# Intelligent door opener

## Install operation instructions

# User Manual for DC Brushless Door Opener Controller

## reminder!

1.Before installing and debugging the product, please carefully read the relevant information provided in this manual.

2.To avoid electrical short circuits, please ensure that there is no residual wire residue, metal shavings, screws, or other conductors on the motherboard.

3.Dust, high humidity, and extreme temperature changes can all affect the lifespan of the motherboard, so please try to avoid placing it in these areas as much as possible

4.During the power on process, do not block the door, otherwise the zero position cannot be found.

5.To prevent electrostatic breakdown of components on the motherboard, it is best not to touch the motherboard with your hands.

6.Before using this product, please confirm that all power and signal lines are connected correctly.

7.Before powering on, do not connect the motor. Depending on the type of motor used, enter the menu and select the corresponding motor. Turn off the power and then turn it on again.





## 1. Product Introduction

This control system is an advertising door control board that uses closed-loop control technology to detect motor position in real time, self learn load curves, and has physical anti pinch protection; 24V DC power supply, safe and reliable; The speed of opening and closing the door can be independently adjusted, with multiple speed adjustments and linear operation to ensure smooth operation of the equipment; Can be connected to human body sensing infrared to protect pedestrian safety; The system has multiple protections including undervoltage, overvoltage, overcurrent, and locked rotor.

**1.1. Technical parameters**

1.1.1. Input power supply: DC24V, current ⩾ 7.5A;

1.1.2. Compatible motor: 24V DC brushless motor;

1.1.3. Static power: less than 1W;

1.1.4. Communication method: RS485 serial communication;

1.1.5. Working environment: -40 ℃~80 ℃, humidity below 90%;

1.1.6. Infrared sensor: dry contact, NPN normally open;

1.1.7. Door opening signal: dry contact, NPN normally open;

1.1.8. Remote control parameters: frequency 433.92M, open distance greater than 30 meters;

**1.2. Learning to delete remote control codes**

1.2.1. Learning remote control code: In the stopped state, press the remote control button on the controller until the learning light is on (or the digital tube displays XX), press any button on the remote control handle (it is recommended to press the stop button), the controller will receive the flashing light (and the digital tube value will increase by one value), and the remote control code learning is completed.

1.2.2. Delete remote control code: In the stopped state, press the remote control button on the controller to the learning light, continue pressing the remote control button on

the controller until the learning is turned off, and the remote control code is deleted (at the same time, the digital tube changes to 00).

## 2. Parameter setting operation

**2.1. Button Definition:**

**Open**/+": Press this button to open the door under normal working conditions; In the setting state, parameter values can be adjusted and increased.

**Close**/- ": Press this button to close the door under normal working conditions; In the setting state, parameter values can be adjusted to decrease downwards.

**Menu**: Press and hold for 3 seconds to enter the settings mode.

**Cancel**: Short press on the menu interface to exit the settings state; Short press the motor to stop running when it is in operation.

**Remote Control**: Long press for 3 seconds to enter remote control learning, long press for 9 seconds to delete the motherboard remote control code.

**2.2. Parameter setting method:**

Long press the "Menu" button for 3 seconds to enter the menu settings interface, and the digital display shows "F-XX"; You can select menu options by short pressing or long pressing the "on/+" and "off/-" keys, and then short pressing the "menu" key again to enter the settings of the specified item. The adjustment of the specified item value is also done by short pressing or long pressing the "on/+" and "off/-" keys. After setting the parameters of the specified item, you must short press the "menu" key for it to take effect, and the parameters set by pressing the "cancel" key will not take effect and be saved; Press the 'Cancel' button twice to exit the setting state; If there is no button operation within 60 seconds, the buzzer will beep and automatically exit the setting state.





## 3.Menu function table

| Options | Parameter range | Default value | Parameter Description | Notes |
|---|---|---|---|---|
| F - 00 | 1 ~ 60 | 30 | Opening speed | The greater the value, the higher the constant speed. |
| F - 01 | 1 ~ 60 | 30 | Closing speed | The greater the value, the greater the speed of uniform motion. |
| F - 02 | 1 ~ 36 | 10 | Door opening end speed | The greater the value, the greater the end speed of the motor. |
| F - 03 | 1 ~ 36 | 10 | Closing door end speed | The greater the value, the greater the end speed of the motor. |
| F - 04 | 0 ~ 1 | 0 | Direction of door opening | 0: Left opening, 1: Right opening |
| F - 05 | 0 ~ 250 | 90 | Opening Angle | The larger the value, the greater the opening angle. |
| F - 06 | 1 ~ 55 | 10 | Door opening deceleration angle | The greater the value, the greater the deceleration angle |
| F - 07 | 1 ~ 55 | 10 | Door closing deceleration angle | The greater the value, the greater the deceleration angle |
| F - 08 | 1 ~ 35 | 15 | Power on self-test speed | The greater the value, the faster the self-test speed |
| F - 09 | 0 ~ 60 | 5 | Power on self-test sensitivity | The larger the value, the longer the door will be blocked |
| F - 10 | 1 ~ 60 | 10 | Door opening obstruction sensitivity | The smaller the value, the higher the sensitivity |
| F - 11 | 1 ~ 60 | 15 | Resistance force encountered during the constant speed stage of opening the door | The larger the value, the greater the resistance encountered |
| F - 12 | 1 ~ 60 | 60 | Resistance encountered during the deceleration phase of opening the door | The larger the value, the greater the resistance encountered |
| F - 13 | 1 ~ 60 | 5 | Sensitivity to obstruction when closing the door | The smaller the value, the higher the sensitivity |
| F - 14 | 1 ~ 60 | 8 | Resistance force encountered during the constant speed stage of closing the door | The larger the value, the greater the resistance encountered |
| F - 15 | 1 ~ 60 | 8 | Resistance encountered during the deceleration phase of closing the door | The larger the value, the greater the resistance encountered |
| F - 16 | 0 ~ 180 | 6 | Keep the door open for a certain | 0: Cancel delayed door closing; |

