

**JC-2C50D-H**

**USING  
INSTRUCTION**

**XT0223S18029**

# Inverter debugging steps

## 1 Initialization

**Note: This step has been completed at the factory and does not need to be done again at the construction site. If replacing the motor or inverter, it needs to be reinitialized.**

Inverter dial switch SW2 is turned to ON, SW3 is turned to OFF, and SW4 is turned to OFF. Then, press and hold the run button button button for about 3 seconds. After the door is closed in place and the door is opened in place indicator light flashes three times, the initialization is completed.

## 2 Positioning

**Note: This step has been completed at the factory and does not need to be done again at the construction site. If replacing the motor or inverter, it needs to be repositioned.**

Pull the car door to the middle position (without hall door), set SW2 to ON, SW3 to OFF, and SW4 to OFF. Then press the learn button, and you can see that the door has moved slightly. After about 5 seconds, the positioning is completed.

If the door panel does not move during positioning, pull the door open a bit and reposition it again until the door can move slightly, indicating successful positioning.

## 3 Self-learning

Place the door in the middle position, turn SW2 and SW3 to ON, SW4 to OFF, and then press the learn button. At this point, self-learning begins. The direction of movement is: close the door - close in place - open the door - open in place - close the door - close in place - lose torque retention, and self-learning is completed.

If the door moves in the direction of opening the door, set the status of SW1 to the opposite position.

During self-learning, there is no signal output for the door machine to open and close in place.

## 4 Demonstration Run

Turn SW2 and SW3 to ON, SW4 to OFF, and then press the run button. At this point, the door will move towards the closing direction until it is fully closed. Press the run button again, and the door operator will repeatedly open and close the door to demonstrate operation.

During the demonstration run, when the door operator opens and closes the door in place, there are signal outputs indicating whether the door operator is functioning properly. If the signal output is not in place, follow fault diagnosis method 3 to find the cause.

## **5 Normal mode setting**

Turn SW2, SW3, and SW4 to OFF, and the door operator will close in place with torque. At this point, debugging is completed, and the door operator waits for the control system to issue a door opening and closing command. If there is no torque maintained after the door operator is closed in place, the cause of the problem should be determined based on the actual phenomenon, as shown in the attached table for fault diagnosis methods.

# **Fault diagnosis method**

## **1 No power display on the door operator**

A: Is the power switch turned on.

B: Measure whether the voltage between L and N at plugin P5 is AC220V

C : Check the wiring between the back of the inverter, fuses, and switches for detachment and looseness

If there are no issues with the above, the inverter is damaged.

## **2 Judgment of motor damage**

Power off the inverter, unplug the three-phase wire plug of the motor, and use a multimeter to measure the resistance between the three phases and the resistance between each phase to ground.

A: Phase to phase resistance error of motors U, V, W  $\leq 2\%$

B: The resistance to ground should be infinite

## **3 Demonstrating that the door operator did not output the signal in place during runtime**

A: When the door is opened or closed, observe whether the corresponding position light on

the inverter converter is on. If it is on, proceed to step B; if it is not on, proceed to step C

B: Unplug the P1 plugin and let the door operator demonstrate operation. Check whether the connection and disconnection between P1-1 and P1-2 or P1-1 and P1-3 are normal. If they are normal, it indicates that the door operator inverter is normal, and there is a problem with the signal of the control system (control cabinet wiring or parameter settings). If they are not normal, it indicates that the door operator inverter is damaged.

C: It may be that the width of the self-learning door is too large, causing the door to open properly and the back door width to not be fully opened. Check the value of DR half range or F0-3 (door width) in 3311. If it is a center open door operator, the value is about  $1/2+50\text{mm}$  of the actual door width. If it is a side open door operator, the value is  $+50\text{mm}$  of the actual door width. If the self-learning door width differs significantly from the calculated value above, it can be manually changed.

#### **4 No holding torque for door operator in control system mode**

Control system mode (change the value of run comd source or F0-2 in menu M3311 to 4), which has been set before leaving the factory.

**5 When controlling the system mode, the door cam cannot fully open, the door cam shakes, or the door lock signal light jumps when the door is closed in place.**

Rotate the "Hold Torque" knob on the controller panel towards the arrow direction to its maximum.

#### **6 When closing the door, the speed is very slow or there is a slight impact on the door.**

A: Use the server to change the door cam parameters: M3315's door coupler or F4-18 selects parameters for the door cam, which is different from the low-speed closing operation curve of asynchronous door cam. Choose according to the actual door cam type.

