

12V Electric Air Conditioner

Instruction of control board

Ver1.0, 12.30.2021

1、Control Board (as shown)



1.1 Electrical Parameters:

The frequency conversion main control board has a temperature control air outlet input interface, a brush motor drive interface, an infrared remote control interface, an analog voltage signal output interface, and six mechanical buttons.

Table 1-1 Electrical Parameters

Item	Specification
Input voltage (V)	DC Max 15
Display	LED
Speed adjust method	4.5V-9V Analog voltage speed adjust
Speed control logic	10 level speed control
Adapt internal fan	Brush electronic fan
Remote control	Infrared
Low voltage protection default set	10.5V
Low voltage protection set range	9V-12V(interval 0.1V)
Low voltage protection default recovery	12V

1.2 Working mode instruction:

1.2.1 Control board temperature setting and frequency adjust mode

Compressor speed range in each mode of inner unit:

Air blow mode/FAN: The temperature cannot be adjusted, and the display shows the ambient temperature.

Power saving mode/MAN: The compressor runs at 30%-50% of full speed, and the voltage range of power saving mode is 12V~10V.

Economy mode/ECO: The compressor runs at 30%-80% of full speed. The energy-saving mode sets temperature at 10 degrees, wind speed in 3 levels, and the output voltage varies between 4.5V and 7.5V.

Powerful mode/POWER: The compressor runs at 100% full speed, and the speed-regulating voltage outputs 9V.

The control board is powered on acquiesce in by economy mode.

The temperature control probe is placed on the surface of the air outlet of evaporator, and the shutdown protection setting temperature is 3°C. When the temperature sensor is disconnected or

damaged by an open circuit, the control board will work in sensorless mode, and the display will indicate E-C failure. Adjust the output signal to prevent frost.

1.2.2 Brush fan speed adjust mode :

Speed adjust mode:

The brush fan interface adjusts the fan speed by adjusting the voltage duty cycle. After starting up, press the wind speed key to adjust the current 5 speeds of the internal fan.

The wind speed is adjustable in 1-5 level in each mode.

1.2.3 Control panel function button instruction :

Control panel operation logic:

A Power key: Short press to turn on, short press again to turn off.

B Speed up key: Increase in air supply .

C Speed lower key: to lower the air supply

D Mode key: Cycle and hold for one second to switch modes: air blow, power saving, economy, strong wind; long press for 3 seconds to enter the low voltage adjustment state, after adjusting the low voltage protection value, long press the mode button for 3 seconds to remember and exit the low voltage setting

E Temperature higher key: Increase the set temperature , and adjust the low-voltage protection value to increase by 0.1V.

F Temperature lower key: lower the set temperature , and adjust the low-voltage protection value to lower by 0.1V.

G low voltage protection value, low voltage recovery value adjustment: Long press the mode key for 10 seconds to enter the adjustment interface (---), adjust the temperature plus and minus keys to set the low voltage protection value.

1.3 Fault indication description :

low-voltage protection, the power supply voltage is lower than the set value (default: 21.5V), the battery low indicated red light will be on, the fan stops output in the low-voltage state, the analog voltage of the frequency modulation line stops output, and the external unit enters the standby state and stops working. When the voltage exceeds again to low voltage recovery value (default: 25.5V), the system restarts and resumes operation.

When the control board detects a fault, it stops working, the fault icon flashes, and the fault code will be displayed on the digital display. The meaning of the code is as follows:

E-C: Temperature probe failure

E-1: Low voltage protection.

E-2: Controller over current protection.

E-3: Controller locked-rotor protection.

E-4: Controller low voltage protection. .

E-5: Poor system cooling.

E-7: Phase failure

Wiring port description:

