

Manual book for DC Brushless Advertising Turnstile Control Board

1.Features

1. Safety: 24V DC power supply to ensure personal safety.
2. Energy saving: the static power is less than 1 watt, and the maximum power is 60W when working.
3. Adjustable speed: the speed of opening and closing the door is independently adjusted.
4. Stable work: multi-speed design makes the working state linear and stable.
5. Quiet: the working noise is less than 50db.
6. Support a variety of signal input, relay signal, voltage signal.
7. Multiple protections: motor overcurrent, overload, short circuit protection, motor fault protection, power reverse connection protection.
8. Pedestrian protection: rebound in case of obstruction, anti-collision function.
9. Support human infrared sensor input to protect pedestrian safety.
10. Support external remote-control input.
11. Support a variety of parameters can be set.
12. Support light perception to turn on advertising lights, which can be turned on/off according to the brightness of the surrounding environment.

2.Parameter specifications

1. Power supply: DC 24V \pm 10% 5A
2. Motor power: 0-60W adjustable
3. Static power: <1W
4. Door opening/closing speed: 1%-100% adjustable
5. Operating ambient temperature: -40°C~80°C
6. Operating environment humidity: 30% ~ 80% (non-condensing)
7. Controller size: 115mm*60mm

3. Explanation of terms

Long press: press and hold the button and do not release, such as: long press for 3 seconds, then press and hold the button for at least 3 seconds, until the LED display and buzzer A prompt appears.

Short press: release the key immediately after it is pressed. Left door opening: the door opening direction is counterclockwise.

Open the door right: open the door in a clockwise direction.

4. Quick use

A. Do not connect the motor first, power on the control board, and enter the menu selection according to the actual motor type and door opening direction.

Select the corresponding motor type and door opening direction.

B. Connect the motor.



C. Do not block the door during the process of finding the closing position of the door after the control board is powered on.

5. Button

The control panel has 4 buttons, which are "open/+", "Cancel", "Menu" and "close/-".

Various parameters of the control panel can be set through these 4 keys.

- **"open/+"**: Press this button to open the door in normal working state, and you can use this button to add menus after entering the setting state and upward adjustment setpoints. In the parameter setting state, short press adds one each time. Long press to continuously increase to the maximum. The value is then added up from the minimum value. If you press and hold for a long time, the continuous increase will increase the speed.
- **"Cancel"**: The button is undefined during normal operation, and a buzzer will sound when the button is pressed. In the setting state, you can exit the setting set or unset value.
- **"Menu"**: enter the setting state and confirm the setting value.
- **"Close/-"**: Press this key to close the door in normal working state, use this key to reduce the menu items after entering the setting state and down-adjust setpoints. In the parameter setting state, short press decreases one each time. Press and hold to continuously decrease to the minimum. Then starts to decrease from the maximum value. If you press and hold for a long time, the continuous reduction will speed up.

6.display

The control panel has a four-digit LED display that can be used to display information such as time, parameters, menu items, errors, etc.

After power on, it runs in low power consumption mode, and the LED display brightness is dim at this time. Pressing any key will make the LED display to enter the normal working mode, and the LED is highlighted. If no key is pressed, enter low power mode after 60 seconds, LED brightness is dimmed to reduce power consumption.

7.jumper cap

The control board has 2 jumper caps. It is used to select the magnetic lock voltage and the door open signal type of access control respectively. Every place where jumpers are needed, there are detailed text labels on the control board. **12V/24V**: Select the power supply voltage according to the power supply specification of the magnetic lock used.

Relay signal/voltage signal: Select according to the output signal of the access control, the relay signal is a digital signal, if the access control output is relay door open, select relay door open. The voltage signal is the access control output 5-24V voltage.

8.Parameter setting

You can enter the parameter setting state by pressing and holding the "Menu" button for 3 seconds, and the LED will display "F-XX". By pressing the short press or long press the



"open/+" and "close/-" buttons to select menu items, and short press to increase or decrease an item,

Long press to add and subtract continuously. Press the "Menu" key again to enter the setting of the specified item, and the "Cancel" key to exit the setting. After the specified parameter setting is completed, you must press the "Menu" key to confirm it will take effect. Press "Cancel" key the set parameters will not take effect. If no key is pressed within 60 seconds, the buzzer on the control panel will give a long beep to exit the setting state and return to normal working condition.