B: Use a dial switch and button to change the door cam parameters: ① Integrated car door lock synchronization door cam parameter change: Set SW2 and SW3 to ON, SW4 to OFF, press the Learn button for 3 seconds, the door open in place and door close in place display lights flash 3 times, and the integrated car door lock synchronization door cam parameter setting is completed; ② Normal synchronization door cam parameter change: Set SW2 to ON, SW3 to OFF, SW4 to ON, press the run button for 3 seconds, and the display lights for door opening and closing in place will flash 3 times. The normal synchronization door cam parameter setting is completed; ③ Asynchronous door cam parameter change: Set SW2 to ON, SW3 to OFF, and SW4 to ON. Press the Learn button for 3 seconds, and the display lights for door opening and closing in place will flash 3 times. The asynchronous door cam parameter setting is complete.

C: If the door cam selection does not solve the problem, it is likely that the curve parameters have been changed. You can try initializing the parameters to debug again. The steps are as follows: set SW2 to ON, SW3, and SW4 to OFF, and then press the run button for 3 seconds. The display lights for opening and closing the door in place will flash 3 times, and the initialization is complete. After initialization, self-learning door width needs to be performed again.

## **7 There is shaking phenomenon during the operation of the door operator**

A: Unplug the motor plug and use fault diagnosis method 2 to determine if the motor is damaged.

B: The first four parameters in menu M3312 (or F1), namely the PI value, are changed to 1000, 800, 1000, and 800, respectively.

## Dialing Definition Description

Jarless-Con Dial Switch					
Motor forward and reverse rotation	Debug Mode	door width learning	Fault point memory	function	
SW1	SW2	SW3	SW4	Run Button	Learning button
*	ON	ON	OFF	Demonstration Run	self-learning
*	ON	OFF	OFF	Long press 3S parameter initialization	positioning
*	ON	OFF	ON	Long press 3S to initialize to door cam type 1 (synchronous door cam)	Long press 3S to initialize to door cam type 0 (asynchronous door cam)
*	ON	ON	ON	Long press 3S to initialize to door cam type 2 (Otis synchronous door cam)	Long press 3S to initialize to door cam type 3 (synchronous door cam)

*	OFF	ON	OFF	1s Long press for 3s (RY=7), delaying 1s	1s Long press for 3s (RY=8), delaying 0.5s
*	OFF	ON	ON	Long press for 3s (RY=9) Direct output	Long press for 3s (RY=1), closing delay
*	OFF	OFF	ON	Control cabinet mode	
*	OFF	OFF	OFF	Control cabinet mode	

Table 1

## Explanation of Fault Light Definition.

Table 2

Fault	3	2	1
Base fault	light off	light off	light on
Over current	light off	light on	light off
Current fdbk sum	light off	light on	light on
Motor overload	light on	light off	light off
DC link OVT	light on	light off	light on
PVT lost	light on	light on	light off
Power lost	light on	light on	light on

## Parameter Table.

Function Number	Name	Setting Range	Default Value
(Monitor paramator)			
0	Software version		
1	Frequency out Hz	0~50.00	※
2	Motor speed RPM		※
3	Rotor position	0~359.9	※
4	Dictated V mm/s		※
5	Output voltage V	0~900V	※
6	Mtr trp PU	1.0→ rated torque	※
7	Output current A	0~999.9A	※
8	Run count(10000)		※
9	Run count(1)		※
10	DC link V	9999v	※
11	Encoder position	0~65536	※
12	UVW position	00	※
13	Door position	00000	※
14	INPUT1		※
15	INPUT2		※
16	AD OFFSET(V)		※
17	AD OFFSET(W)		※
18	Stop		※

