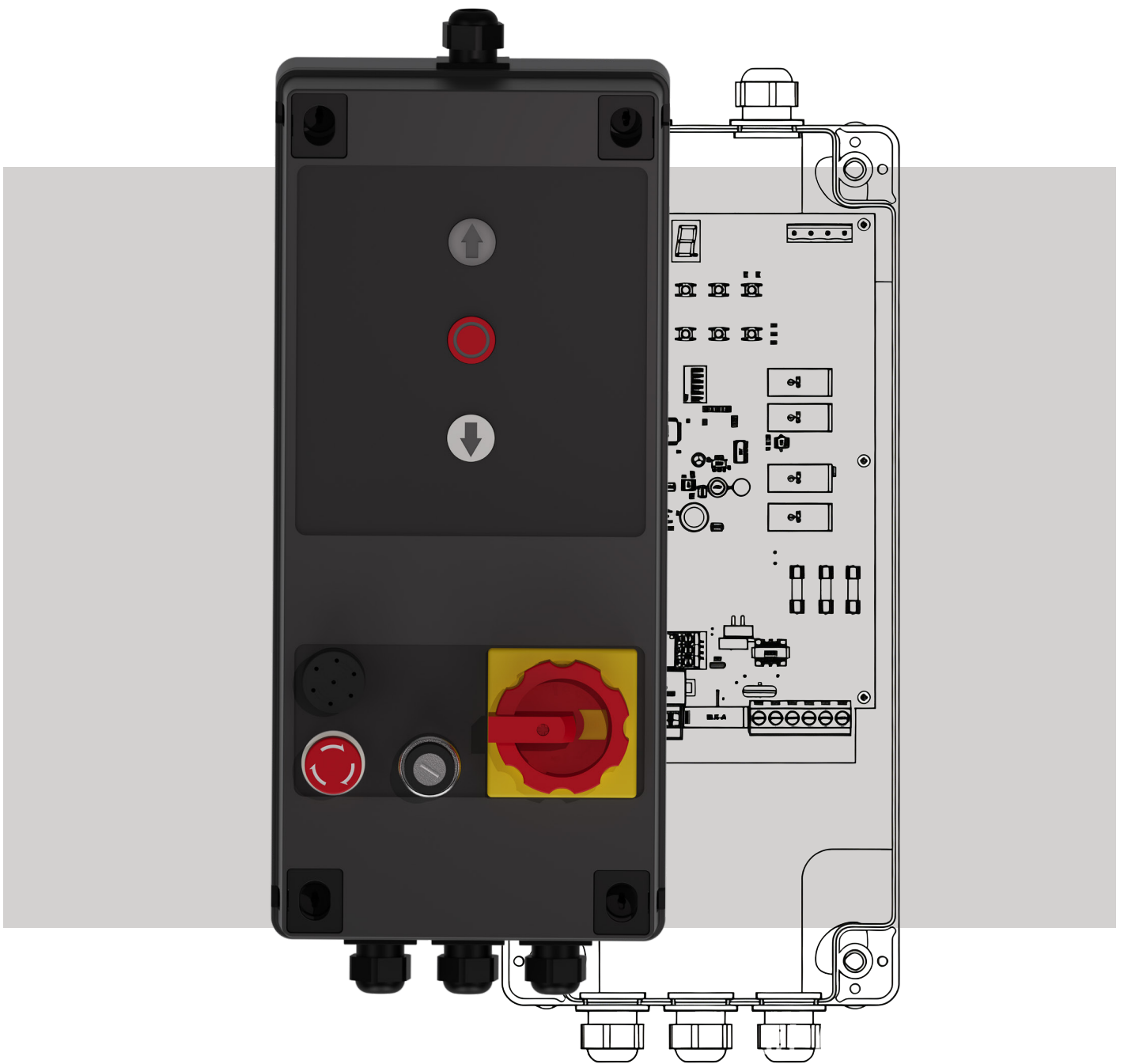


AC Industrial Door Drive Control Unit Instruction



60Nm · 100Nm · 150Nm

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1. General Information



Warning – General hazard

Hazard for user and/ or fitter Intended to draw attention to the caption.



Warning – Electrical hazard

Symbol denotes a specific hazard regarding electricity.



Precautions – Important

*The schematic diagram is based on the product example, and the delivered product may deviate.



WARNING:

Do not connect the CEE plug until installation is complete, all plug-in terminals are attached and all connectors are secured.

2. Installation & Installation Instructions



-Only competent and professional persons may install and fit the door. The person responsible for electrical installation of the door must also have electron qualification to work on such an installation. Persons may not be allowed to work on the door or its electrical installation if they are under the influence of drugs, alcohol or medication which may reduce their reactive capacity.

- The supplied product may only be converted and/or changed following consultation with the manufacturer. Original components or original replacement parts must always be used. Any liability will automatically be canceled if any other parts are used.

- Electric current is a hazard. Contact with live components can result in electric shock, burns and even death. Only professional and electron qualified persons may conduct work on electrical components. The installation must be disconnected from the mains power during any work. Always check the disconnection before work is conducted.

When working on the electrical installation, the entire system must be protected against unintentional reconnection to the mains network by a third party.

- Before starting up the installation, it must be checked whether all connections are sound and fitted according to the user manual. It must also be checked whether all fittings of the operator and control box are sound. All electric cables must be fitted and connected in such a way that they cannot be unintentionally moved. The control box must be programmed in a way that it is guaranteed to work safely and according to standards.

- Upon delivery of the door with the electrical installation, the responsible user/owner must be informed of the hazards of the door and the electrical installation. He/she must also be informed And told that this information must be passed on to any other users.

-The competent and professional person, and in the case of an electrical installation also an electron qualified person, is responsible for correct fitting of the door and the electrical installation.



WARNING:

The control box is programmed for a clockwise (right- rotating field). Avoid any damage caused by incorrect rotation of the operator.*

3. Instructions for Use



- Children and/or any person with limited physical, sensory or mental capacity must not be allowed to operate the control box. Playing in the direct vicinity of an electrically operated door is also prohibited. These persons must not be allowed to operate the door even under supervision.
- Defective components can be extremely hazardous and can result in serious and even fatal injury. In the case of failure of a component, the door and its electrical installation must be switched off. In doing so, the installation must be disconnected from the mains network. This disconnection must take place in such a manner that accidentally switching the door back on is reasonably impossible. The defective component or components may only be repaired and/or replaced by a competent and professional person.
- The electrical installation must always be in good condition when in use. It is essential that proper maintenance and management takes place as given in the user manual.
- The electrical installation and its components may only be deployed for the described purpose.
- Children and/or any person with limited physical, sensory or mental capacity must not be allowed access to hand-held openers and other control components. These must be stored safely and out of reach, to avoid unintentional and unauthorized use.
- The control box must not be used in environments where there is a risk of condensation.

4. Maintenance, Disassembly and Disposal

Maintenance

The operator and control box are maintenance-free. The following inspections are to be conducted during maintenance.

- Check the complete fitting of the operator and control box.
- Check the balance of the door and correct this when necessary .
- Check the functioning of the end switch, encoder and limit switch setting.
- Check the functioning of all (safety) switches.
- Check the functioning of any safety edge or light curtain.
- Check the functioning of any braking device.
- Conduct a general (audio) visual inspection.

The supplied product may only be converted and/or changed following consultation with the manufacturer. Original components or original replacement parts must always be used. Any liability will automatically be canceled if any other parts are used.

Disassembly



HAZARD:With a view to the hazards of maintenance work, this may only be conducted by a competent and professional person.*

The installation manual can be used as a reference for disassembly of the operator and control box. The described adjustment work does not apply in that case.

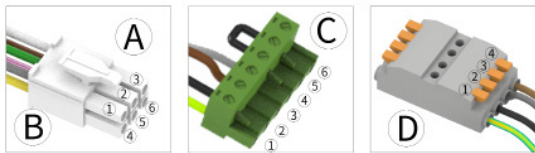
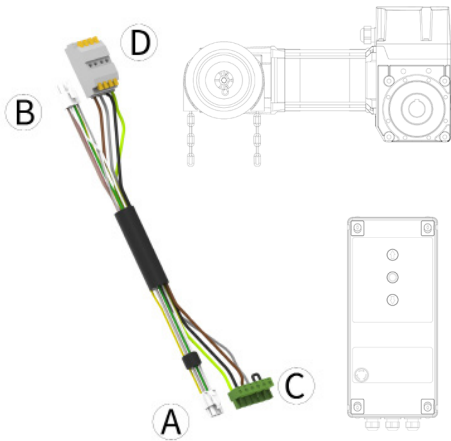
Disposal

- When disposing of waste products, these must be separated into metals, plastics, electrical parts and lubricants.
- The applicable national rules must be taken into account for disposal of materials .
- The product must not be disposed of with regular household waste, and must be disposed of as electronic equipment.

5. Electrical Parameters

Series name	AC230	AC400
Dimensions (L*W*H mm)	428*180*122	428*180*122
Installation	Vertical, No Vibration/Horizontal	Vertical, No Vibration/Horizontal
Power supply frequency (Hz)	50/60	50/60
Power supply voltage (±10%)	1P~240V,1P	3P~400V,3P
Drive unit output power max (KW)	1.5	1.5
Phase protection current (A)	10-12	10-12
External power supply: 24V/GND	24V (DC)	24V (DC)
	0.5A	0.5A
External power supply: X1(L/N) (Protection via F1 fuse)	1 P~230 V	1 P~230 V
	1.6A	1.6A
Control input	24V (DC)	24V (DC)
	500mA	500mA
Control power consumption	3.5W	3.5W
Temperature range (° C)	-20°C ~ +60°C	-20°C ~ +60°C
Enclosure protection level	IP54	IP54
Limit switch	DES (Digital Limit Switch)	DES (Digital Limit Switch)

6. Motor Cable Overview

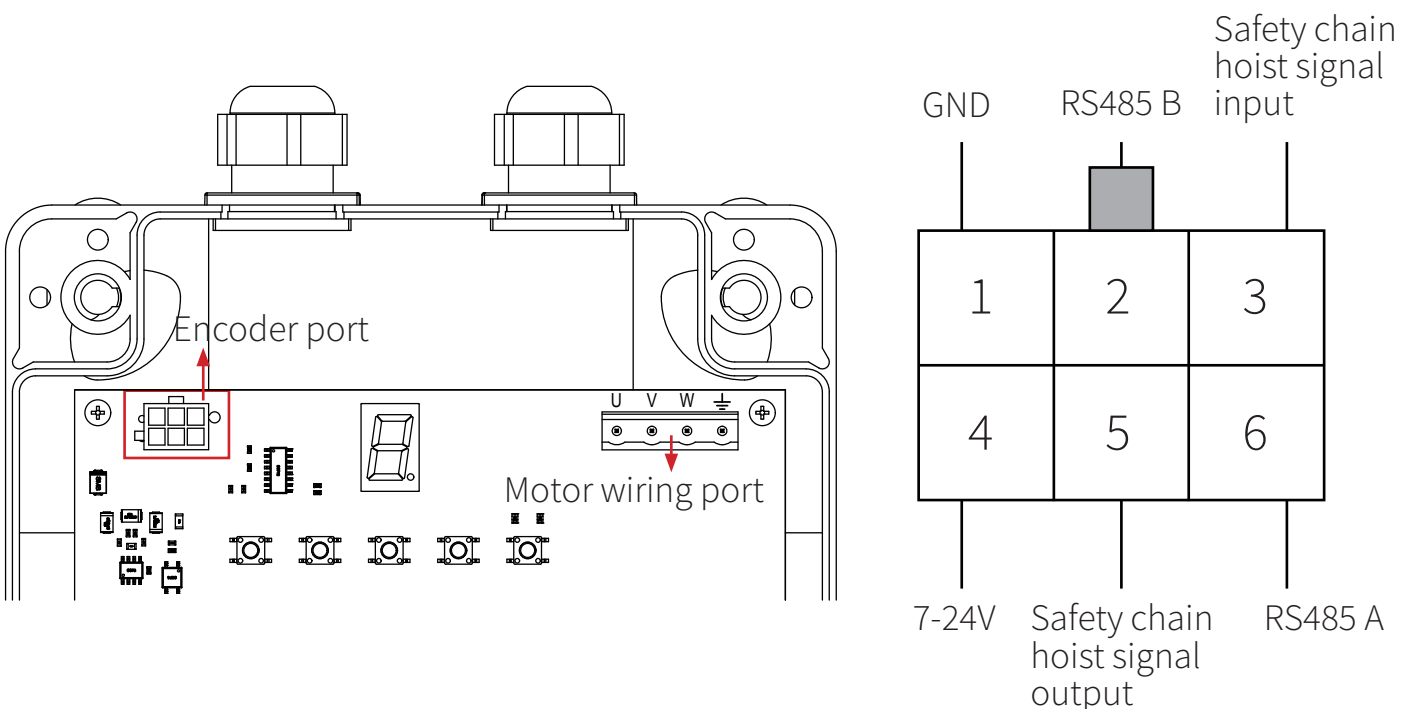


A → B

Serial Number	Color	Serial Number	Functional Description
①	Grey	①	Clutch/Temperature control switch 24V power supply
②	Green	②	Channel B (RS485)
③	White	③	GND
④	Yellow	④	Channel A (RS485)
⑤	Pink	⑤	Clutch/Temperature control switch output
⑥	Brown	⑥	+13V DC power supply

