

Manual of top-mounted swing door operator

OB-DO-01-V1.0



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1、 Warning

1.1 Safety warnings

Important! This manual contains important safety- related information. Improper installation may result in serious safety accidents. Please read this manual thoroughly before installation. If you have any questions in installation, stop and contact the opener bear's technical service center.

Important! Please Store this manual for future reference.

1.2 Installation warning

Before installation, please confirm whether the product meets the application requirements (see "3.1 Pre-installation check"). If not, do not install the product. All installation, commissioning and maintenance work must be carried out with the main power cut off.

* The door operator body must have a safe grounding measure.

When installing, be careful not to touch this product, avoid collision, compression, dropping or contact with any liquid. This product should be placed away from high temperature and open flame. The above situation may cause motor damage. If this problem occurs, stop installation immediately and contact the opener bear's technical service center.

Do not modify any part without authorization. Otherwise, such operation may cause equipment failure. Opener bear declines all liability for any equipment damage caused by modification of products.

If the door body of this product is installed with a small door, the automatic door system should be installed with a control device, which can not run the automatic door when the small door is open to ensure safety.

Packaging materials and other wastes of this product shall be disposed of in accordance with local laws.

1.3 Use a warning

This product is not suitable for use by children, persons with disabilities, or person without relevant knowledge and experience.

Children, the elderly and pregnant women must be supervised when passing through to avoid accidental injury caused by contact.

Prevent children from touching motors and control equipment, and keep remote controller out of their reach.

2、Product Information

2.1 application range

Top-mounted swing door operator are divided into two types: crank-linkage type and crank-slider type, which are suitable for different occasions and user's needs.

Top-mounted swing door operator is designed for automatic control of Inward-swinging or outward-swinging doors with single-leaf or double-leaves, KFC style door leaves, aluminum alloy door leaves, fire door leaves, wooden door leaves, etc. It can be automatically controlled by access control equipment, face recognition equipment, mobile phone remote and other devices.

2.2 Product specifications

Item	Specification
Working voltage	220VAC $\pm$ 15% 50Hz
Motor operating voltage	24VDC
Power of motor	30W
Rated torque	34Nm
Angular speed	40.75°/s
Maximum opening Angle	$\pm 90^\circ$
Maximum length of door leaf	2m (single door)
Thermal protection on motor winding	F Class 155℃
Operating frequency	Continuous running below 70℃
Operating ambient temperature	-25-70℃
Working environment	Indoor or sheltered outdoor environments
Running noise	≤ 60 dB
Temperature rise	$\leq 15^\circ\text{C}$
Weight of equipment packaging	5.3kg
Body size (length * width * thickness)	330*85*84.4mm
Packing size	530*180*110mm

3、 Check before installation

3.1 Applicability check

Before starting installation, check that the product components are complete and that the selected model is suitable for the intended use and installation environment.

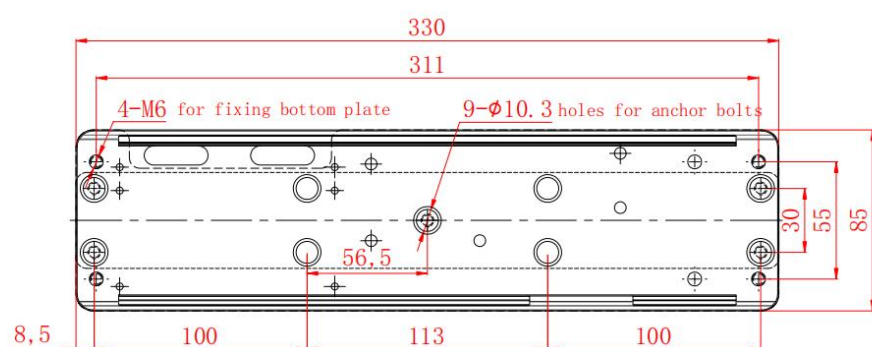
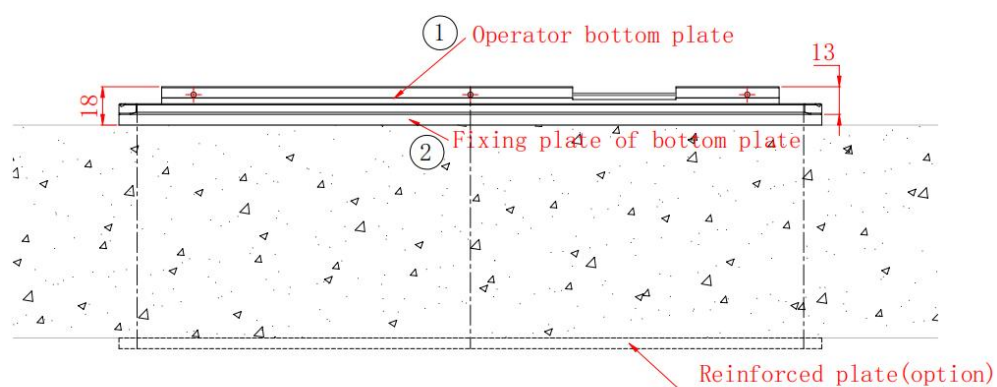
- Check that all accessories are in good condition and suitable for the intended use, and verify that the size and weight of the door leaf comply with usage limits;
- Check that the limit switch is installed on the door structure in the closed state (not provided). Manually move the door leaf to a arbitrary certain position, then release and check whether it remains stationary;
- Check whether the mechanical structure of the door is suitable for automatic installation (for example, whether the hydraulic hinge can be adjusted). This product shall not be used on door leafs in poor condition or with potential safety hazards;
- Check whether the fixing area meets the installation dimensions of the door operator. Ensure that the surface of the mounting and fixing area is sufficiently solid and has firm holding capacity;
- Ensure all equipment installation positions are protected and shall not be exposed to environments liable to accidental impact.

