Side Mounted Swing Door Openner
Operating Instructions

Model：FE-M140

For meeting the automation needs of modern swing doors, our company has developed and manufactured an intelligent automatic door opener/closer. This model uses a microcomputer chip and digital controls, offering powerful functionality, high safety performance, and easy installation and commissioning.

Note: To enable better and more comprehensive use of this equipment, be sure to **carefully read this operation/user manual** before installation and use.

1.1 Workflow:

A. Main Flow: Opening → Opening Buffering → Position Hold → Closing → Closing Buffering → Locking

B. Detailed Flow:

The working flow of the automatic door opener/closer is as follows:

An opening signal from an external device triggers the door opener → The electromagnetic lock is de-energized → Opening (speed adjustable from Level 1–10, see Chapter 3) → Opening braking and buffering (speed adjustable from Level 1–9, see Chapter 3) → Stop → Opening hold (hold time adjustable from 1–99 seconds, see Chapter 3) → Closing (speed adjustable from Level 1–9, see Chapter 3) → Closing braking and buffering (speed adjustable from Level 1–9, see Chapter 3) → Electromagnetic lock is energized → Door pressed closed; one cycle is complete.

Note: During the closing process, if an opening signal is received, the door will immediately switch to opening.

1.2 Product Features

- Low power consumption, static power: 0.5W, maximum working power: 25W
- Ultra-quiet operation, working noise <50dB
- Compact design, easy to install
- Strong force, capable of pushing doors weighing up to 140 Kg
- Supports relay dry contact signal
- Motor overcurrent, overload, and short-circuit protection
- Intelligent obstacle detection, door reversal protection upon obstruction
- Precise adjustment of motor current (thrust) and speed
- Self-learning limit positions, no cumbersome limit setting required
- Sealed housing, rainproof and dustproof

1.3 Main Technical Parameters

Product Model	Type 140
Applicable Scope	All kinds of swing doors with a width of ≤1600mm and a weight of less than 140Kg
Opening Angle	90°
Power Supply Requirement	DC24V 5A
Rated Power	25W
Static Power	0.5W (without electromagnetic lock)
Opening/Closing Speed	1~9 levels, adjustable (corresponding to door opening time of 10-3 seconds)
Opening Hold Time	1~99 seconds
Operating Ambient Temperature	-20℃~60℃
Operating Ambient Humidity	30%~95% (no condensation)
Operating Ambient Atmosphere	700hPa~1060hPa
Dimensions	Length 360mm*width 83mm*height 131mm
Net Weight	About 7.3kg
Warranty Period	One year

Chapter 2 Installation

Installation Precautions:

A. Considering factors such as wind resistance and lever effects, the door opener is suitable for doors with a maximum width of 1.6 meters and a corresponding weight of less than 90 kg. For every 0.1 m decrease in door width, an additional 10 kg can be added to the door weight. For example, a 1.1 m door can carry a load of up to 140 kg. Slight overloading will not affect the lifespan of the door opener but may affect the opening/closing speed.

B. The installation must be performed strictly in accordance with the dimensions provided in this manual. Improper installation will cause the door opener to malfunction, and in severe cases, may damage the equipment.

C. Do not modify the structure of the door opener or drill holes in its housing, as this may allow moisture to enter and cause faults in the electronic or electrical components.

2.1 Mechanical Installation of the Door Opener

2.1.1 Installation Instructions

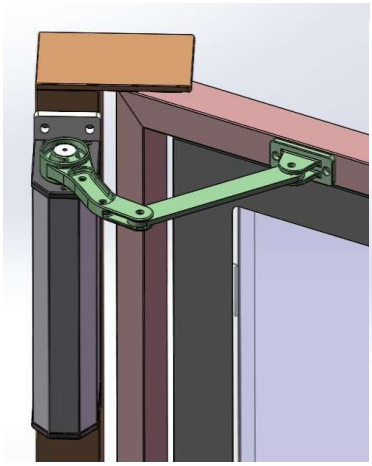
A. Left/Right door opening identification:

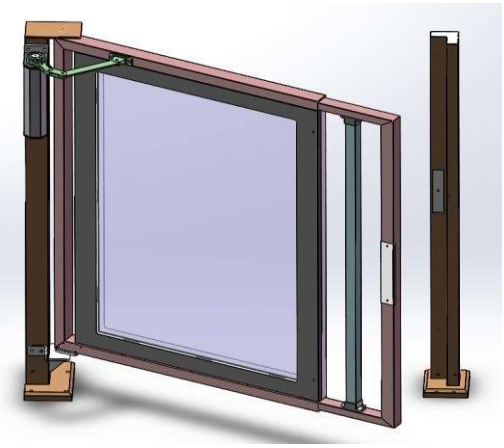
Left opening: The door opens in a clockwise direction.