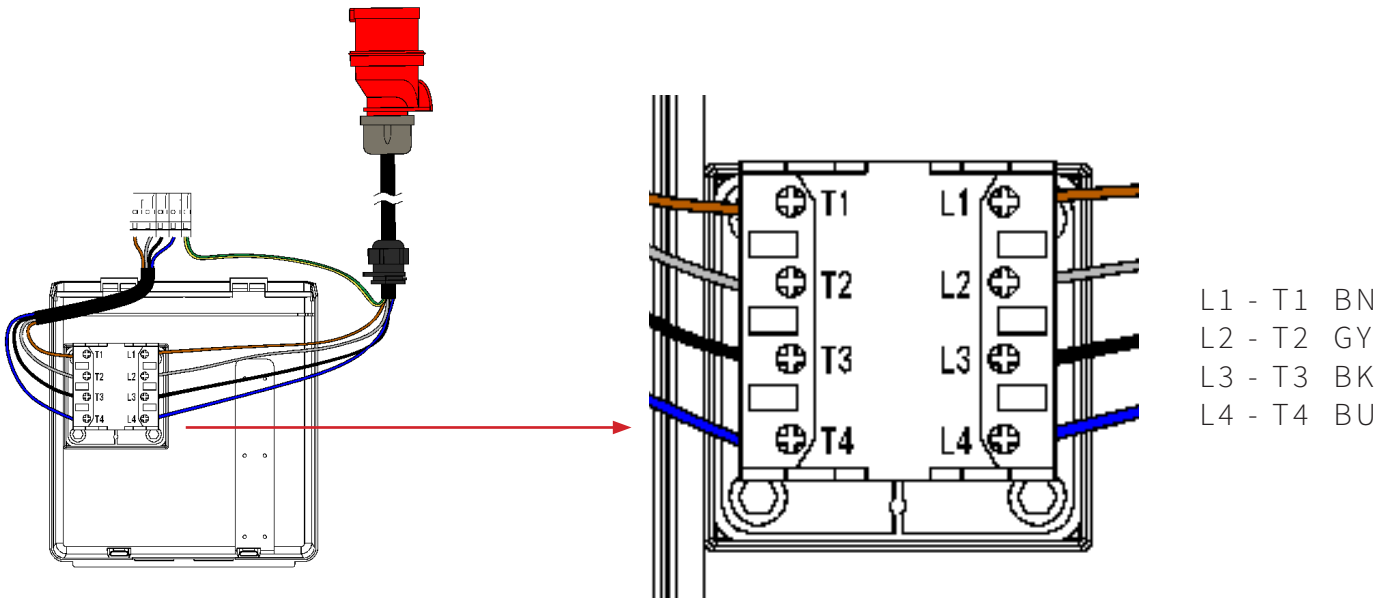
C → D

Serial Number	Color	Name	Functional Description
①	Yellow-green	PE	Grounding
②	Black	W	W Phase
③	Brown	V	V Phase
④	Grey	U	U Phase




7. Disconnect Switch Assembly and Reversible Three-phase Power Cable Wiring Instructions

Three-phase power cable (applicable to all series of drives) disconnect switch reverse and wiring

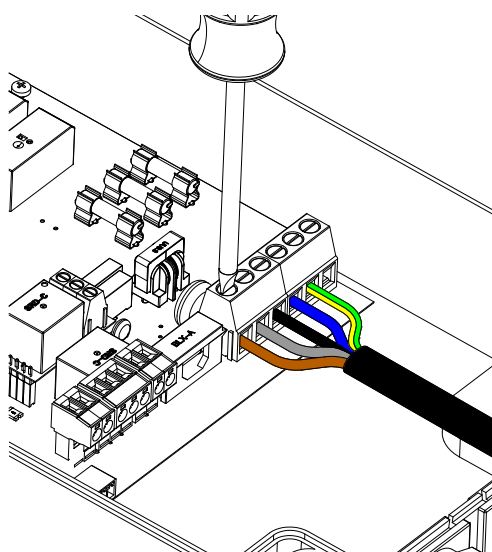


Three-phase power supply line wiring sequence adjustment and circuit breaker operation instructions

① In order to ensure the normal and safe operation of the AC400V motor, it is necessary to ensure that the phase sequence of the power input terminal is correct after power-on.

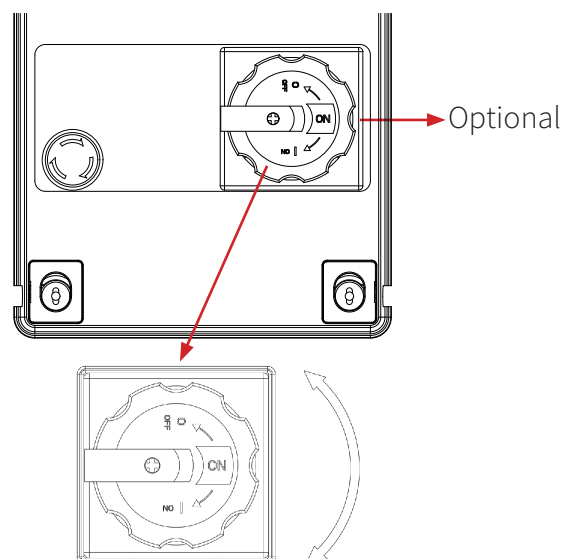
② When the motor learns to travel limit, the  reports an error, first disconnect the power and adjust the wiring sequence of any two of L1, L2, and L3.

Wiring method



Note: Use a screwdriver to adjust the wire sequence of any two of L1, L2, and L3.

Disconnect switch front side

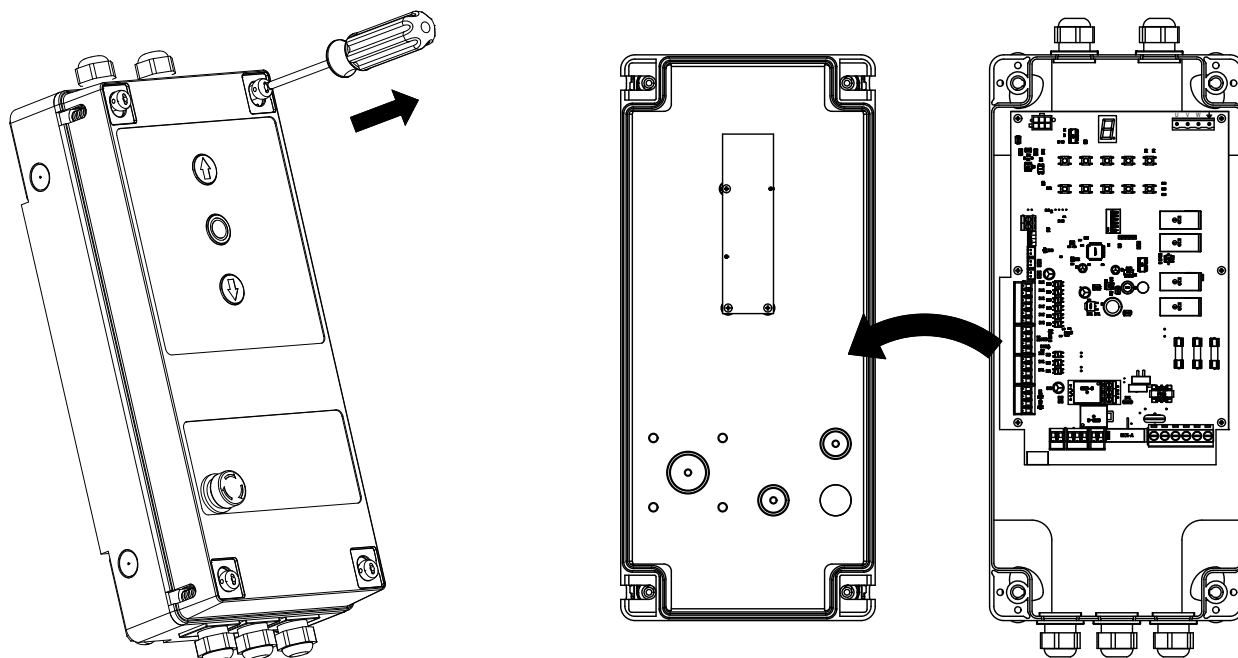


Note: Rotate the disconnect switch to turn the power on or off.

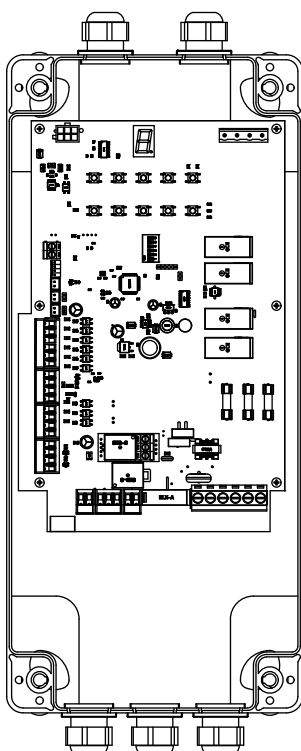
8. Instructions for Connection of Motor/ Control box Connection Wire and Power Wire

① Use a screwdriver to unscrew the screws

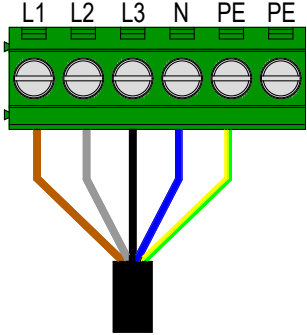
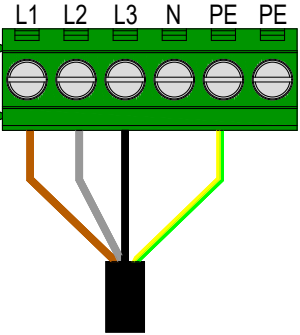
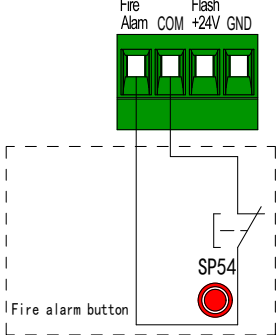
② Open the top cover of the control box

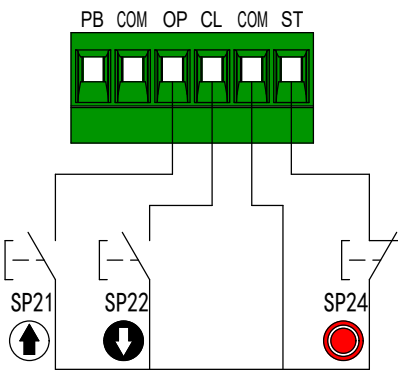
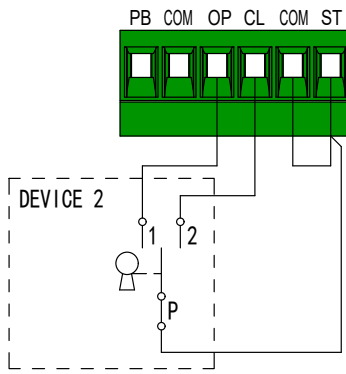
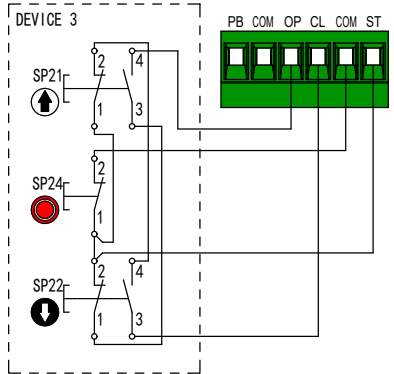