List of commands:

menu	function	Default s	Scope	Remark
F-00	door opening speed	25	10-100	The larger the value, the faster the door opens.
F-01	door closing speed	20	10-100	The larger the value, the faster the door close.
F-02	Door opening deceleration angle	60	45-90	When opening the door, start to decelerate to this angle
F-03	Door closing deceleration angle	25	0-60	When closing the door, start to decelerate to this angle
F-04	door opening acceleration time	200	0-255	When opening the door, the time to accelerate to the speed of opening the door, unit: 0.01 seconds
F-05	door closing acceleration time	200	0-255	When closing the door, the time to accelerate to the speed of closing the door, unit: 0.01 seconds
F-06	open door end speed	2	10-60	Open door to position speed
F-07	close door end speed	3	10-60	Close door to position speed
F-08	Open door low speed and constant speed angle	90	75-100	The angle that running at door opening end speed
F-09	Close door at low speed and constant speed angle	2	0-30	The angle that running at door closing end speed
F-10	door closing buffer angle	0	0-30	Activate the brakes at this angle
F-11	door closing brake time	0	0-255	Braking time, in 0.01 seconds
F-12	Power-on start speed	10	1-60	The speed of starting to find the closing position after power on
F-13	learn remote control	0		Can learn up to 60 remote controllers
F-14	open door hold time	5	0-255	Unit: second, 0 means not to close the door automatically

F-15	swipe card delay door opening	1	1-20	Unit 0.1 seconds
F-16	learning door location			Learn the position that door open to position
F-17	close door strength	0	0-30	The higher the value, the stronger the strength
F-18	anti-collision sensitivity	10	1-50	Unit 0.05 seconds
F-19	anti-collision strength	50	10-255	Hit strength
F-20	set time	time		After setting the hour, press the menu to set the minute
F-21	light box working time	12	0-24	Set light box start time and working time
F-22	motor type			
F-23	Version			software version number
F-24	reset			Set various parameters to default values
F-25	automatic testing	0	0-255	Auto test interval, 0 is normal work
F-26	door opening direction	0	0-1	0: Left open 1: Right open
F-27	Photosensitive threshold	150	0-200	If the current photosensitive value is greater than the threshold then the light will on
F-28	Delay open	10	0-255	Unit: second
F-29	Delay close	250	0-255	Unit: second
F-30	Photosensitive value			Photosensitive value under current illumination
F-31	Advertising light working mode	0	0-1	0: Time control 1: Photosensitive control
F-32	stop buffer time	50	10-255	Unit: 0.01 seconds
F-33	Access control signal type	0	0-3	0: Relay signal 1: Voltage signal 2: Turn off the access control signal 3: Signal reverse
F-34	Windproof sensitivity	0	0-50	The higher the number, the more sensitive
F-35	Lock motor power	10	0-20	Dangerous, use with caution! The higher the number, the higher the current of the lock motor.
F-36	lock motor switch	0	0-1	0: off 1: on
F-37	Bounce the magnetic lock strength	0	0-100	The higher the number, the stronger the force to open the magnetic lock

Wherever angles are involved, the closed position is 0 degrees

Command details:

F-00 door opening speed

The larger the value, the faster the opening speed. The speeds involved in this article are all percentages of full speed, such as full speed is 100, Then 20 means 20% of full speed. Press the "Menu" key to enter the setting state and display the speed currently in use.

The door opening speed can be selected according to the actual environment, and it will take effect immediately after the setting is completed.

F-01 door closing speed

Same as door opening speed

F-02 Door opening deceleration angle

When opening the door, it starts to slow down when it opens to this position.

F-03 Door closing deceleration angle

When closing the door, it starts to slow down when it closes to this position.

F-04 door opening acceleration time

Unit: 0.01 seconds, the time it takes to accelerate to the door opening speed when opening the door. The smaller the value, the faster the acceleration.

F-05 door closing acceleration time

Unit: 0.01 seconds, the time it takes to accelerate to the door closing speed when closing the door. The smaller the value, the faster the acceleration.

F-06 open door end speed

End opening door at this speed. The larger the value, the faster the speed. If the speed is too fast, the door may shake when the door is opened, in this case, the value can be decreased.

F-07 close door end speed

End the door closing at this speed. The larger the value, the faster the speed. Excessive speed may cause the door to hit the door during the closing process, in this case decrease this value. If the door cannot be closed, the value needs to be increased.

F-08 Open door low speed and constant speed angle

This parameter sets a low-speed constant speed zone when the door opening is about to end. In the process of opening the door, after reaching this angle, run at F-06 Door Open End Speed until door open is completed. If this parameter is set to greater than or equal to 90 or set to smaller than the angle defined by F-02 door opening deceleration angle, this function is invalid.