Right opening: The door opens in a counterclockwise direction.

B. The door opener must be installed horizontally and attached to the door post. Be mindful of the link rod's rotation direction. See the illustration below for reference:

Left opening:





Right opening:

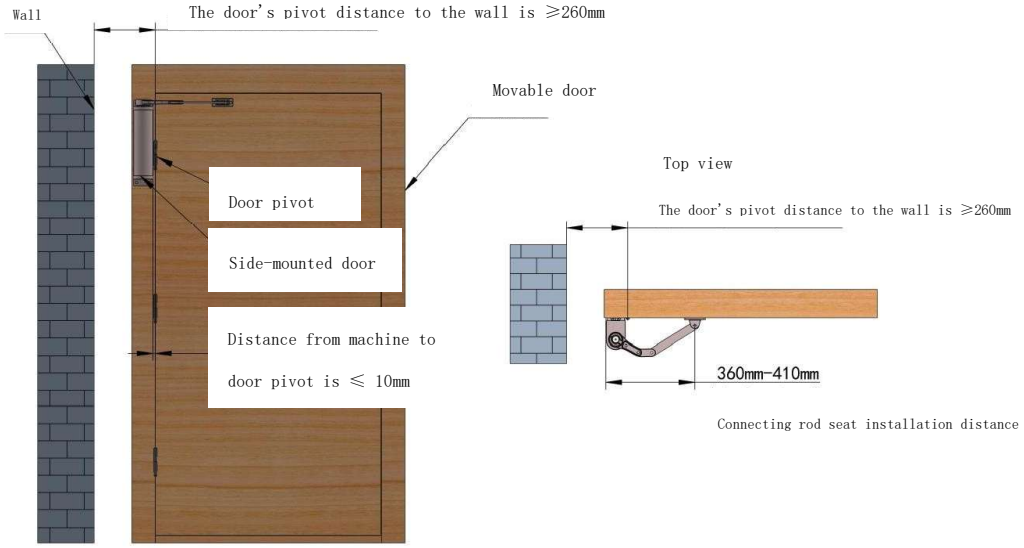
D. Remove the fixing screw and washer from the door opener's main shaft.

E. Slide the end of the crank assembly with the hole onto the door opener's main shaft, making sure the key slot of the hole is aligned with the key on the shaft. Once in position, secure the crank with the washer and screw.

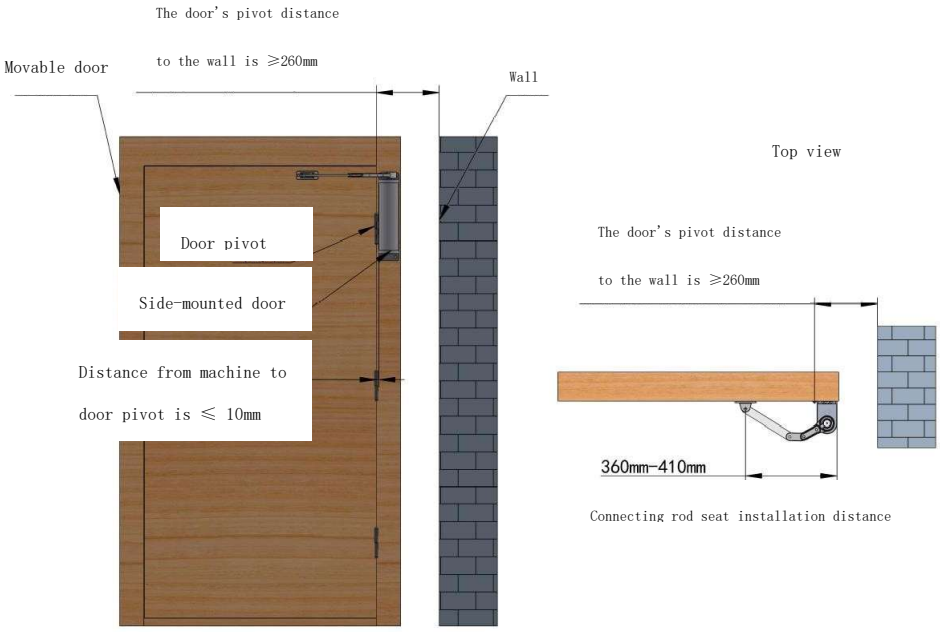
F. Fix the L-shaped bracket on the crank to the door using the M8×70 screws, flat washers, and M8 nuts from the accessory pack.

Note: During installation, ensure that the L-shaped bracket, crank, and door opener's main shaft are aligned on the same horizontal plane. Misalignment will cause the crank to bear uneven forces and may result in jamming.

2.1.2 Left-Opening Installation Method and Dimensions:



2.1.3 Right-Opening Installation Method and Dimensions:

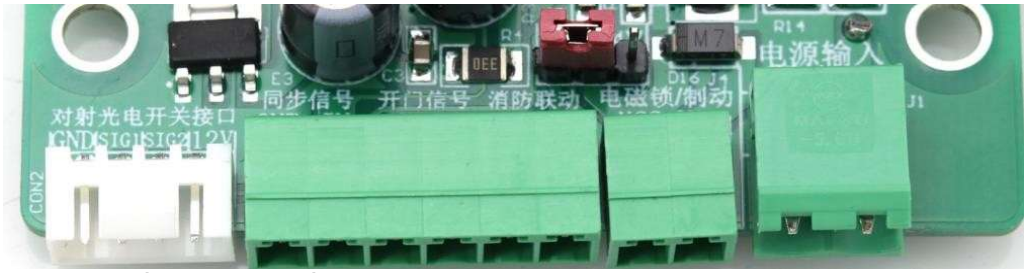


2.2 Electrical Connections of the Door Opener

2.2.1 Control Port Description

Warning:
A. Do not operate the electrical connections with the power on. Only apply power after all connections have been completed.
B. Do not reverse the polarity of the power supply (positive and negative), as this will cause equipment damage.
Note:
A. Please use an electromagnetic lock with a supply voltage of 12VDC and a rated power ⩽9W, or select an electromagnetic lock from our company. Otherwise, the equipment may not operate correctly or the circuit may be damaged.
B. The motor wires are pre-connected at the factory and should not be removed except when absolutely necessary.
C. Door access device open-door signal:
a. When the access device has a switch-type output (dry contact), the door is opened by closing the switch. The switch should remain normally open when idle. Polarity is not required.
b. When the output is a voltage signal (wet contact), a relay interface module must be added.

Name	Synchronous signal		Synchronous signal			Synchronous signal	Synchronous signal		
Door opener	OUT	IN	12V	NO	GND	FIR	12V	Negative	GND	+24V
Power supply									COM Or -V	+V
Electromagnetic lock							Red line	Black line		
Access control			12V	NO	COM GND					

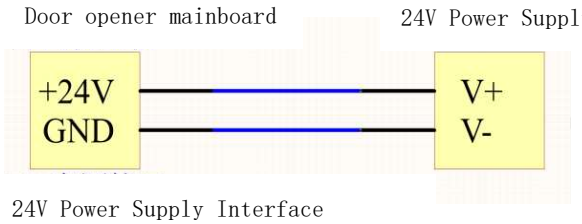


Photoelectric switch interface (Note: Please	Synchronous signal: Master IN connects to slave OUT, Master OUT connects to slave IN

2.2.2 Control Signal Wiring Diagram

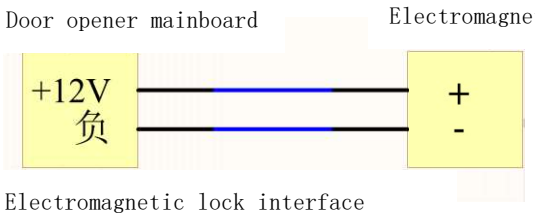
Connect the power supply, electromagnetic lock, and external door-opening control device according to the diagram. After verifying that all connections are correct, proceed with power-on and commissioning.

1. Power interface connection to 24V power supply



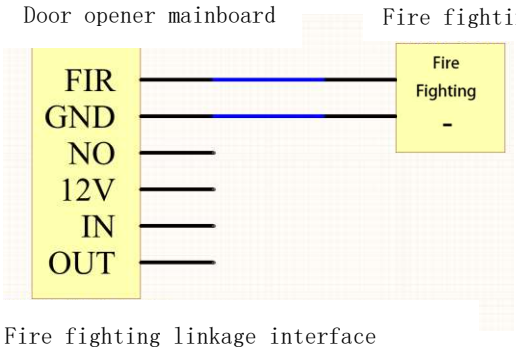
24V Power Supply Interface

2. Electromagnetic lock interface connection to electromagnetic lock



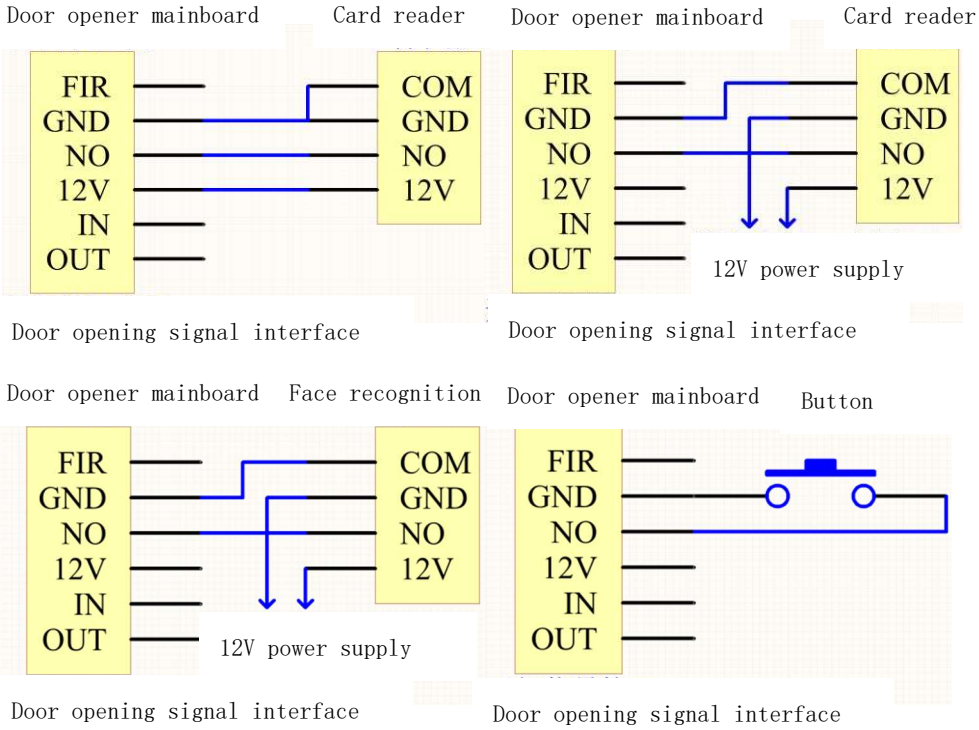
Electromagnetic lock interface

3. Fire linkage interface connection to fire protection equipment

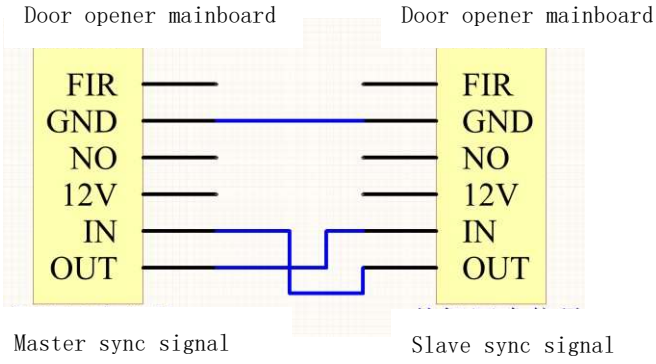


Fire fighting linkage interface

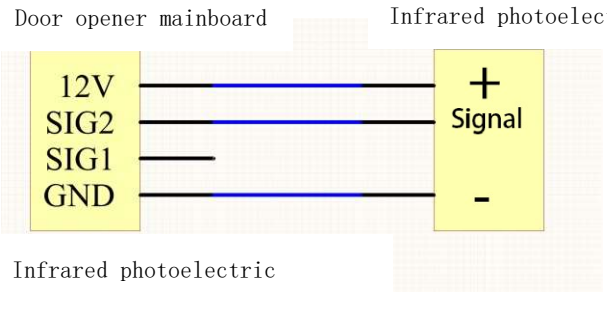
4. Door opening control signal interface connection to dry contact devices such as card readers, facial recognition systems, buttons, etc.



5. Dual-machine interlock input/output connection (master/slave configuration can be set via parameters)



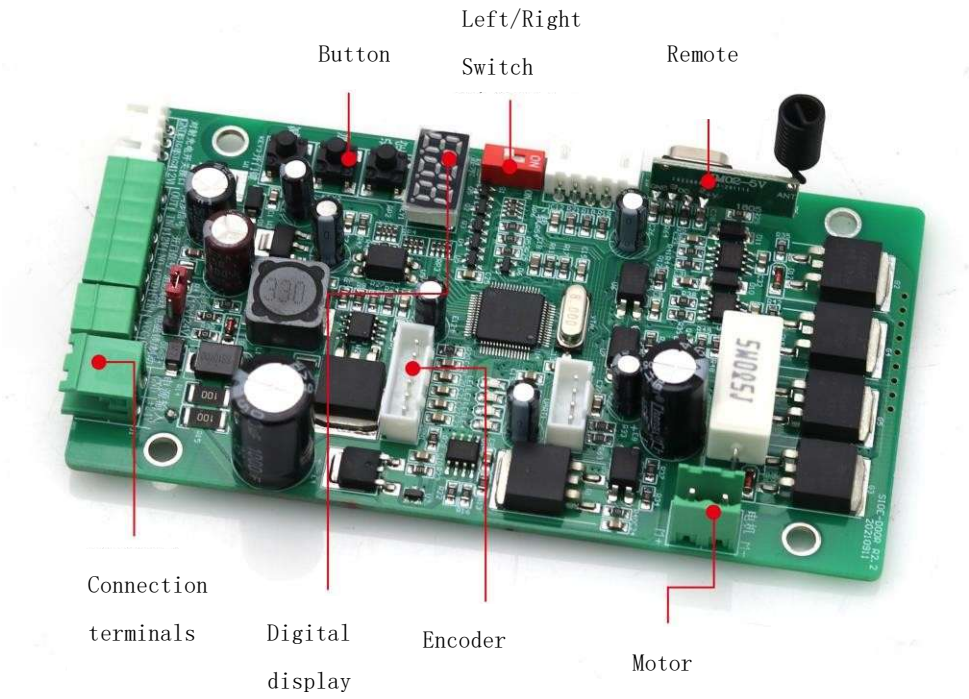
6. Photoelectric beam switch interface, connect to infrared photoelectric beam switch (please use NPN normally open type)



Chapter 3 Parameter Settings and Status Display

3.1.1

The door opener's digital control board uses a 3-digit LED display. Three buttons are used for parameter settings. A DIP switch is used to select left or right door opening. Indicator lights show whether the power is normal and the status of the speed Hall sensor. See the diagram below:



3.1.2

After installation and wiring are complete, turn on the power. The door opener will enter the "closing position learning" state (LED display shows "H07"). Once the door is closed and the learning is completed, it will enter standby mode, during which the LED display shows "---".

3.1.3 Functions and Corresponding Digital Display:

Display	Description	Default	Range	Notes
P01	Closing speed	6	1-10	The larger the value, the faster the speed
P02	Closing buffer speed	3	1-10	The larger the value, the faster the speed
P03	Closing delay	5	1-15	Unit: seconds When the door is closed to the limit position and there is an infrared signal, the door will not be opened
P04	Opening hold time	5	1-254	Time the Door Remains Open After Fully Opening