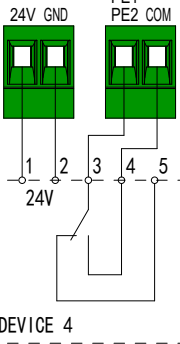
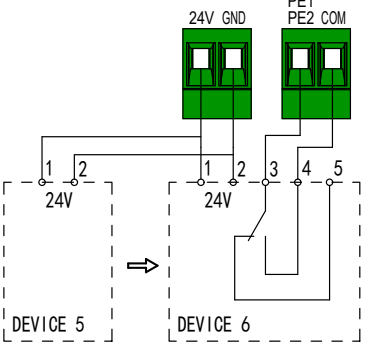
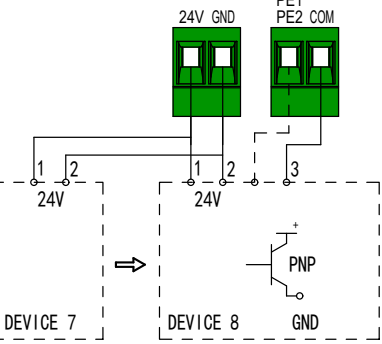
③ Connect the 10-core cable and power cord to the corresponding ports on the control box

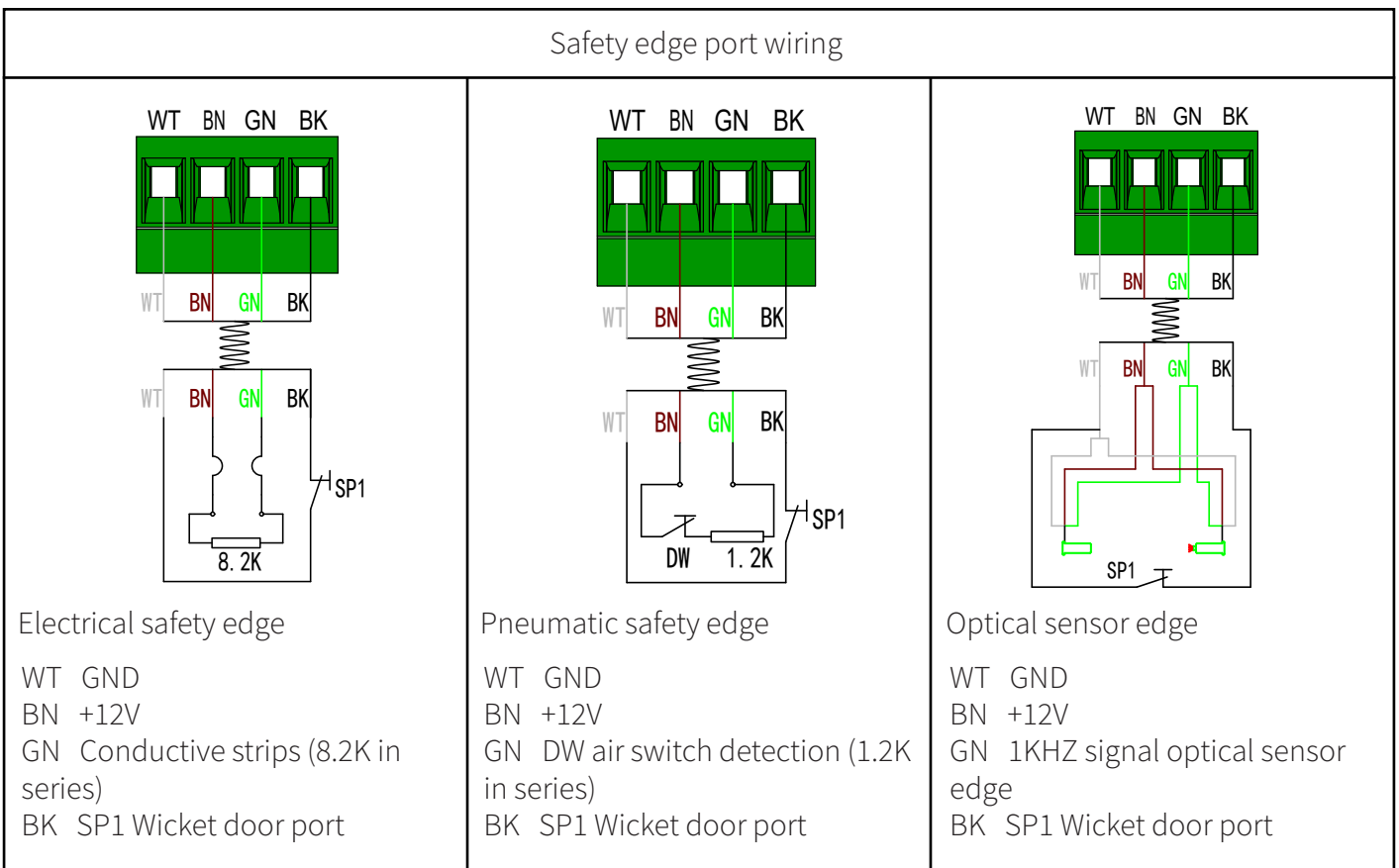
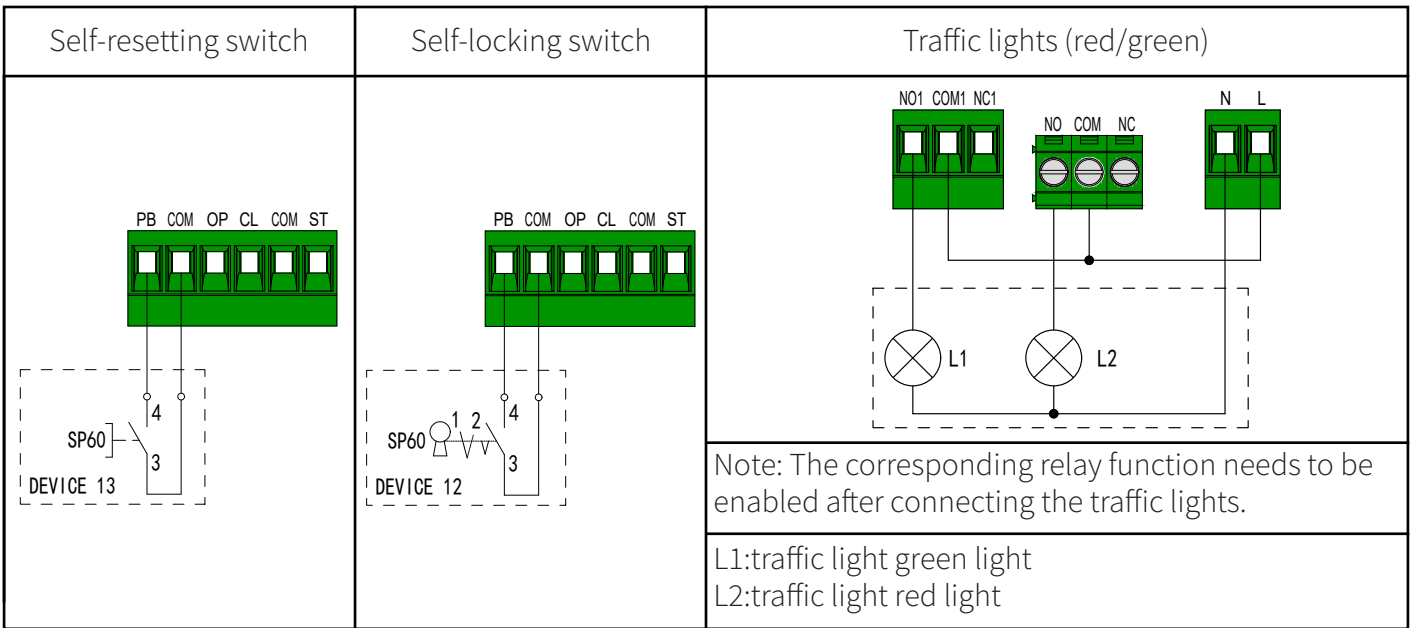
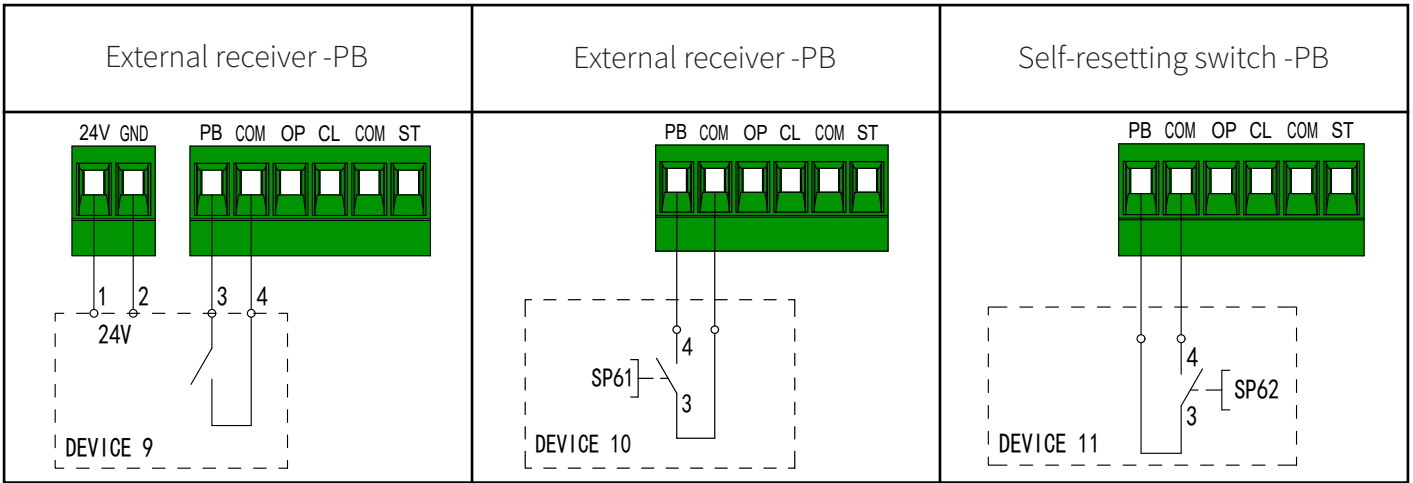


