the network configuration countdown will appear (network configuration must be performed before the countdown ends), and then proceed to the next step.

  3. The mobile phone selects the switch to be networked: According to the APP guidance, in the network configuration mode of the switch, change the WIFI connected to the mobile phone to the WIFI emitted by the switch, such as BYD-XXXX (note that this WIFI cannot be used, it is just for the mobile phone to find the switch), and proceed to the next step.

  4. Connect the switch to WIFI and bind: After the above steps are completed, click Next, the switch will automatically connect to the WIFI network. When the network is successfully configured, you can directly bind. When the WIFI icon of the switch is always on, it means that the WIFI connection is successful. If it is not on, you need to repeat the above steps to connect.

- **Disconnect the switch from the app:** While the device is running, press and hold the power button for 3 seconds. F0 will appear in the lower right corner of the LCD screen, entering setup mode. Press the Up button to adjust the setting to FF (Wi-Fi configuration), then press the Ventilation button. Press the Up button again to switch to the C L r screen, then press the Ventilation button again.
  At this point, - - - will flash. Finally, press the Up button to disconnect the switch from the app. When S U C appears, the switch is disconnected from the app.

- **Connecting and Binding with Bluetooth in the App:** First, open the app and add the device using Bluetooth. The app will automatically search for the device. Simultaneously press and hold the Up and Down buttons for 3 seconds with the device powered on to enter Engineering Mode. Then, switch to the Bluetooth LE interface. The Bluetooth ID for the device will be displayed in the upper right corner. Find the corresponding Bluetooth ID and begin binding.

View running parameters

In the running state, press and hold the increase button and the decrease button for 3 seconds to enter the engineering mode and view the operating status of the heater.

En00: Heater mainboard firmware version
En01: Fault code
En02: Furnace temperature
En03: Supply voltage
En04: Current operating gear
En05: Panel ambient temperature
En06: Altitude
En07: Remote control matching
En08: Bluetooth ID of this device

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;
E11	Excessive carbon monoxide	1. If CO concentration exceeds the standard, open windows and ventilate immediately. Evacuate the area immediately.

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