F-09 Close door at low speed and constant speed angle

This parameter sets a low-speed constant speed zone when the door closing is about to end. In the process of closing the door, after reaching this angle, run at F-07 Door close End Speed until door close is completed.

If this parameter is set to 0 or is set to an angle greater than the angle defined by F-03 door closing deceleration angle, this function is invalid.

F-10 Door closing buffer start position

The door is closed at the closing end speed from this position. If the door closing vibration is large, you need to reduce this value. If 0, do not brake.



F-11 door closing brake time

Close door braking time, unit: 0.01 seconds, a braking point is set at the starting position of the door closing buffer. If the door closing stop speed and the door closing buffer start position are both adjusted to the limit values, the door closing vibration is still large. In this case, the inertia of the door is generally large, and a braking time can be set. The default is 0, which means no braking.

F-12 the speed of looking for closing door position

After the control board is powered on, it needs to find the origin position at a speed. If the speed after power on is too large or too small, it can be set by this parameter. The higher the number, the higher the speed.

F-13 learn remote control

After entering the remote-control learning menu item, it displays the number of remote controls that currently learned. Learn in the order of on->off->stop. In order to ensure the reliability of learning, each button needs to be long pressed for one second. After learning a button, the buzzer will beep once. After the three keys are learned, the buzzer will beep for a long time, indicating that a remote control is learning correctly. At the same time, the LED shows the number of learned remote controller plus one.

After learning one remote control, you can move on to the next one. If it is a learned remote controller, the buzzer will beep three times continuously, indicating that the remote controller has been learned.

If there is no button on the remote control within 20 seconds, the buzzer will give a long beep to exit the learning state and enter the normal working state.

The remote control that has been successfully learned will have a buzzer beeping when the button is pressed under normal working conditions.

F-14 open door hold time

The range is 0-255, the unit is 1 second, the default is 5. After the door is opened, it will stay for a specified time and automatically close the door. If it is 0, the door will not be closed automatically.

F-15 swipe card delay door opening

Range 1-20, unit: 0.1 seconds, default 1. The time to wait for the magnetic lock to be released.

F-16 learning door location

The door must be closed before entering this menu option. After entering this menu, you can manually adjust the door to a proper position, or you can press the "Open/+" and "Close/-" buttons on the control panel to adjust the door position.

After adjusting the door position, press the "Menu" button to save the door position. If the door opening angle is too small, the buzzer will beep 3 times, and the LED will display the "E-01" error message. Indicates that learning has failed, and need to relearn, the previous steps must be restarted.

F-17 close door strength

Range 0-30, default: 0. The main function of this parameter is to confirm the closing again after the door is closed in place. Make sure the magnetic lock can be locked. 0: When the door is about to be closed, the magnetic lock will be opened in advance. In this case, the sound of closing the door will be louder. The advantage is that the door will not rebound.



Greater than 0: The magnetic lock is opened only after the door is in place, in this case the door closing sound is relatively small. After the door is locked, the door closing will be confirmed twice. The larger the value, the greater the force of twice confirm the closing of the door. The value can be increased if the door cannot be locked.

F-18 anti-collision sensitivity

Range: 1-50, Default: 5. Unit: 0.05 seconds. Minimum time from hit pedestrian to reaction. The smaller the value, the higher the sensitivity. The higher the sensitivity, the easier it is to receive interference. If the door stops during the normal door opening and closing process, you need to increase this value.

F-19 anti-collision strength

Range 10-255, Default: 30. **The higher the speed, the need to increase this value**, so if you change the speed of opening or closing the door, you need to modify this parameter synchronously. This value is combined with the F-18's Crash Sensitivity to determine if a collision occurs.

One determines the strength of the collision, and the other determines the reaction time.

F-20 set time

After entering the set time menu item, the hours will flash, use "open/+", "close/-" to adjust the hours, and press the "MENU" button to switch to the minute setting after the setting is completed. After all settings are done, press the "Menu" button to confirm. Long press "open/+", "close/-" to quickly add or subtract the setting value.

F-21 light box working time

Similar to setting the time, first set the turn-on time of the light box, and then set the turn-on duration.

F-22 motor type

Set in factory

F-23 Version

Software version number.

F-24 reset

This option has two functions, clear remote control and factory reset. In order to prevent wrong operation, it is necessary to set a specific value and then press the "Menu" key to start the operation. Entering the F-24 menu item shows 0. The prescribed values need to be set to perform different operations: A. F-24 is set to 5: clear the remote control

B. F-24 is set to 10: restore the factory settings and restore the set value to the default value.

After the operation is completed, the buzzer beeps once to indicate success, if it fails, the buzzer beeps three times, and the LED displays "E-00" to indicate that the setting fails. The reason is that the setting values are not 5 and 10.