3.2 Installation instructions

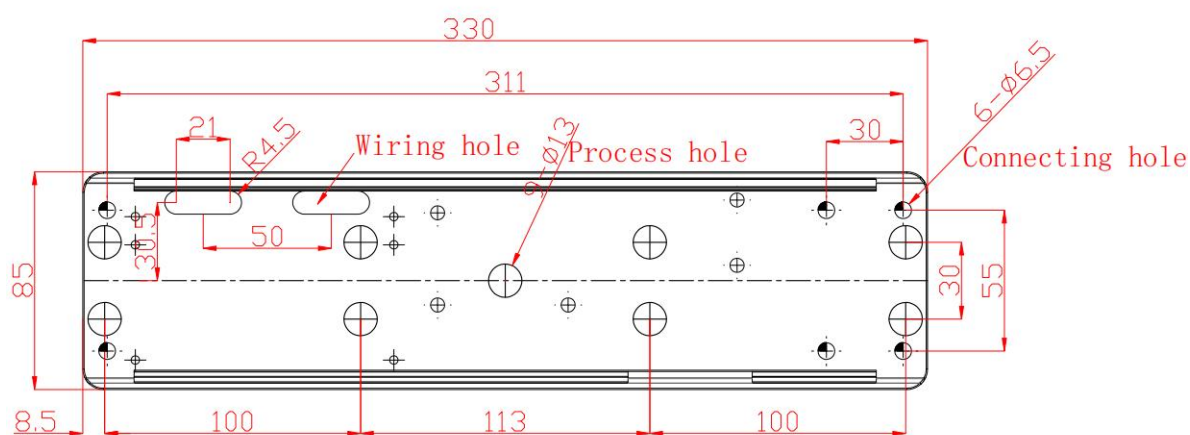
Incorrect installation may cause serious injury to the installer or user. Before starting the installation, check in strict accordance with 3.1 and proceed with installation only after all requirements are met.

3.2.1 Installation and positioning of door operator

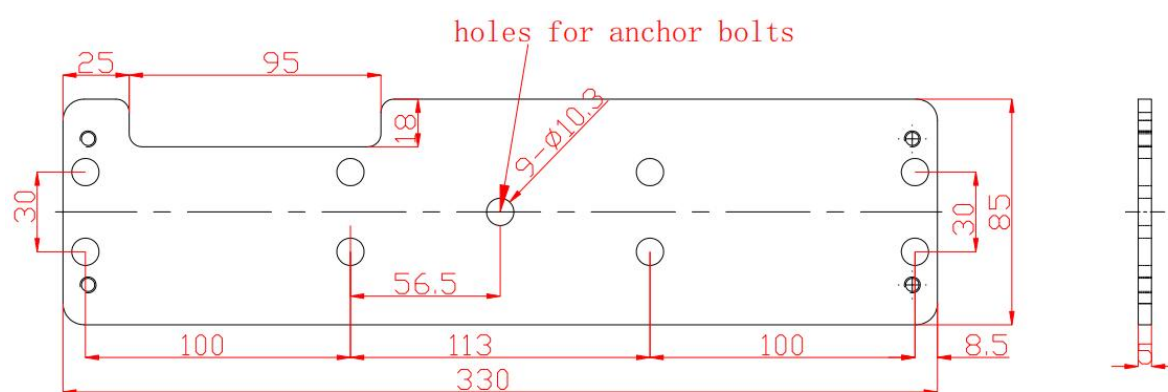
Before the door operator is installed, determine the installation direction according to the style of the door operator (crank-linkage or crank-slider) to be installed and the opening direction of the door leaf. After confirming the installation position, perform mounting positioning according to the dimension of the mounting holes on the base plate. The positioning diagram is shown below:



Installation dimension diagram of top-mounted swing door operator



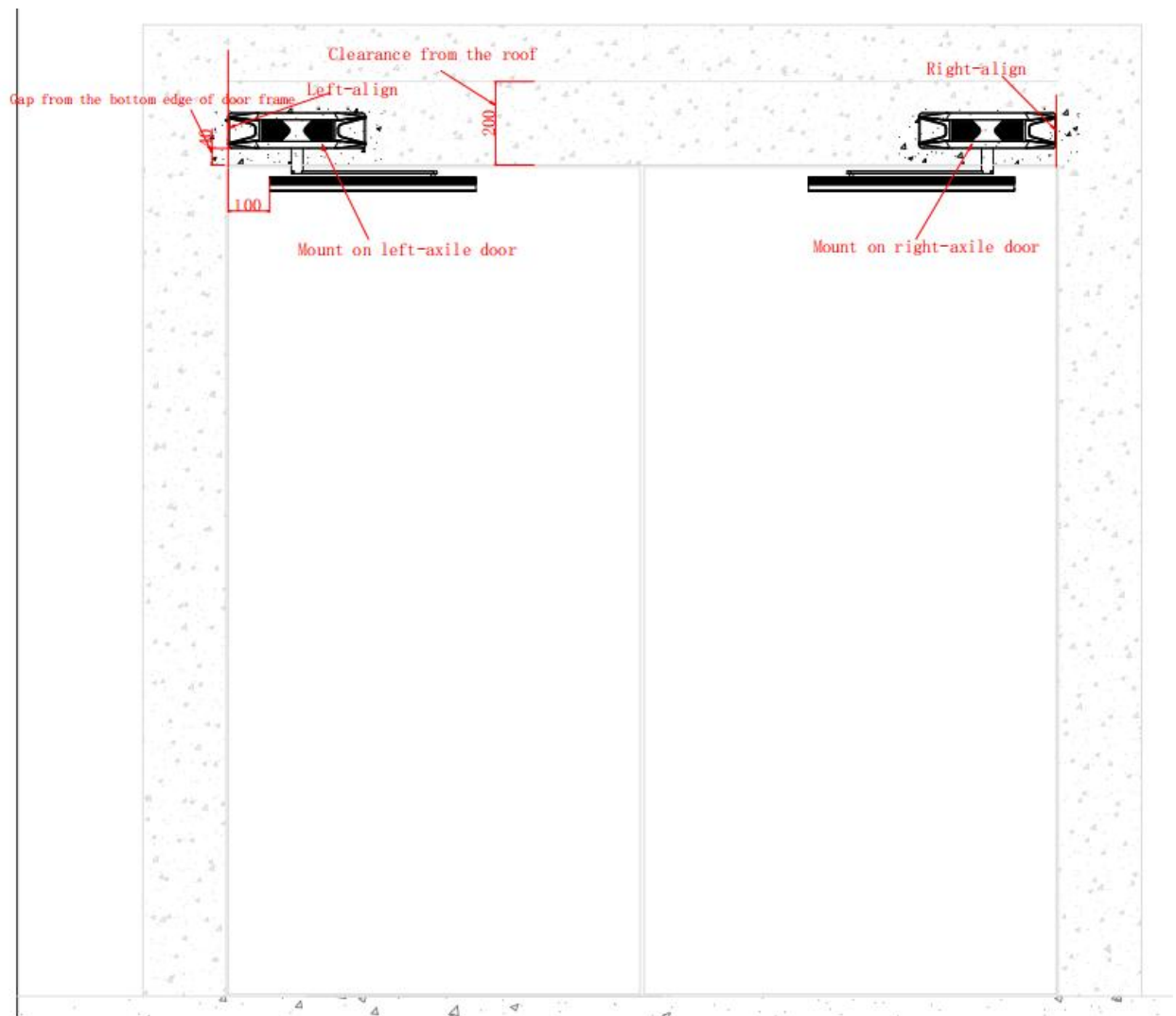
① Bottom plate dimension diagram of top-mounted swing door operator



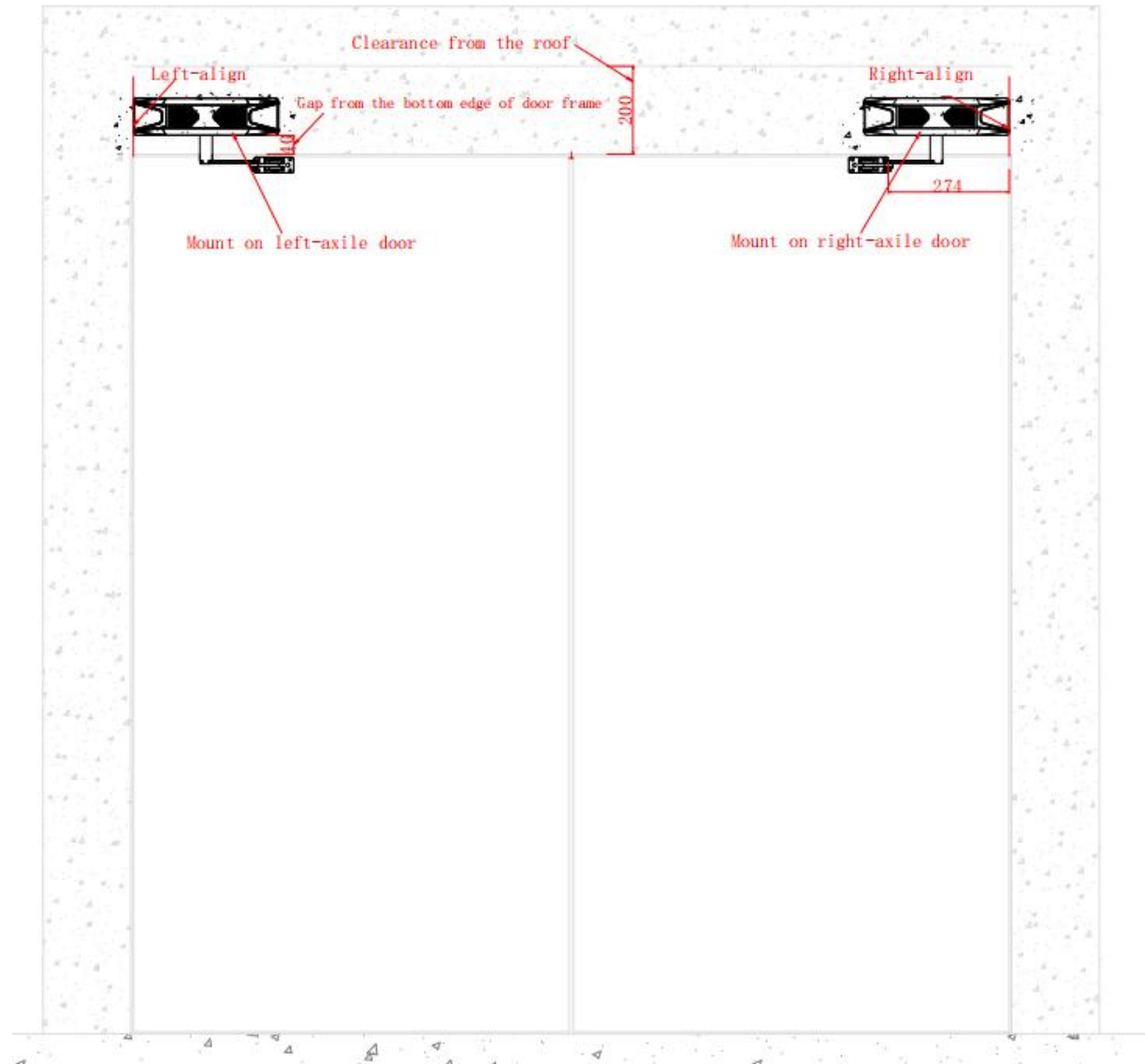
② Fixed plate dimension diagram of swing door operator

Precautions:

1. When installing the top-mounted door operator, ensure the distance from the center of the operator body to the ceiling is no less than 200 mm for clearance;
2. The mounting height of the operator body for the crank-slider type shall be 40 mm from the lower edge of the upper door frame. The mounting height of the operator body for the crank-linkage type shall be installed flush with the lower edge of the upper door frame..
3. The mounting position of the sliding rail for the crank-slider type swing door operator shall be **100 mm** away from the door hinge.



Installation diagram of crank-slider type



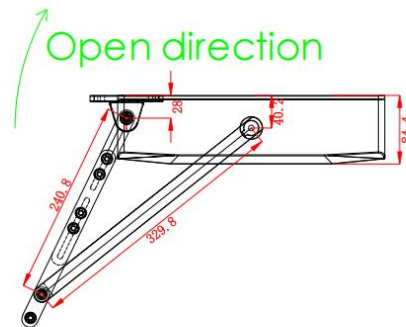
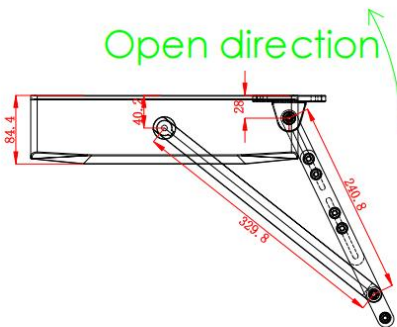
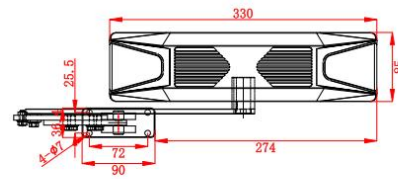
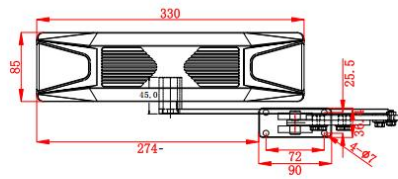
Installation diagram of crank-linkage type

3.2.2 Installation of top-mounted swing door operator

Top-mounted swing door operator are divided into two types: crank-linkage type and crank-slider type, details as follows:

3.2.2.1 The installation diagram of crank-linkage type is as follows:

The installation dimensions crank-linkage type are shown below:

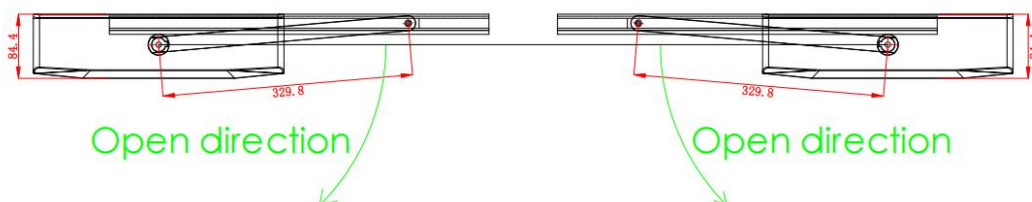
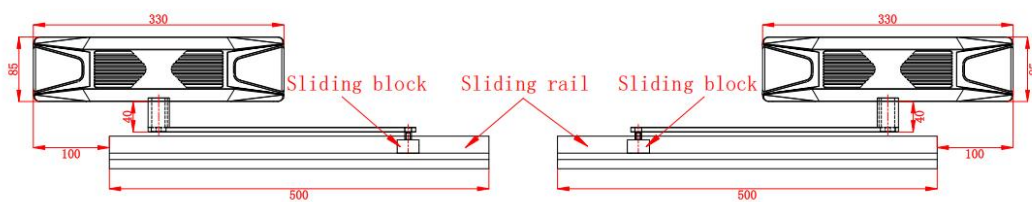


Mount on left-axle door

Mount on right-axle door

3.2.3.2 The installation diagram of crank-slider type is as follows:

The installation dimensions of crank-slider type are shown below:

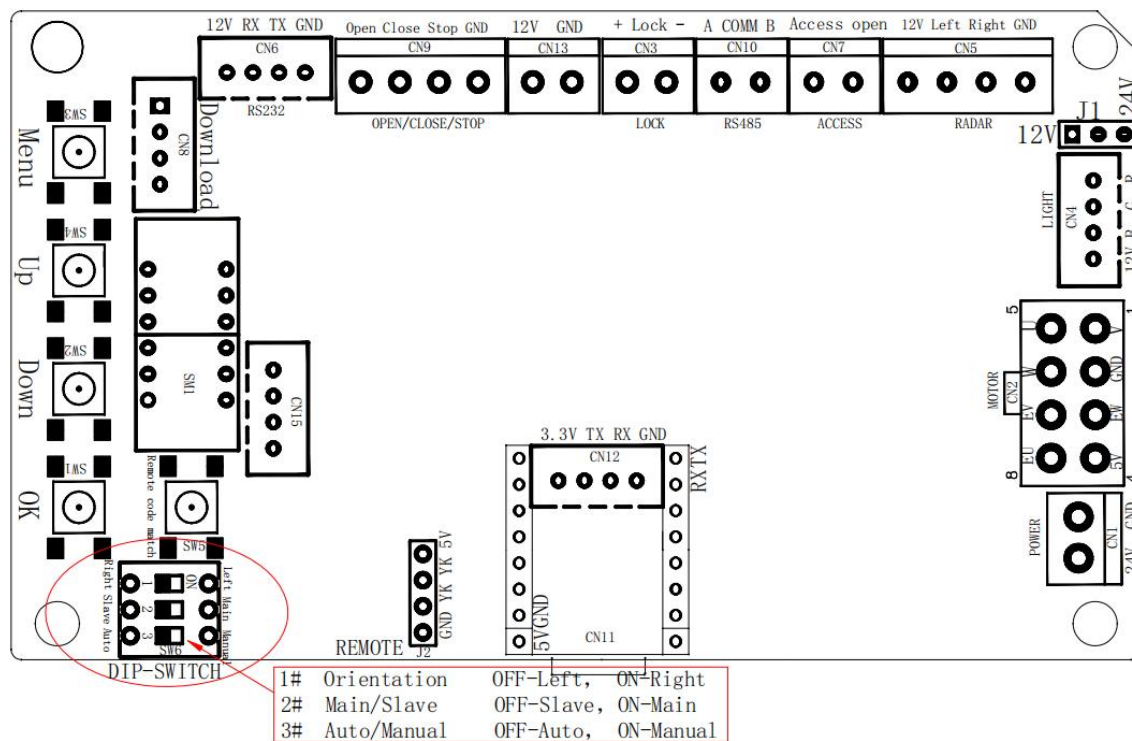


Mount on left-axle door

Mount on right-axle door

4、Power on and motherboard instructions

4.1 Wiring instructions of top-mounted swing door operator



Note:

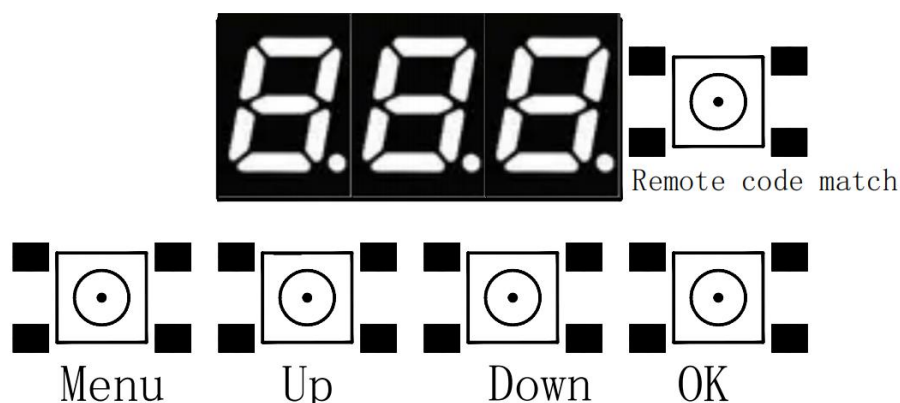
1. First of all, connect the external equipment in accordance with the definitions of the wiring terminals shown in the figure;
2. After connecting the external equipment, check and confirm that the wiring is correct, then power on;
3. Follow the operation instructions in 4.2.

Interface Description :

Terminal SN	Terminal definition	Remarks
CN1	24V GND	Power interface
CN2	U GND EW 5V U W EV EU	Motor\Hall interface
CN4	12V BLUE	External indicator

	GREEN RED	light
J1	12V 24V	jumper
CN5	12V LEFT RADAR RIGHT RADAR GND	Left and right radar signals
CN7	M+ M-	Access control signals
CN10	A B	RS485
CN3	LOCK+ LOCK -	External lock
CN13	12V GND	12V output
CN9	OPEN CLOSE STOP GND	Control signal input
CN6	12V RX TX GND	Serial port
CN8	3.3V DIO CLK GND	Download port
CN15	GND SDA CLK 5V	Seven-segment display
J2	GND YK YK 5V	Remote control interface
CN12	3.3V RX TX GND	Bluetooth Module
CN11	SPARE SPARE SPARE SPARE SPARE SPARE RX TX 5V GND SPARE SPARE SPARE SPARE SPARE SPARE	WIFI module
SW6	1 # Reset Direction 2# Master/ Slave 3# Automatic/Manual Close	OFF-Right ON-Left OFF-Slave ON-Master OFF-Automatic ON-Manual
		DIP-SWITCH

4.2 Controller operation instructions



"Up": In normal operation, this key opens the door. When in the settings mode, it is used to select menu items upward. On the parameter setting interface, one time press increases the value by one unit each time; press and hold enables continuous increment until the maximum value is reached, and then it cycles upward from the minimum value.