9. Electrical Installation Wiring Instructions

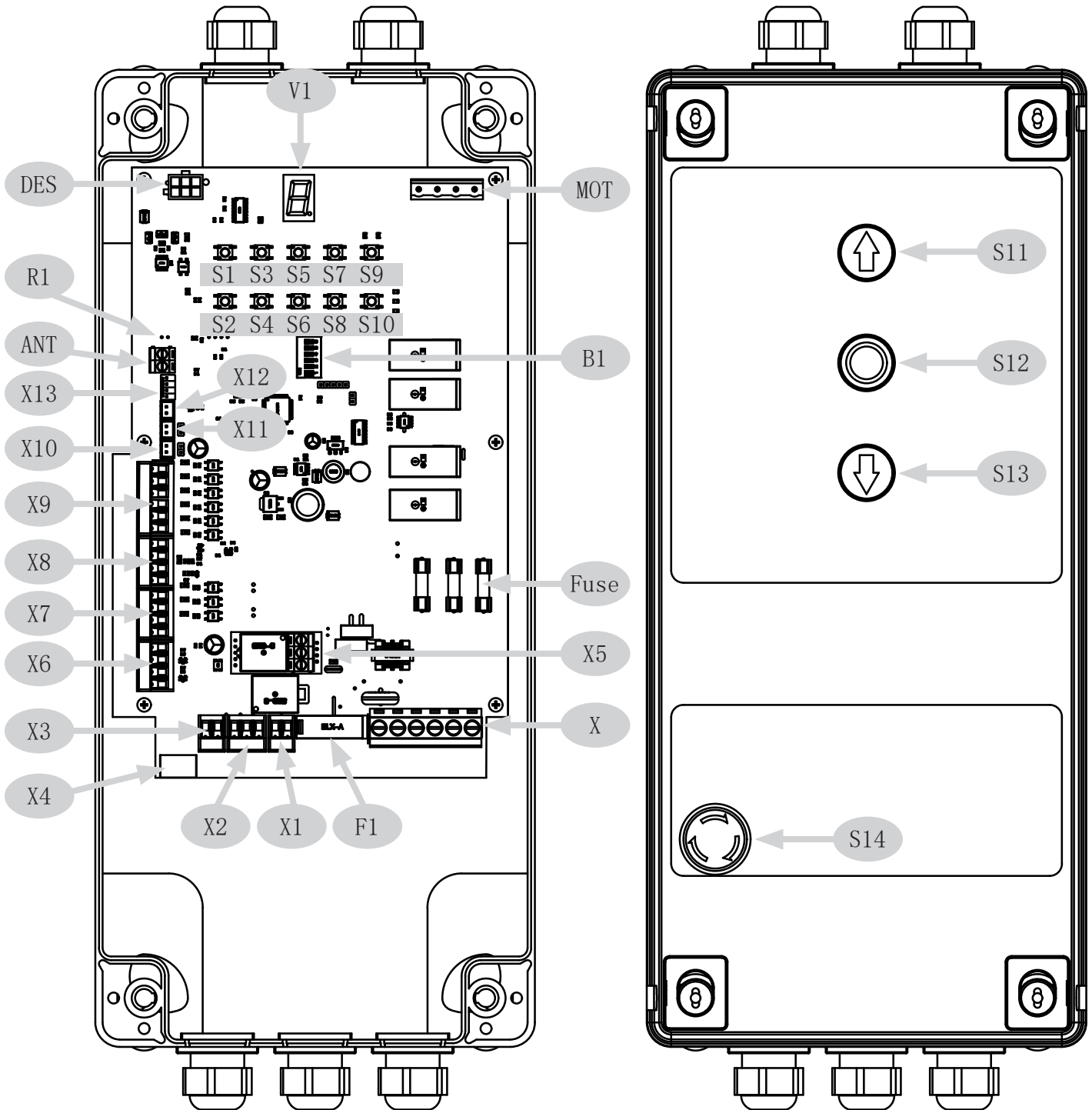
Power cord port connection method 1	Power cord port connection method 2	Fire alarm button
		
3~, N, PE	3~, PE	DEVICE: Fire alarm button

External switch stop control port					
					
DEVICE	Three-buttons wired wall switch	DEVICE2	Key self-resetting switch	DEVICE3	Three-buttons wired wall switch

Infrared function port					
					
DEVICE4	Reflective photo cell	DEVICE5	Through-beam photo cell Transmitter Receiver	DEVICE7	Through-beam photo cell Transmitter Receiver

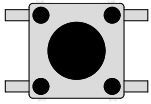


10. Control Port Overview



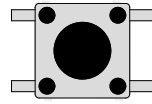
DES	DES limit port	DES	DES limit port
V1	Digital display	X1	External equipment power supply (230V (+/- 10%)/1.6A)
MOT	Motor wiring port	X2	No power relay port A
R1	Receive module	X3	DC 24V power supply port
S1	SET button/Menu settings button	X4	WiFi port
S2	Remote Learn button	X5	No power relay port B
S3	UP button/Open limit travel setting "door open" button	X6	Fire alarm function port/Warning light wiring port
S4	DOWN button/Close limit travel setting "door close" button	X7	Photo beam 1/Photo beam 2 function port
S5	Open limit Fine-Turning button	X8	Safety edge port (WT/BN/GN)/Wicket door or slack rope switch port (BK/WT)
S6	Close limit Fine-Turning button	X9	External function port (PB/COM)/External Open/Stop/Close wiring port (OP/CL/COM/ST)
S7	"Auto close" button	X10	KEYport (Similar to emergency stop, normally closed by default)
S8	Run cycles query button	X11	E-ST(Emergency stop) port-(S14)
S9	Left/Right installation button	X12	External buzzer port (it will sound 3 times per run after the maintenance alarm count is reached)
S10	Safety edge sensitivity button	X13	Push button port (S11/S12/S13)
ANT	Remote control antenna port	S11	Open button
B1	Quick settings function DIP switch	S12	Stop button
Fuse	Fuse (12A 700V)	S13	Close button
X	AC power supply port	S14	Emergency stop button
F1	X1 (230V (+/- 10%) output port blown fuse 1.6A		

11. Basic Button Operation Instructions



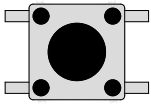
Short press: Confirm settings
Long press: Enter the function menu setting

SET



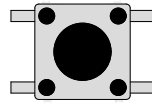
Short press: Move up to adjust the function menu/travel limit setting of "door open" button
Long press: Restore factory settings

UP



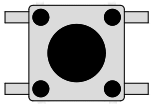
Short press: Move down to adjust the function menu/travel limit setting of "door close" button
Long press: Quick query of running cycles

DOWN



Short press: Enter remote control code pairing mode/return to the function menu setting
Long press: Clear the remote control code

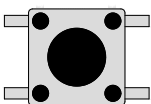
Remote
Learn



Long press: Quickly activate the "AUTO close" function

Auto
Close

12. General Function Quick Setup Instructions



Remote control coding/clear function
Short press/Long press

Remote
Learn

Short press:


a) In the setting state, short press CODE to exit the current operation and return to the standby interface.

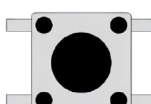
b) In standby mode, short press CODE, there will be a dot at the corner, then it will enter the learning mode.

First click the button on the transmitter you want to use, the dot may disappear, then press the same button on the transmitter again, the dot will blink, so far, the code learning is complete.

Long press:

Clear the remote control code.

Press and hold the CODE button until the letters  are displayed, all stored remote control codes will be deleted.



AUTO close function
Long press for 3 seconds:

Auto
Close

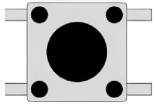
Long press the "Auto Close" button, when the indicator light turns on. This means that the "AUTO close" function has been activated. (Default condition: the door can only be closed automatically when it is in the open limit position, and the AUTO close time is 15 seconds).

NOTE: If necessary, see page xx- Menu 6&7 to change the AUTO close function for close time or conditions.

NOTE: If no safety edge or infrared is installed, the door cannot be closed and the LED will show error code E9

The display will show the letters "E9" as an indication.

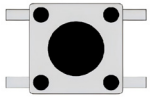
Long press the "Auto Close" button, when the light turns off, it means the "Auto Close" function is deactivated



Running cycles
query
Long press for 5
seconds:
Query

Running cycles
query
Long press for 5
seconds:

The digital tube scrolls to display the running cycles
Indicates that the motor has run 10 times



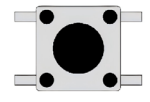
UP

Restore
factory settings
Long press for 5
seconds:

Digital tube scrolling display



Indicates that the motor has been restored to factory settings
Remarks: The running times are displayed in 6 digits (it is recommended to power off for 1 minute after restoring the factory and then power on again).



Open limit
Fine-Tuning

Open limit fine-
tuning
Long press for 3
seconds:

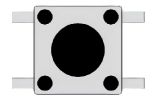
After quickly accessing menu 3, press the "UP/DOWN" key to adjust the parameter value.



Parameter range F . After adjusting parameter to the target value, press the "SET" key to save the current settings. Default parameters



Note: For details, please refer to page xx of the instruction manual, menu 3.



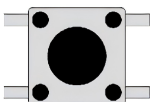
Close limit
Fine-Tuning

Encoder direction
switching button
Long press for 3
seconds:

Encoder Direction Selection: This button switches the encoder direction for calibrating the motor's running direction.

"Left Turn (L, Default)" "Right Turn (R)"

Note: Using this function will enter the learning stroke interface. At this time, press and hold the STOP button on the outer box for 3 seconds to switch the motor's running direction.



Safety edge
Sensitivity

Safety edge
sensitivity
adjustment button
Long press for 3
seconds:

Safety Edge Sensitivity Mode Selection: Use this button to switch sensitivity modes, including:

"Low"
"Normal (default)"
"High"
Three options.

The DIP switch quick function adjustment button allows adjustment of 6 different functions.

Quick
function
adjustment
DIP
switch

1:Remote lock DIP switch

Function: Controls the remote control's lock state. When locked, the remote control becomes disabled; when unlocked, it resumes normal operation.

Operation: Toggle the remote lock state by moving the switch to the "On/Off" position.

2:Button lock DIP switch

Function: Controls the lock state of the "On/Off/Stop" button. When locked, the button is disabled; when unlocked, it resumes normal operation.

Operation: Toggle the button lock state by moving the switch to the "On/Off" position.

3:Community Function DIP Switch

Function: Controls the activation status of Community Function . When enabled, the device operates in Community Function ; when disabled, Community Function features are disabled.

Operation: Toggle the switch to the "On/Off" position to switch the Community Function status.

4:Half-open door function switch

Function: Turning on the switch enables the 50% half-open door function by default. Menu 8 (Half-open door menu) will not be displayed in the menu list at this time.

Turning off the switch allows you to select other half-open door positions (not 50%) in the menu.

Operation: Toggle the switch to the "On/Off" position; the corresponding function will automatically activate.

5:Door closing method DIP switch

Function: Used to select the door closing control method, supporting both "tap to close" and "long press to close" modes.
























Operation: Switch the door closing control method by moving the switch to the corresponding position.

6:Door opening method DIP switch

Function: Used to select the door opening control method, supporting both "tap to open" and "long press to open" modes.

Operation: Toggle the switch to the corresponding position to switch the door opening control method.

13.Parameter Overview


Par	Function Description	Description of default parameters
	Programming open & close limits	Learning the open limit and close limit of motor travel
	Remote control function selection	Standard Functions - Single Key Cycle (Default) 
	Safety edge pre-limit fine-tuning	Safety edge pre-limit area parameters (Default) 
	Open limit fine-tuning	The Parial Open/Hieght function is not enabled (Default) 
	Close limit fine-tuning	Maintenance alarm function is disabled (Default) 
	Maintenance alarm	The door only can automatic close while in the open limit position (Default) 
	AUTO close function	Full open running to the open limit after resistance rebound (Default) 
	AUTO close condition setting	The parameter range is 0-9*1cm (Default) 
	The partial open/height setting	Only the initially programmed button can control the opener (Default) 
	PB/COM port function setting	Normally open port (Default) 
	Relay A function setting	Relay A port function is closed(Default) 
	Relay b function setting	Relay b port function is closed(Default) 

14.Parameter Details

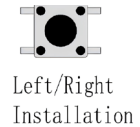
1:Programming open & close limits



- ① Pre-Setup Preparation: Manually open the door to half-height to avoid incorrect rotation during setup. Entering the travel limit menu will clear previous settings.
- ② Motor Direction Verification: Confirm motor output direction aligns with door movement.

③ Note that switching the motor's running direction requires using the  function key.

Use in conjunction with the STOP button 



1:Enter Learning Schedule Settings

2:Check the direction of motor output and the door running operation

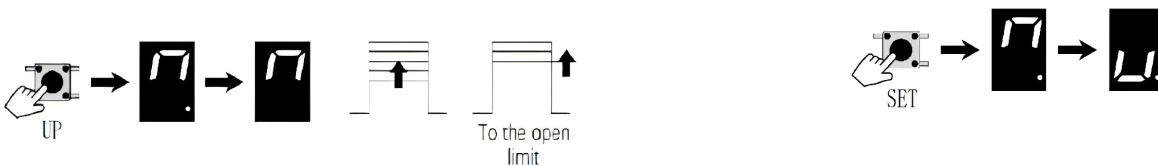


Note: If the motor's running direction is inconsistent with the door's running direction,

please use the  function key and the STOP key  in combination to adjust the motor's running direction.