				254: Keep the door open. When the infrared signal is set to 02, the door will close immediately upon detecting a person.
P05	Closing buffer angle	30	5-60	The larger the value, the larger the angle
P06	High-speed torque	110	20-240	Unit: 0.01A
P07	(High-speed current)	3	1-10	Unit: Seconds (Obstacle Response Time)
P08	Left and right door opening	3	=1 Left opening =2 Right opening =3 Detection	Default 3: Determine the door opening direction according to the red DIP switch on the circuit board
P09	Automatic door opening and closing position sensing	1	1-2	1. When the door is not in the closed position, it will automatically restart zero-point calibration, and the zero point will automatically reset every 10 minutes. 2. When the door is not in the closed position, zero-point calibration will not restart, and the automatic zero-point reset function every 10 minutes is disabled.
P10	Door opening speed	7	1-10	The larger the value, the faster the speed
P11	Door opening buffer speed	3	1-10	The larger the value, the faster the speed
P12	Door opening buffer angle	15	5-60	The larger the value, the larger the angle
P13	Door opening angle	150	50-200	Subject to the connecting rod angle;
P14	Manufacturer reserved			Manufacturer reserves
P15	Restore factory settings	2		02 66 Restore factory settings 03 02 Normal working mode 04 03 Test mode
P16	Working mode	1	1—3	1 1 Single machine 2 2 Master machine 3 3 Slave machine

P17	Host delay closing time(synchronous delay)	1	1—6	1 means 1S Only used in host mode
P18	Delay before opening door	2	1—60	1 means 0.1S
P19	Low speed torque	80	20-150	Unit is 0.01A
P20	Fire linkage	0	0-8	0 Fire protection as a door opening signal; 1 Normal closed fire door (normally closed): 2 Fire protection (long signal) opens the door, no fire protection signal closes the door, and accepts the door opening signal after closing the door; 3 Fire protection (short pulse signal) opens the door and keeps it open, and power needs to be cut off to restore normal; 4 Fire protection (long signal) keeps the door closed and does not accept 5 Door opening signal, no fire signal returns to normal, accepts door opening signal; 6 With fire (short signal), keep door closed and do not accept door opening signal, need to cut off power to return to normal; 7 Normal fire door (open at ordinary times): 8 With fire (long signal), close the door but accept door opening signal, no fire signal to open the door; 9 With fire (long signal), close the door and do not accept door opening signal, no fire signal to open the door; 10 With fire (short signal), close the door, accept door opening signal after closing the door; 11 With fire (short signal), close the door and do not accept door opening 12 signal, need to cut off power to return to normal
P21	Manufacturer reserved	0	0-10	Manufacturer reserved

P22	Remote control mode selection	1	1—6	1. Remote control jog + key jog 2. Remote control interlock + key jog 3. Remote control jog + key self-lock 4. Remote control interlock + key self-lock 5. Remote control multi-function + key jog 6. Remote control multi-function + key interlock
P23	Manufacturer reserved	10	1—10	Manufacturer reserved
P24	Magnetic lock/electric lock selection	1	1—3	1 Magnetic lock (locked when powered on) 2 Electric lock (unlocked when powered on) 3 Electric lock (locked when powered on)
P25	Start-up (power on) search Zero point delay time	0	0-99	0 Turn on the machine and find the zero immediately 1-99, the value will extend the time to find the zero
P26	Downwind wind resistance coefficient	7	1—10	0 Maximum wind resistance
P27	Infrared signal	0	0-2	0 0 Infrared signal inversion 1 1 Infrared signal as door opening signal 2 2 Infrared signal as person passing through the door
P28	Shielding during door closing Shielding "door opening control" and "fire protection" signals	0	0-3	0 0: Not shielded 1 1: Do not open the door if there is a signal in the "door opening control signal" during the door closing process 2 2 When the fire department uses the door opening signal, the door will not be opened if there is a signal during the door closing process 3 3 Both are blocked
P29	Manufacturer reserves gate.	0	0-10	Reserved by the manufacturer
P30	When the infrared signal is used to pass	2	0-30	Unit: 1S

	through the gate, the pedestrian passing time			

3.2 Status Display Description

Operation displays: H01–H09

Display	Description	Notes
- - -	Standby state	When not working, it is in standby mode
H01	Open door at high speed	Open door at high speed
H02	Open door buffer	Open door brake and buffer
H04	Open door hold	Open door in place and open door hold
H05	Close door at high speed	Close door at high speed
H06	Close door buffer	Close door brake and buffer
H07	Close door delay	Close door in place
H09	Quick protection when pushing the door backward	Notes

3.3 Error Alarms

Operation displays: E01–E04

Display	Description	Notes
E01	Open door error	
E02	Close door error	
E03	Close door stop error	
E04	Hall plate detection error	

Chapter 4 Debugging

4.1 Closing Position Learning

A. Normal condition: After powering on, the digital display on the circuit board shows “H07”. The door will slowly move toward the closed position (learning the closing position), waiting for the door to fully close and the display to show “---”.