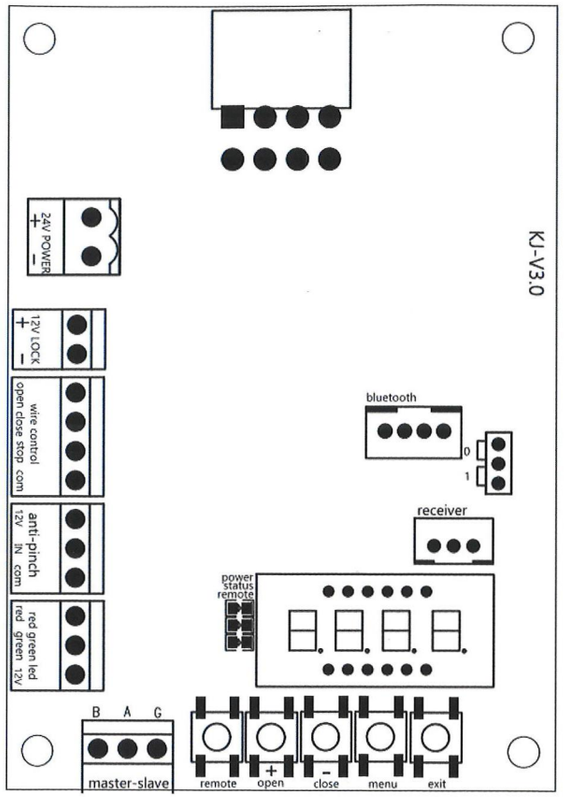
| | | | | |
|---|---|---|---|---|
| | | | period of time | 1-180: Time base of 1 second, maximum time of 180 seconds |
| F - 17 | 0 ~ 1 | 0 | Power off and open the switch | 0: Do not open the gate, 1: Open the gate |
| F - 18 | 0 ~ 1 | 1 | Motor Type | |
| F - 19 | 0 ~ 2 | 1 | Close the door in place, push the door to handle it | 0: Not processed<br>1: Push the door open at a certain angle and turn it open<br>2: Push the door at a certain angle and turn it to close |
| F - 20 | 0 ~ 45 | 0 | Open to position, lock motor power | Danger, use with caution! The higher the value, the greater the power |
| F - 21 | | 103 | Program version number | |
| F - 22 | 1 ~ 30 | 10 | Open the door and maintain the end speed angle | Maintain the angle at which the speed of opening the door ends running |
| F - 23 | 1 ~ 30 | 10 | Close the door and maintain the end speed angle | Maintain the angle at which the closing speed runs |
| F - 24 | 1 ~ 60 | 10 | Deceleration time for opening and closing doors | The time from uniform speed to final speed |
| F - 25 | 0 ~ 1 | 0 | Definition of Radar Sensing Interface | 0: Anti pinch function, 1: Radar on function |
| F - 26 | 0 ~ 3 | 0 | Electric lock type | 0: Electromagnetic lock, 1: Electric plug-in lock<br>2: Other types, 3: Electric lock |
| F - 27 | 0 ~ 1 | 1 | Master slave machine | 0: Slave, 1: Host |
| F - 28 | 0 ~ 1 | 1 | Synchronous asynchronous | 0: Asynchronous, 1: Synchronous |
| F - 29 | 0 ~ 1 | 0 | Single and double doors | 0: Single door, 1: Double door |
| F - 30 | 1 ~ 60 | 3 | Single and double door misalignment switch time | Time base of 0.5s, maximum time of 30s |
| F - 31 | 0 ~ 51 | 25 | Braking buffering force when opening the door | The larger the value, the greater the buffering force |
| F - 32 | 0 ~ 51 | 25 | Braking buffer strength when closing the door | The larger the value, the greater the buffering force |
| F - 33 | 0 ~ 1 | 1 | Apply force when opening and closing doors | 0: None, 1: Yes |
| F - 34 | 0 ~ 35 | 0 | Close the door in place to prevent pushing and resist force | The larger the value, the greater the resistance, 0: no resistance |
| F - 35 | 0 ~ 10 | 2 | Confirm the strength of the second round of close in place | The larger the value, the greater the closing force |
| F - 36 | 0 ~ 60 | 0 | Door opening delay | 0: Cancel delayed door opening, with a time base of 1 second and a maximum time of 60 seconds |





| | | | | |
|---|---|---|---|---|
| F - 37 | 1 ~ 60 | 20 | Maximum operating time of the motor | The time base is 1 second, and the maximum time is 60 seconds |
| F - 38 | 0 ~ 5 | 0 | Automatic testing time setting | 0: Turn off automatic testing<br>1-5: The automatic testing time is 1-5 seconds |
| F - 39 | 0 ~ 15 | 0 | Parameter reset to factory settings | 10: Restore factory settings |
| F - 40 | 1 ~ 60 | 2 | Electromagnetic lock release time | Time base of 0.1s, maximum time of 6s |

## 4. Wiring diagram



## 5. Motor wiring definition diagram

| Motor Type | Motor phase wire | | | Hall signal line | | | | |
|---|---|---|---|---|---|---|---|---|
| | U | V | W | Hu | Hv | Hw | GND | 5V |
| | Coarse yellow | Coarse green | Coarse Blue | Fine yellow | Fine green | Fine Blue | Fine black | Fine red |

## 6. Fault codes and countermeasures table

| Fault code | Fault name | Possible reasons | countermeasure |
|---|---|---|---|
| **Er01** | Overvoltage fault | ① Abnormal input voltage<br>② Large load inertia | ① Check the input power supply<br>② Check if someone is hitting the door in the direction of the motor's movement |
| **Er02** | Undervoltage fault | ① Abnormal input voltage | ① Check the input power supply |
| **Er03** | Motor operation timeout | ① The motor running time is set too short<br>② Check if the mechanical equipment is stuck | ① Increase the motor running time in the settings<br>② Firstly, check if the door is stuck due to high resistance; If the door is normal, increase the end speed |
| **Er04** | Overcurrent fault | ① Abnormal input voltage<br>② Sudden or abnormal load changes | ① Check the input power supply<br>② Check if the door is stuck, high resistance<br>③ Check if the Hall element of the motor is damaged |