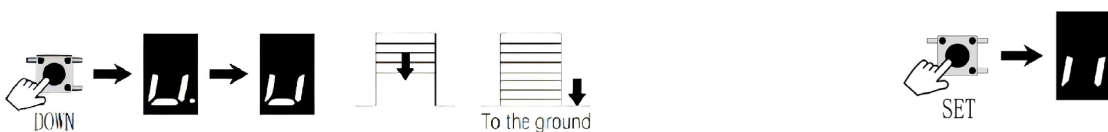
3:Start the travel limit set, open the door and move the door to the open limit position

4:Save open limit position



5:Close the door and move the door to the close limit

6:Save close limit position, Learning completed.

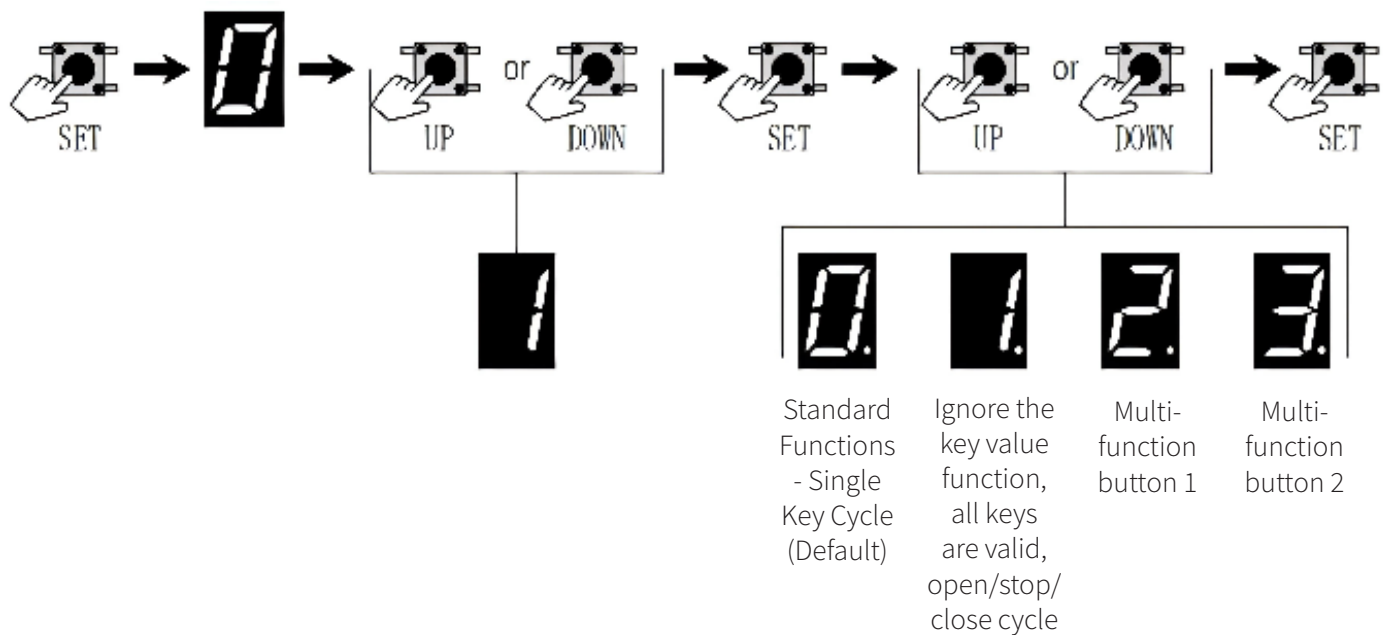


2: Remote control function selection

Multi-function button 1: No. 1 to open the door; No. 2 key to stop; No. 3 to close the door; No. 4 to partial open

Multi-function button 2: No. 1 to open the door; No. 2 key to stop; No. 3 to close the door; No. 4 key CF function; ("CF" function means Community Function that pressing the 4th button will directly open the door without stopping, and it will directly execute the door opening action when closing the door)

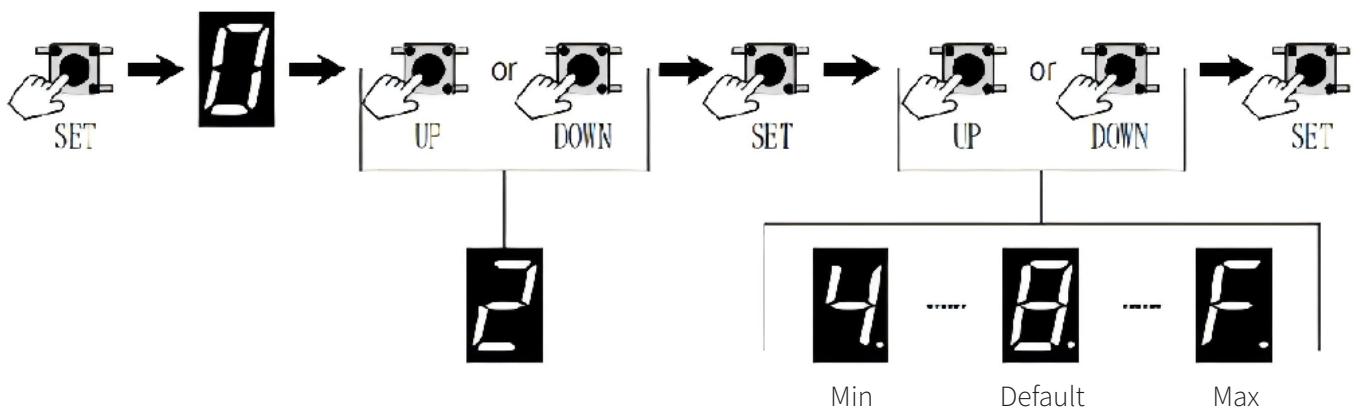
Press and hold 3s Release



3: Safety edge pre-limit fine-tuning

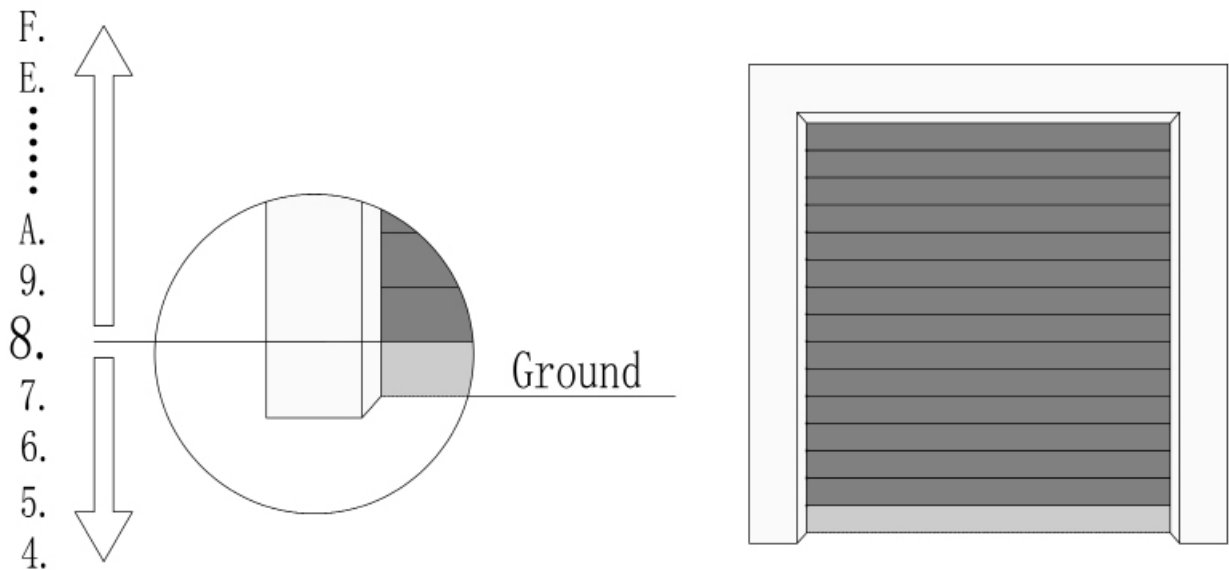
! Please adjust the adjustment range between 2-5mm each time according to the size of the door track system and the cable drum. This parameter needs to be selected according to the actual state of the door.

! In the area below the pre-limit position of the safety edge, the safety edge or the infrared trigger motor will perform the stop action.



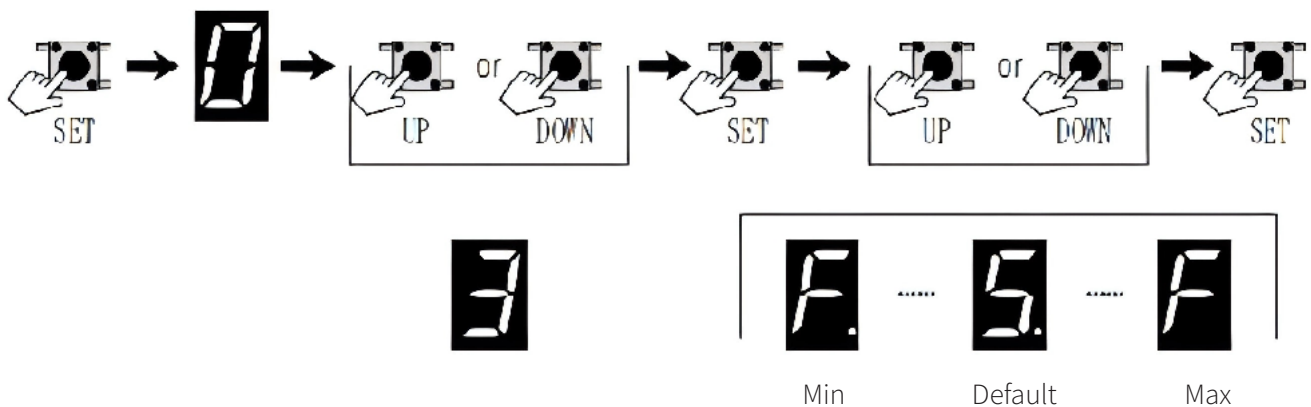
!Take an 18-inch standard lift drum (about 150MM in diameter) as an example:
about 5CM

Function description: In this area, when the safety edge is blocked or the infrared is blocked, the motor does not perform the function of reversing when it is blocked, and it will stop when it is blocked; when using the DW function safety edge at the same time, this position is where the DW function starts self-test starting point.

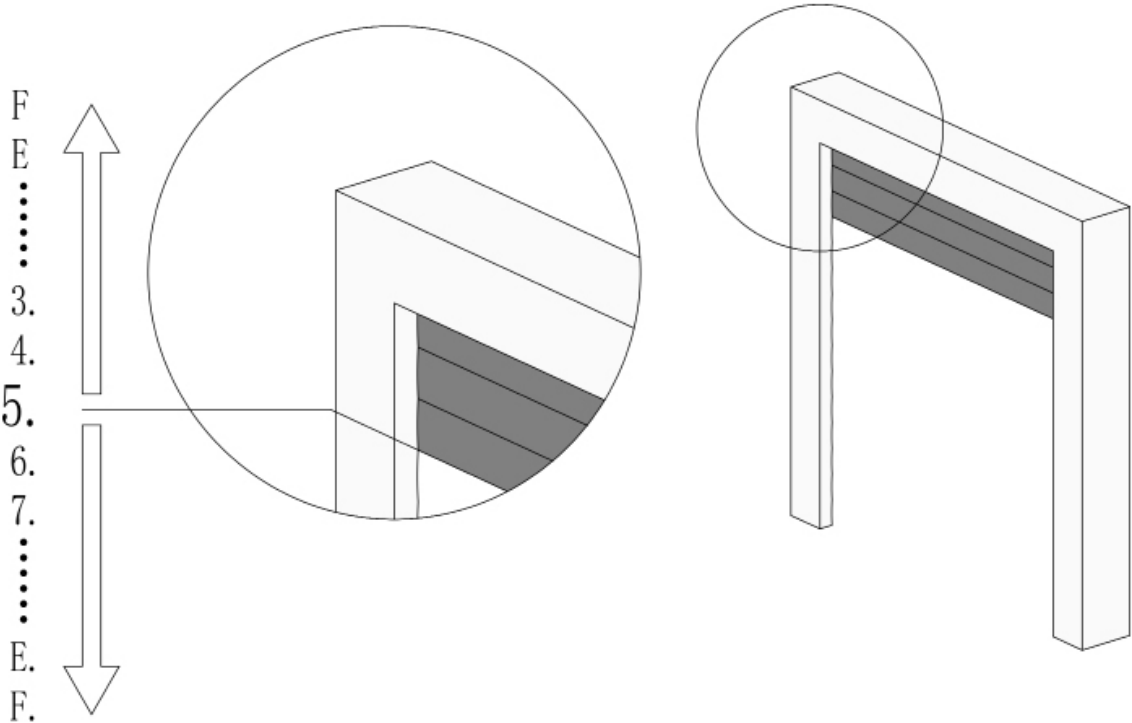


4: Open limit fine-tuning

!Make minor adjustments based on the existing learning positions.