"Down": In normal operation, this key closes the door. When in the settings mode, it is used to select menu items downward. On the parameter setting interface, one time press reduces the value by one unit each time. Press and hold enables continuous decrement until the minimum value is reached, after which it cycles downward from the maximum value.

"Menu": Enter the setting interface and return to the upper-level menu.

"OK": Enter the setting value or return to the first level menu.

"Remote code Match": Remote controller code match or clear.

5、Parameter setting and debugging

The opening and closing time of the door and other parameters can be set through the setting keys under the seven-segment display. The keys are defined as shown in the figure below. The setting is divided into parameter setting, one-key recovery and remote control match.

5.1 Parameter setting

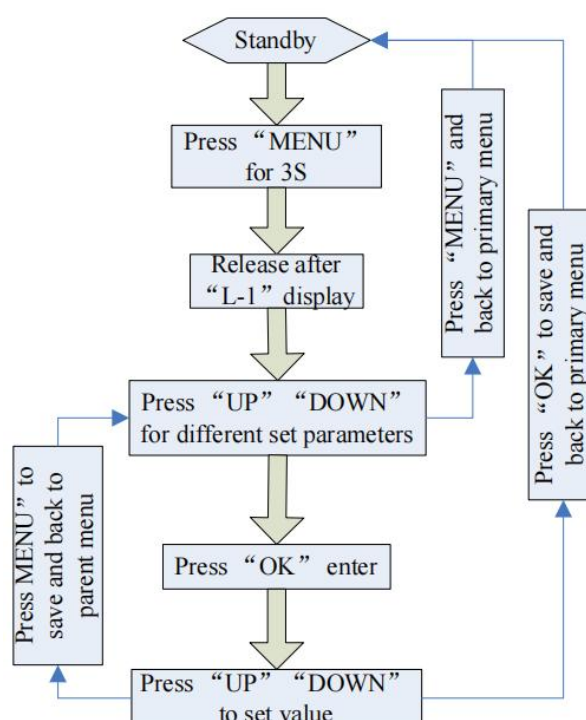
5.1.1 Quick parameter entry

-Press the "Stop" key of the remote controller for 6S to enter the door open position setting;

-Press the "Stop" key the remote controller for 2S to save the door position setting.

5.1.2 Function parameter setting

The parameter setting method is shown as follow:



The parameter setting table is as follows:

SN	Parameter	Content	Default(factory setting)	Remarks
L menu (to enter the menu: press "Menu" for 3S to display L-1, press "UP" and "Down" keys to select the Settings menu, and press "OK" to enter the setting value)				
1	L-1	Adjust the door opening Angle. When opening the door at 90°, press the "Stop" key on the remote controller for 6S to enter the setting. After the setting is completed, press the "Stop" key on the remote controller for 2 seconds to save.	90	
2	L-2	Adjust the door closing Angle. When opening the door, press the "Stop" key on the remote controller for 6S to enter setting and press the "Stop" key on the remote controller for 2 seconds to save.	-30	
3	L-3	Door opening end speed,setting range: 0-100 S.	15	
4	L-4	Door closing end speed,setting range: 0-100 S.	15	
5	L-5	Rebound sensitivity: the smaller the value, the higher	0.5	

		the rebound sensitivity, setting range: 0.1-10.0, accuracy 0.1.		
6	L-6	Rebound Response Time, Unit is S. 0.5 represents 0.5S; Setting range: 0.0-50.0S, accuracy 0.1.	3 represents 0.3S	
7	L-7	Automatic Closing Time: The door will close automatically after waiting for X seconds upon opening. For example, 10 means the door closes automatically after 10S delay. If set to 0 and controlled by the DIP-switch, this function will be disabled. Setting range: 1-999S.	20	
8	L-8	End-of-stroke force for door closing, Setting range: 10-100	60	
9	L-9	Duration of end-of-stroke force for door closing, Setting range: 0.0-10.0.	1.0S	
10	L-10	Electric Lock On-Off Mode Selection: 0-unlock when power on, 1-unlock when power off, setting range: 0-1.	0	
11	L-11	Slave Door Opening Waiting Time, Setting range: 0-9.0S.	1.0	
12	L-12	Main Door Closing Safety Time, setting range: 0-9.0S.	2.0	
13	L-13	Door opening speed, setting Range: Advanced 1-999, Normal 1-15.	10	
14	L-14	Door closing speed, setting Range: Advanced 1-999, Normal 1-15.	5	

5.2 Restore factory Settings

Press the "OK" key until the seven-segment display shows "---", press "UP" "Down" "UP" "Down" "UP" "Down" three times, and then press the "OK" key, finally, power off and restart to restore factory Settings.