B. Abnormal condition: After powering on, if the door repeatedly opens and closes back and forth, set parameter P15 to 02, then power cycle the device and observe if it enters

the normal state (A).

C. Abnormal condition: After powering on, the display shows “H07” but the door moves toward the open direction. Refer to section 3.1 and toggle the door opening direction DIP switch (red) on the circuit board to the opposite setting, then observe if it enters the normal state (A).

Note: Do not block the door during the closing position learning process, otherwise the blocked position will be recognized as the closed position!

4.2 Opening Debugging

A. Opening angle: If the opening angle is insufficient, increase the value of P13; if too large, decrease P13 to achieve the desired angle.

B. Opening speed: Adjust the value of P10. The larger the value, the faster the speed; the smaller, the slower.

C. Opening hold time: The time the door stays open after reaching the open position, adjusted by P04 (unit: seconds).

4.3 Closing Debugging

A. Closing speed: Adjust the value of P01. The larger the value, the faster the speed; the smaller, the slower.

B. Closing buffer angle: Adjust the value of P05. The larger the value, the larger the buffering angle; the smaller, the smaller the angle.

4.4 Other Adjustments

A. Adjust reverse push current: Set P06; the factory default is 110, which sets the motor operating current to 1.10A.

B. If the door does not close fully, increase the value of P19 or P02.

C. If the closing buffer speed is too fast, reduce the value of P02.

D. For other parameters, please adjust according to the site conditions and refer to section 3.1 for settings.

Chapter 5 Remote Control Settings

5.1 Remote Control Mode Setting

In standby mode (LED display shows “---”), press the “Set” button. The LED will display “PXX”. Use the “Plus/Minus” buttons to cycle through parameter codes to the values shown in the table below. Press the “Set/Confirm” button to apply the setting.

Display (Parameter Code)	Description	Default	Range	Remarks
P22	Remote control mode selection	1	1–6	1. Remote jog + button jog2. Remote interlock + button jog3. Remote jog + button self-lock4. Remote interlock + button self-lock5. Remote multifunction + button jog6. Remote multifunction + button interlock

5.2 Remote Control Learning

In standby mode, press and hold the “Plus” button for 4 seconds. The LED displays “AD”. Press the remote control’s lock button “ 🔒 ” to learn. After successful learning, “AD” disappears.

5.3 Remote Control Code Clearing

In standby mode, press and hold the “Minus” button for 4 seconds. The LED displays “CL”. After 2 seconds, “CL” disappears automatically, and the LED shows “---”. At this point, all previously learned remote controls will be cleared.

Chapter 6 Common Faults and Troubleshooting

Fault Phenomenon	Fault Diagnosis	Solution
Not working; 3.3V power indicator and digital display off	Use a multimeter to check if there is 24V voltage at the “Power Input” terminals on the circuit board	No 24V:1. Check or replace the 24V power supply2. Check or replace wiringHas 24V:Replace the circuit board
Motor not working	Refer to 3.1.3, set parameter P6 to increase high-speed current (high-speed torque), then restart operation	Problem solved: EndProblem persists:1. Replace motor2. Replace circuit board3. Disconnect door from rocker arm, check if door is jammed
Door does not open fully	Increase parameter P13 to enlarge opening angle; increase P6 to raise high-speed current (torque)	

Fault Phenomenon	Fault Diagnosis	Solution
No buffering during door opening	Increase parameter P12 to enlarge opening buffering angle	
Door does not close fully	Increase parameter P19 to raise low-speed torque (low-speed current), or increase P2 to raise buffering speed	
No buffering during door closing	Increase parameter P05 to enlarge closing buffering angle	
After door closes, lock fails to lock door	Use multimeter to check if there is 12V at the “Electromagnetic Lock” terminals on the circuit board	Has 12V:1. Check and adjust electromagnetic lock so lock body fits flush with strike plate2. Replace electromagnetic lock3. Check or replace wiringNo 12V:Replace circuit board