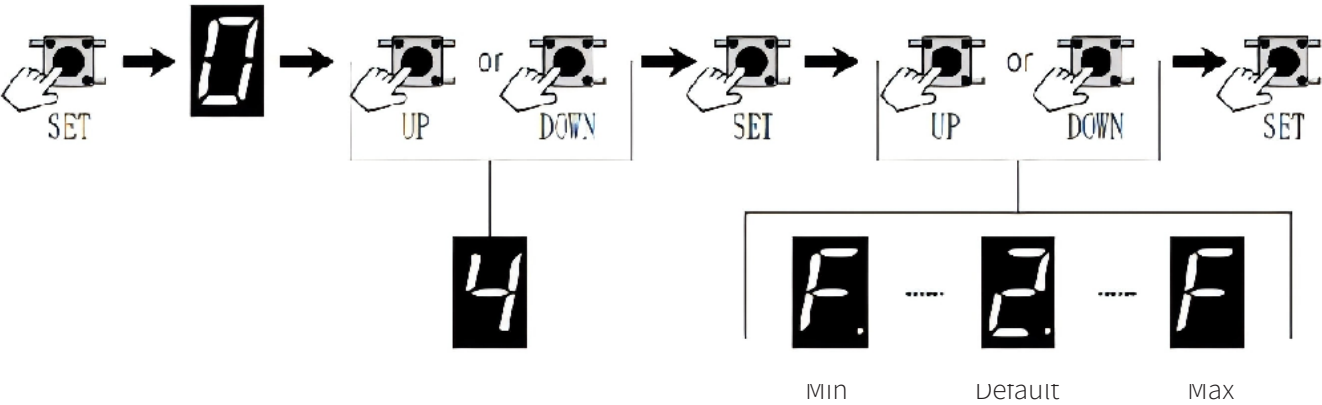


Function description: This function fine-tunes the open limit of the motor.

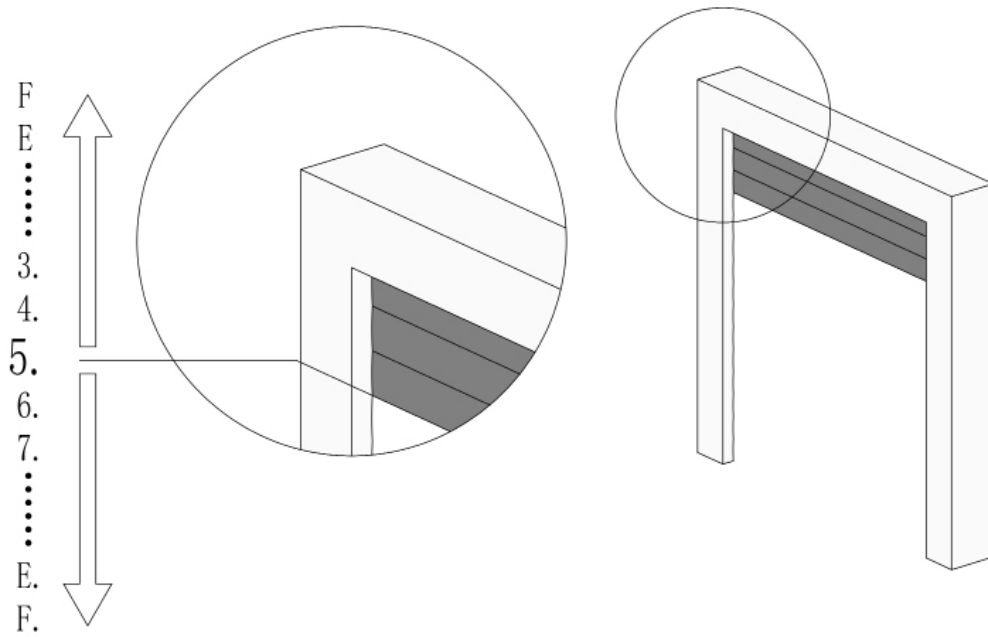


5: Close limit fine-tuning **4**

! Make minor adjustments based on the existing learning positions.



Function description: This function fine-tunes the open limit of the motor.

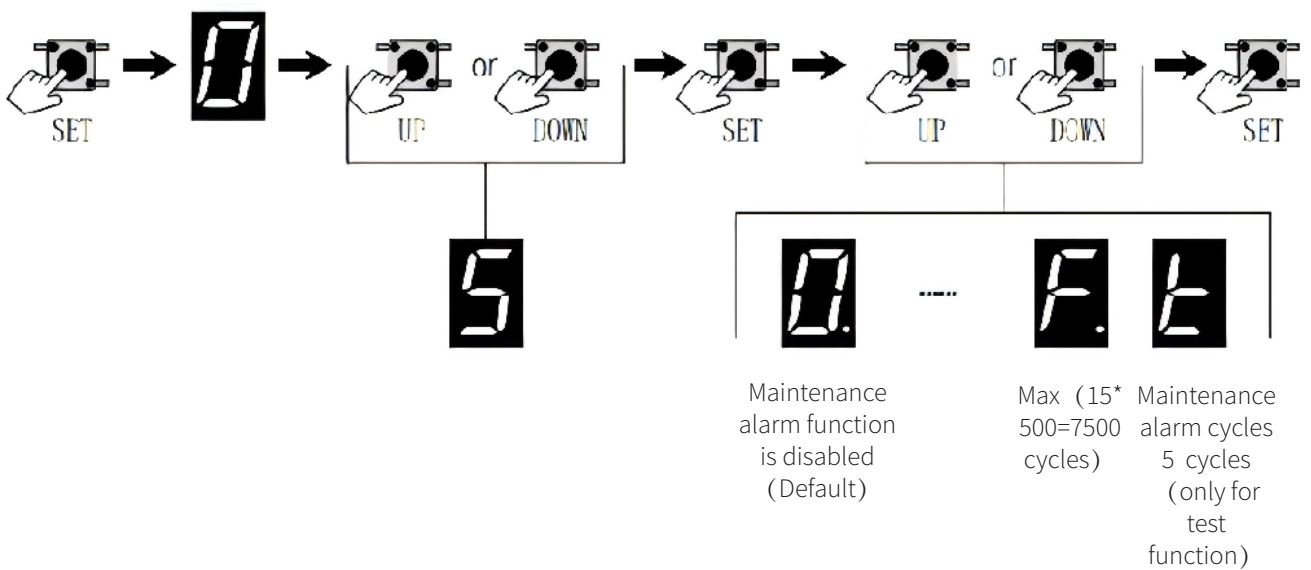


6: Maintenance alarm **5**

!After the number of maintenance alarm cycles is reached, the digital tube of

the motor will display a prompt code **EA**

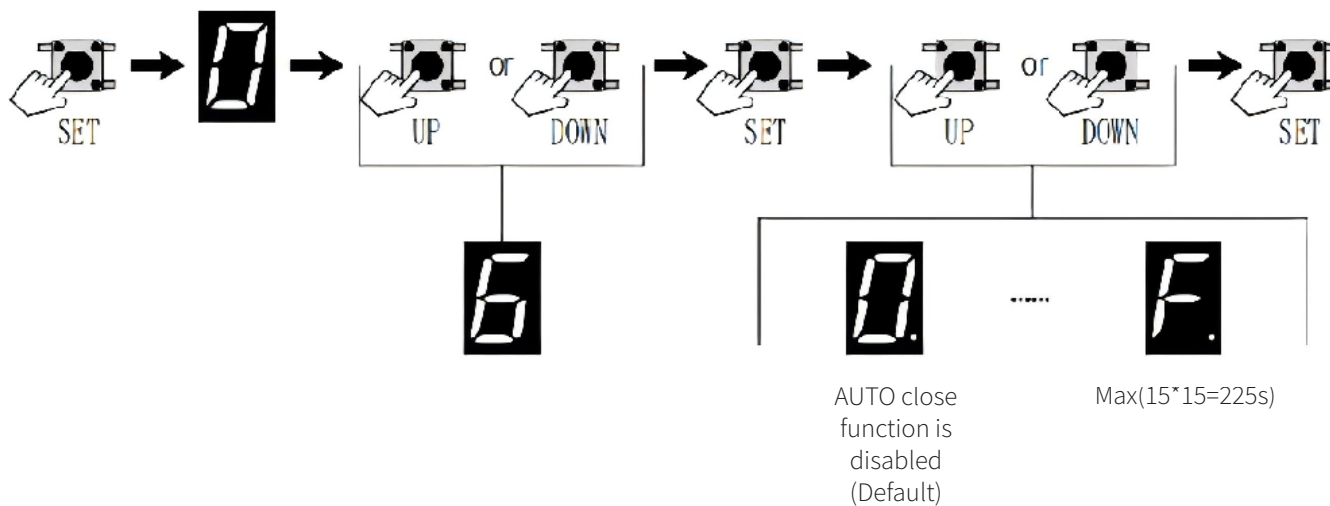
!Parameter setting range: 0-F; each step represents 500 cycles.



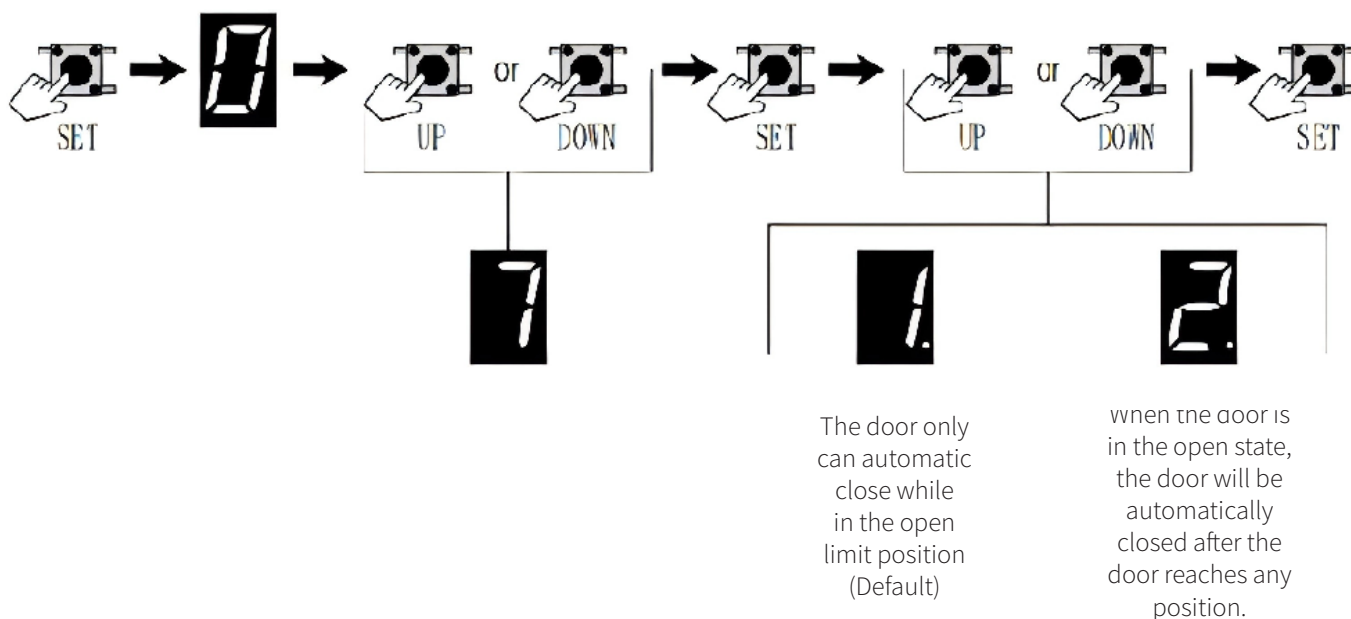
7: AUTO close function

!To use the AUTO close function, a safety edge protection device or infrared safety protection must be installed. And the motor door is in “Click to close” mode.