5.3 Remote controller match and clear

5.3.1 Remote controller code match

Press the "remote code Match" key for 3S until the seven-segment display shows "--0". Then press any key on the first remote controller to display "--1", followed by any key on the another remote controller to show "--2", and so on. Continue this process until the display shows "- -N". Finally, press the "OK" key to complete match for all N remote controllers.

5.3.2 Remote Controller Code Clear

Press the "remote code Match" key for 3S until the seven-segment display display "--N" (N represent the number of successfully matched remote controllers). Then press the "UP" key for 3S until the seven-segment display shows "--0", which means remote controller code clearing is successful. Press the "OK" key to return to the normal standby state.

5.4 Motor direction adjustment

If the door opening and closing directions are reversed during debugging, adjust DIP-switch No.1 of SW6. After setting the motor direction, proceed with further debugging.

5.5 Debugging

After the door operator is fully assembled and inspected by QC, power-on testing can be progressed;The seven-segment display shows "000" each time the power is turned on. After the power-on self-check is completed, the seven-segment display shows the door angle, and it displays 0° at the fully closed position.

5.6 Aging

After debugging, the operator can be put into aging test. Press and hold the "DOWN" key for 3S to enter aging mode. During aging, the first segment of the seven-segment display shows a moving pattern converging from top and bottom to the center. The operator runs in reciprocating motion without sensor signal detection throughout the aging test. Press and hold the "DOWN" key for another 3S to exit aging mode.

6、Troubleshooting

SN	Common Problems	Solution
1	Door opening direction is incorrect	Set the door opening direction via DIP switch 1 of SW6
2	Incorrect door opening angle	The door opening angle needs to be set via L-1
3	Seven-segment display doesn't light up	Check the circuit for short circuit or open circuit
4	Magnetic lock fails to unlock	Check L-10 to confirm whether it is unlock by power-on or unlock by power-off.
5	Door opening and closing is not smooth	Check the setting values of L-3 and L-4, and reduce the values
6	The door fails to close	1.Check whether the access control door signal is always on; 2.Check L-7 value,It cannot be set to 0.
7	Seven-segment display shows E-1	Check for short circuits
8	Seven-segment display shows E-2	Check whether the motor wiring is not connected or the contact is poor
9	Seven-segment display shows E-3	Check whether the motor is stuck or blocked
10	Seven-segment display shows E-4	Internal encryption abnormality, main board failure
11	Seven-segment display shows E-6	Check the communication between main and slave door operator
12	Seven-segment display shows E-7	Check for overload
13	Seven-segment display shows E-8	Voltage abnormality, check the power supply voltage
14	Seven-segment display shows E-9	Software overcurrent, waiting to recover, if it persists,control board failure
15	Seven-segment display shows E-13	Rebound in case of encountering resistance, check for blocking obstacles
16	Seven-segment display shows E-14	Motor operation timeout, check if damping is applied.

7、After-sale service

1. Check the contact condition of terminals regularly to ensure a firm connection;
2. Check whether the earthing is good;
3. Check the power supply carefully before use.

8、Appendix 1: Top-mounted swing door operator packing list (crank-slider)

Top-mounted swing door operator packing list(crank-slider)					
SN	Name	Picture	quantity	unit	Material number
1	Top-mounted swing door operator main unit (built-in power supply)		1	pcs	
2	Crank with slider		1	set	
3	sliding rail		1	pcs	
4	fixed plate		1	pcs	
5	Remote controller		2	pcs	
6	Screw kits		1	set	

9、 Appendix II: Top-mounted swing door operator packing list (crank-linkage)

Top-mounted swing door operator packing list (crank-linkage)					
SN	Name	Picture	quantity	unit	Material number
1	Top-mounted swing door operator main unit (built-in power supply)		1	pcs	
3	Crank-linkage assembly		1	set	
3	fixed plate		1	pcs	
4	Remote controller		2	pcs	
5	screw kits		1	set	