The default parameters of the control panel can meet the vast majority of scenarios, if improper settings occur during the setting process. The factory reset function can be used.

F-25 automatic testing

Range: 0-255, Default: 0. The time interval for automatic testing, in seconds. 0 means close automatic testing. It is used for automatic testing of doors and can be used for aging testing.

This parameter is saved after power off, so after the automatic test is completed, the value needs to be set to 0 to restore the normal working state.



F-26 door opening direction

Value range: 0-1, default: 0. 0 means left door, 1 means right door.

F-27 Photosensitive threshold

Default: 150, set the light sensitivity value to turn on the light. The current light sensitivity value can be checked by F-30. The current photosensitivity value exceeds the set photosensitivity threshold. then turn on the light. Because the installation environment is different, the transmittance of the casing is different, and the brightness requirements of the customer to turn on the light are different, the photosensitive threshold cannot have a compromise value. It is necessary to adjust the threshold value according to the requirements after installation.

F-28 Delay open

Range 0-255, default: 10, unit: seconds. After detecting that the current photosensitive value exceeds the photosensitive threshold set by the F-27 command, the light will be turned on after the set delay time.

F-29 Delay close

Range 0-255, default: 250, unit: seconds. After it is detected that the current photosensitive value is lower than the photosensitive threshold set by the F-27 command, the light will be turned off after the set delay time, so as to prevent wrong operation under the condition of car light irradiation.

F-30 Photosensitive value

The light sensitivity value under the current light intensity. It can be used as a reference for setting the threshold of switching lights. This command will not exit over time, you must press the "Stop/Cancel" button to exit the display, otherwise it will continue to display.

F-31 Advertising light working mode

Default: 0, 0: Time control 1: Photosensitive control. When it is 0, the switch of the light is controlled by the time, and the light is turned on when the time reaches the set turn-on time. When it is 1, the switch of the light is controlled by the photosensitive. Turn on the switch when the sky darkens to the set light sensitivity value.

F-32 stop buffer time

Range: 10-255, Default: 50, Unit: 0.01 seconds. In the process of opening or closing the door, the time from pressing the stop button until the door completely stops.

F-33 Access control signal type

Range: 0-3, Default: 0. This parameter is used to define the type of external access control signal, which mainly matches the output signal type of the access control controller. The definitions are as follows:

0: Relay signal

1: Voltage signal, high level to open the door.

2: Turn off the access control signal, the access control signal is invalid.

3: The signal is reversed, the access control signal is turned off, the access control signal is invalid, but the output signal of the access control can be connected to the "ground" and "open" of the advertising turnstile main board. High level to open the door.

F-34 Windproof sensitivity



Range: 0-50, default: 0, the larger the number, the more sensitive it is, and 0 is to turn off the windproof function.

F-35 Lock motor power

Range: 0-20, Default: 10, the larger the number, the greater the current to lock the motor.

Need to use together with the F-36 command.

F-36 lock motor switch

Range: 0-1, Default: 0, 0: close 1: open. Used in conjunction with F-35, if it is 1, the stop key is pressed during the door opening or closing process, and when the door is fully opened. Then the controller locks the motor with the power set by F-35, so that the door does not shake.

F-37 Bounce the magnetic lock strength

Range: 0-100, default: 0, the larger the number, the stronger the force to open the magnetic lock, and 0 to close the function. This function is used to solve the problem of slow demagnetization of some magnetic locks, which causes the magnetic lock to keep attracting and cannot open the door normally. Set this value to open the magnetic lock with the set force.

Human infrared sensor: The human body infrared sensor on the board can be connected to an external infrared sensor. When the infrared sensor detects a person, it will output a valid signal. The advertising turnstile controller panel has two human body sensing interfaces:

IN1: The door is fully opened after detecting a person, and the door remains open when the induction signal is valid. After the induction signal disappears, the door will automatically close after waiting for the door opening hold time.

IN2: The door is fully opened after detecting a person, and the door remains open when the induction signal is valid. After the induction signal disappears, the door will automatically close immediately.

Normally open mode: After the door is fully opened, press the stop button of the remote control, or press the external stop switch, the controller will enter the normally open mode, and the buzzer on the controller will beep for a long time. In normally open mode, the door will remain open until the close button is pressed.

9.shortcut

A. Long press the "open/+" button in normal working mode to quickly enter the remote control learn menu commands.

B. In the normal working mode, long press the "Cancel" button to quickly enter the time setting menu command.



Control board hole size and wiring diagram