! Parameter setting range: 0–F; each step represents 15 seconds.



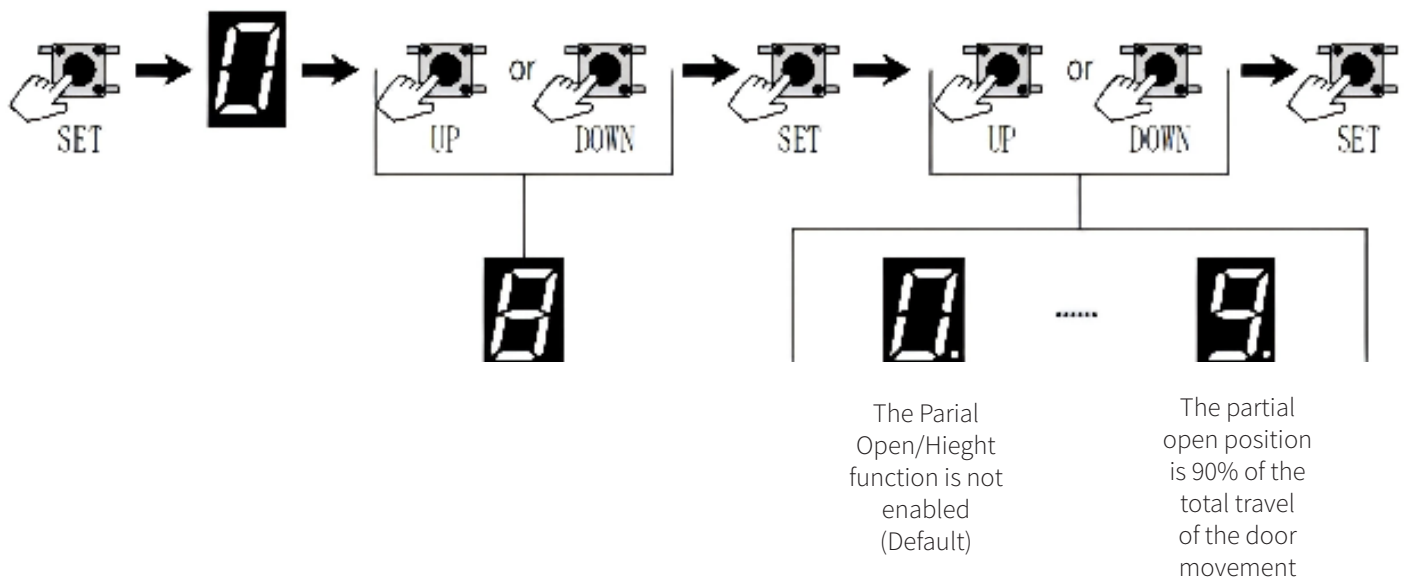
8: AUTO close condition setting



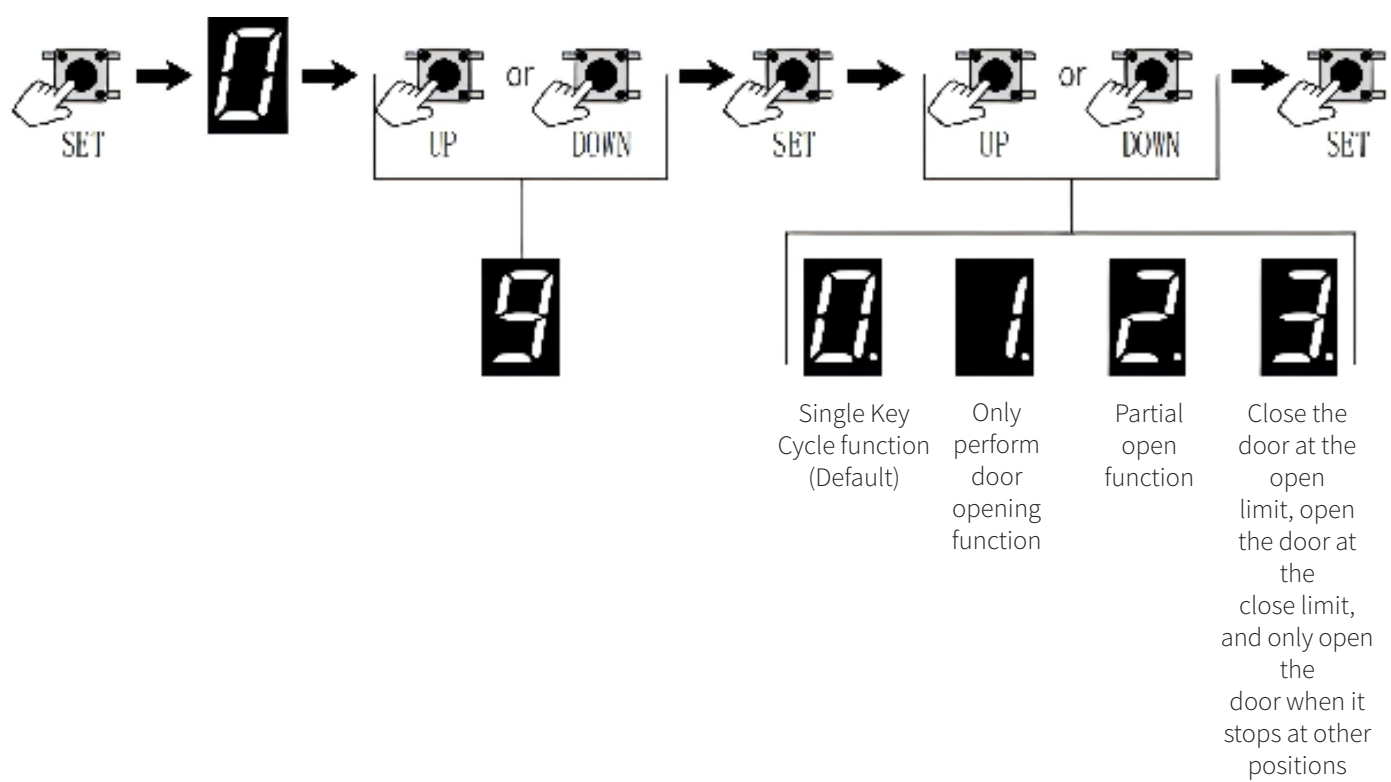
9: The partial open/height setting

!Note: After enabling the Partial Open function (50%), this setting will no longer be visible in the menu.

!parameter setting range: 0–9; each step represents 10% of the total travel.



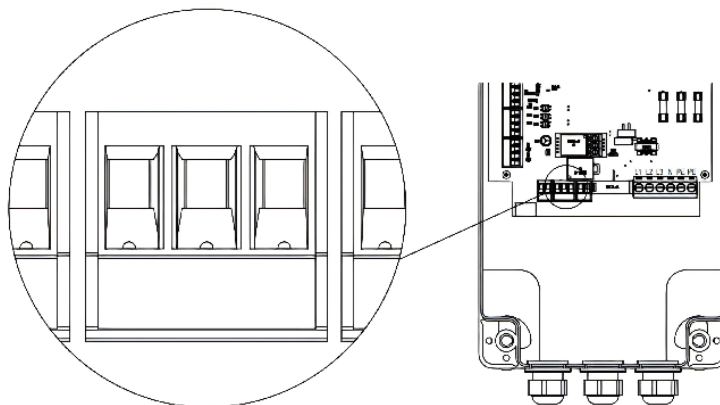
10: PB/COM port function setting



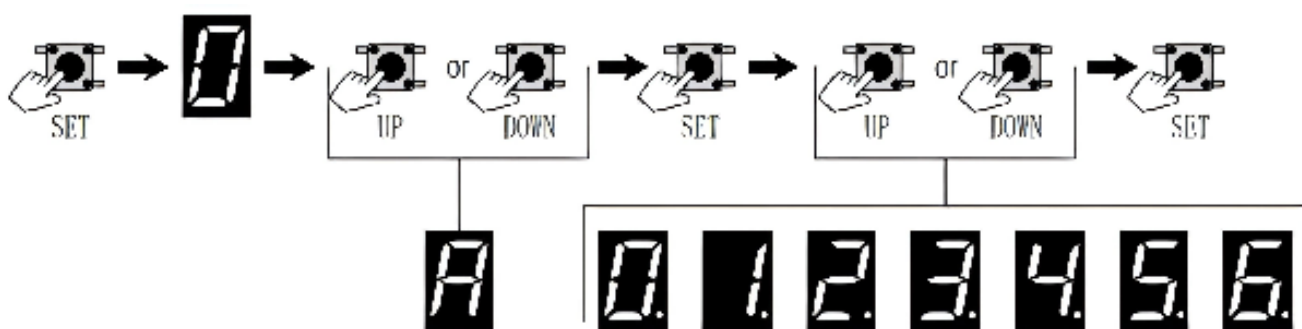
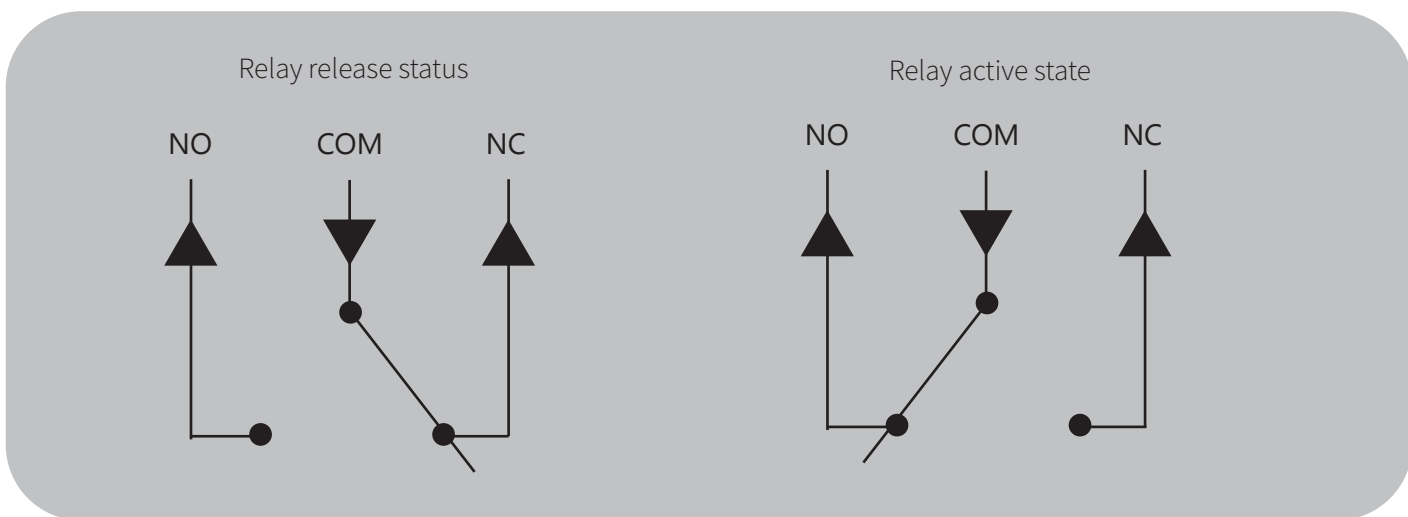
11:Relay A function setting



!Relay Position Diagram:



!Relay status description:

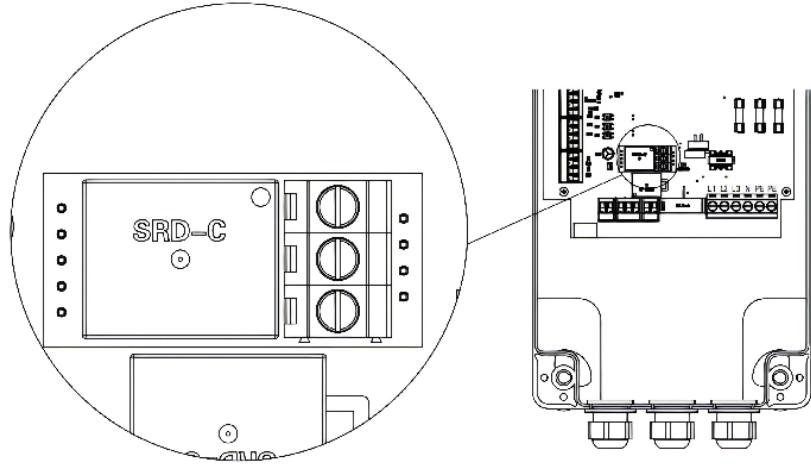


Relay function off (Default)	The relay is triggered when the door reaches the upper limit position.	The relay is triggered when the door reaches the lower limit position.	The relay is activated while the door is	The relay is energized 1 second before the door initiates the opening cycle.	The relay is energized 1 second before the door initiates the closing cycle.	The relay is activated at 1Hz while the door is in motion.
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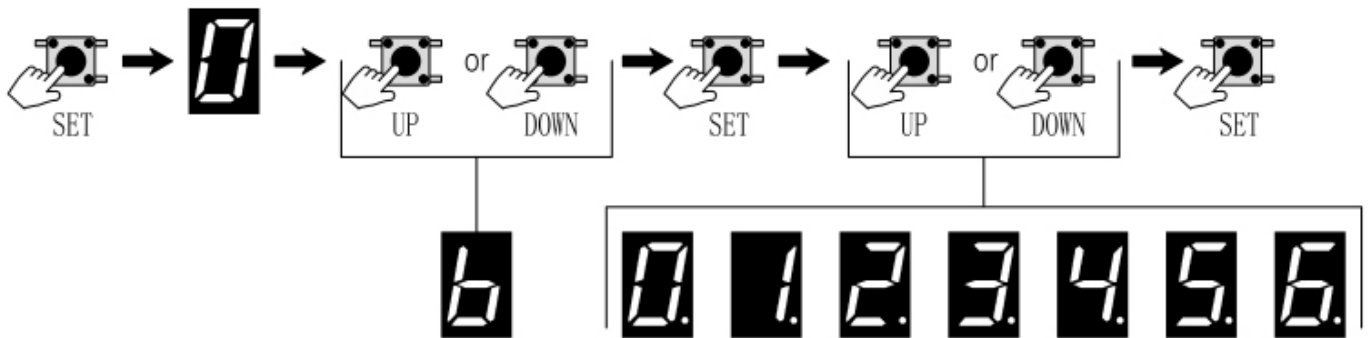
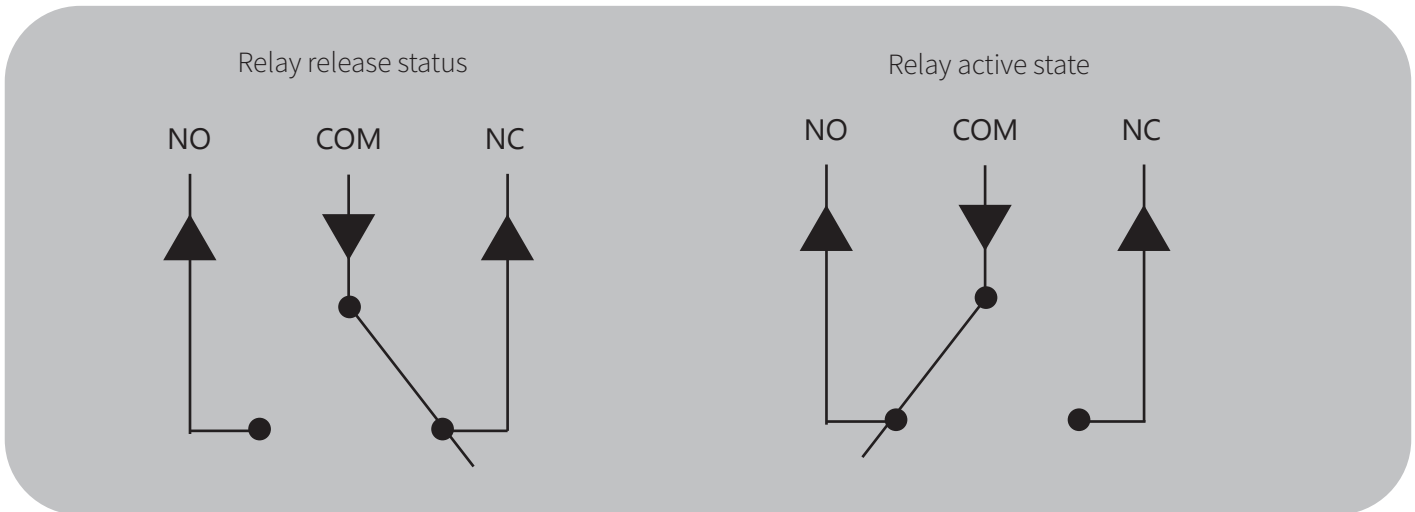
12:Relay b function setting



!Relay Position Diagram:

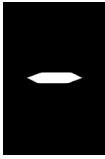







!Relay status description:








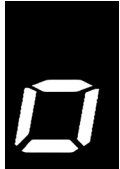

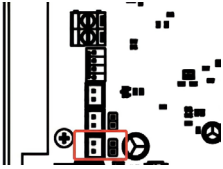

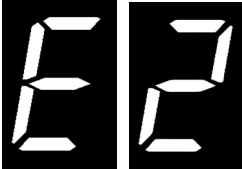
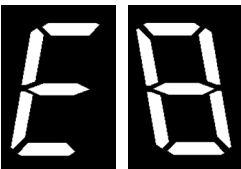

Relay function off (Default)	The relay is energized when the door reaches the upper limit position.	The relay is energized when the door reaches the lower limit position.	The relay is energized during door operation.	The relay is energized 1 second before the door starts opening.	The relay is energized 1 second before the door starts closing.	The relay is triggered at a frequency of 1Hz during door operation.
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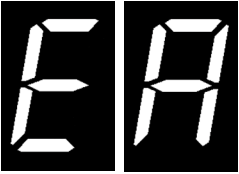
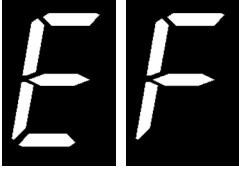
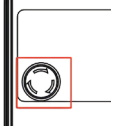
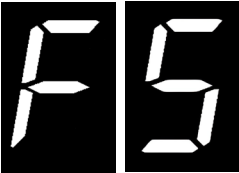
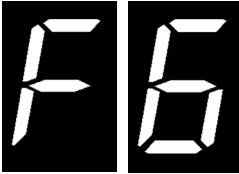
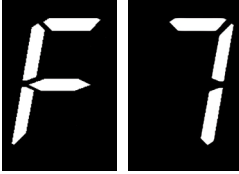
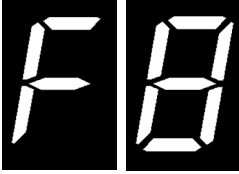
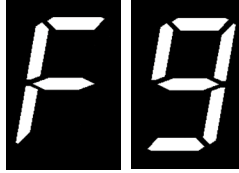

15. Control System Running Display Code

Display information	
	No travel state, can run in long press mode
	With travel limit status display
	open limit learning status display
	close limit learning status display
	Door open display
	Closed door operation display

16. Control System Fault Codes

Fault display code	Display information	Solution
	PE1/COM/PE2/COM ports are triggered	<ol style="list-style-type: none"> 1. Check the jumper wires for the PE1/COM and PE2/COM ports. 2. Check the status of the devices connected to the corresponding ports. 3. Check for damage to the wiring of the corresponding ports.
	Running speed is too slow or no encoder data	<ol style="list-style-type: none"> 1. Check the door body for any jamming points. 2. Check if the motor is running normally. 3. Check if the motor U/W lines are properly connected. 4. Check if the encoder is correctly installed on the limit shaft.
	Wicket door port(WT/BK) triggers emergency stop	<ol style="list-style-type: none"> 1. Check the jumper wire for the WT/BK port 2. Check the pass door switch device.
	The motor running direction does not match the encoder's detected direction.	<ol style="list-style-type: none"> 1. Adjust the U/W cable sequence of the MOT port. 2. First, power off the device, then adjust the sequence of the L1, L2, and L3 power supply lines. 3. Use the  buttons to adjust the encoder's detection direction. Left/Right Installation 4. Press and hold the STOP button during travel learning mode to adjust the motor's running direction.

Fault display code	Display information	Solution
	<p>The travel limit setting failed, the distance is too short, or the limit is exceeded</p>	<p>Re-learn the travel limits</p>
	<p>The KEY port is triggered</p> 	<p>Check the jumper cap on the KEY port</p>
	<p>Encoder chip data failure</p>	<p>Replace the encoder</p>
	<p>Limit and encoder communication failed</p>	<p>There is some interference in the operation site. Eliminate the source of interference on site and execute the control operation again The communication cable is broken, replace the communication cable Encoder failure Control system failure replacement control system accessory</p>
	<p>BN/GN safety edge port not connected</p>	<p>Without the safety edge device installed, the door operator can only execute the deadman mode, and it must be connected to the safety side device correctly</p>
	<ol style="list-style-type: none"> 1. Appears when the travel limit is set, and the motor does not operate, press SET to appear 2. Over-limit coordinates appear during standby operation 3. Appears when the built-in infrared coordinate setting condition is not at the upper limit, or appears when both are built-in infrared 4. When the automatic door is closed this time, the door closing prompt cannot be performed due to related failures or dead man mode DW. 	<p>According to the operation instructions, after the relevant conditions are met, perform the operation setting</p>

Fault display code	Display information	Solution
	Chain hoist assy port, or motor temperature is too high	<ol style="list-style-type: none"> 1. Check whether the chain hoist assy is triggered, 2. check whether the temperature of the motor is too high, AC drive the motor, and check whether the MOT port is connected to the motor
	Emergency stop port is triggered 	Emergency stop button is pressed
	ST/COM ports is triggered	<ol style="list-style-type: none"> 1. Check the jumper wire for the ST/COM port. 2. Check the status of the device connected to the corresponding port. 3. Check if the wiring of the corresponding port is damaged
	BN/GN (8.2K Electrical safety edge) conductive strip is triggered	<ol style="list-style-type: none"> 1. Check the connection status of the 8.2K resistor on the BN/GN port. 2. Check if the device connected to the port is triggered. 3. Check if the wiring of the device connected to the port is normal.
	BN/GN (1.2K Pneumatic safety edge) conductive strip is triggered	<ol style="list-style-type: none"> 1. Check the connection status of the 1.2K pneumatic safety edge on the BN/GN port. 2. Check if the device connected to the port is triggered. 3. Check if the limits of the device connected to the port are normal.
	BN/GN (Optical sensor edge) conductive strip is triggered	<ol style="list-style-type: none"> 1. Check the connection status of the optical sensor on the BN/GN port. 2. Check if the device connected to the port is triggered. 3. Check if the wiring of the device connected to the port is normal
	BN/GN (1.2K Pneumatic safety edge) conductive strip self-test failed Troubleshooting Steps	<ol style="list-style-type: none"> 1. Check if there is any jamming or compression when the door body reaches the ground position. 2. Verify that the device connected to the port is not triggered. 3. Check if the device sensitivity is too low
	Fault Description Maintenance alarm cycle count reached Troubleshooting Steps	<ol style="list-style-type: none"> 1. Perform maintenance on the door body, steel wire ropes, and torsion springs. 2. Reset the maintenance alarm cycle count after completing maintenance.