Function Number	Name	Setting Range	Default Value
F0 3311 (Field Adjust)			
F0-0	Obstruction REM	0: disabled 1: enabled	invalid
F0-1	Rotate dir 1/0	0,1	SW1
F0-2	RUN command source	0~7	4
F0-3	DR Half range mm	0~65535	■
F0-4	Open low dis mm	0~100	5
F0-5	Open unlock mm/s	5~150mm/s	60
F0-6	Open unlock mm	0~300mm	50
F0-7	Open Accel mm/s <sup>2</sup>	10~2048mm/s/s	1000
F0-8	Open Jerk0 mm/s <sup>3</sup>	10~2048mm/s/s/s	1000
F0-9	Open Decel mm/s <sup>2</sup>	10~2048mm/s/s	800
F0-10	Open Jerk0 mm/s <sup>3</sup>	10~2048mm/s/s/s	800
F0-11	Close Arrival mm/s	5~100mm/s	20
F0-12	close low dis mm	5~100	55
F0-13	Close Accel mm/s <sup>2</sup>	10~2048mm/s/s	800
F0-14	Close Jerk0 mm/s <sup>3</sup>	10~2048mm/s/s/s	800
F0-15	Close Decel mm/s <sup>2</sup>	10~2048mm/s/s	600
F0-16	Close Jerk1 mm/s <sup>3</sup>	10~2048mm/s/s/s	600
F0-17	Close unlock mm/s	5~150mm/s	35
F0-18	Close unlock S%	0~30.0% relay vibration resistance	0

Function Number	Name	Setting Range	Default Value
F0-19	Password	0~9999	8888/4321
F1 (3312) Regulator			
F1-0	1() SpdP1 gain	0~10000	400
F1-1	1() ISpdI1 gain	0~10000	300
F1-2	2() SpdP2 gain	0~10000	400
F1-3	2() ISpdI2 gain	0~10000	300
F1-4	PISGP tran21 thr%	0~100	5
F1-5	PISGP tran21 band%	0~100	5
F1-6	Sfbk filter	0~66	33
F1-7	Prop filter	0~3	0
F1-8	Coupler Speed	0~200	50
F1-9	Coupler Speed	0:VF 1:Asynchronous motor closed loop 2:Synchronous motor	2
F1-10	Feedback mode	0: DO/DC 1: ST	1
F1-11	Curp gain	0~9999	512
F1-12	Curi gain	0~9999	150
F1-13	OP DRV Limit PU	0.00~2.50	2.50
F1-14	OP REG Limit PU	0.00~2.50	1.50
F1-15	CL DRV Limit PU	0.00~2.50	2.50
F1-16	CL REG Limit PU	0.00~2.50	1.50

Function Number	Name	Setting Range	Default Value
F1-17	Mtr ovl I fac PU	0.1~2.0	1.2
F1-18	PVT PVT threshld min	0~10 0: disable  The larger the value is, the lower the sensitivity is.	0
F2 (3313) Motor Parameters			
F2-0	Rated power(W)	0.1~999.9 W	43.5/94.3
F2-1	Number of poles	2~100	016
F2-2	Rated RPM	1~9999	0180
F2-3	Rated frq	1.00Hz~99.99Hz	24.00
F2-4	Rated voltage	0~999V	100/125
F2-5	Rated I(A)	0.1~999.9	000.8/1.0
F2-6	Sheave_diam mm	10~10000mm	00045
F2-7	gear_ratio	1.0~100.0	001.0
F2-8	Rope ratio	1~6	1
F2-9	Rotor pos offset	0~65535	■
F2-10	resist s	0.000~9.999	7.730/2.790
F2-11	induct s(mH)	0.0~999.9mH	357.0/252.4
F2-12	resist rotor	0.000~9.999	5.230/1.820
F2-13	induct r(mH)	0.0~999.9mH	357.0/252.4
F2-14	mutual induct	0.0~999.9mH	325.0/240.6
F2-15	No-load current	0.0~999.9A	001.0/2.7
F3 (3314) Drive Scaling Parameters			

Function Number	Name	Setting Range	Default Value
F3-0	Drive size	0~100	000
F3-1	Drv Rtd Volt(V)	0~1000	0220
F3-2	Drv Rtd I RMS(A)	0.0~999.9	002.5
F3-3	Drv I fscale(A)	0.000~4.000	1.6
F3-4	Bus fscale(V)	0.000~4.000	1.050
F3-5	Drv I limit(A)	0.0~999.9	005.0
F3-6	Bus ovt (PU)	0.00~2.00	1.6
F3-7	DC link UV(PU)	0.00~1.00	0.60
F3-8	Line fscale (V)	0.00~2.00	1.00
F3-9	M1 pick V(PU)	0.00~1.00 1.00:1000V	0.35
F3-10	Drv Deadtime us	2~20	03
F3-11	PWMDrv PWM copm PU	0.00~2.00	1.00
F3-12	Drv k mod(PU)	0~100	100
F3-13	Switch frq (PU)	2~10 KHz	10
F3-14	Run time hour	0~65535Hshould be saved with power down	※
F3-15	Running time second	0~59MINshould be saved with power down	※
F4 (3315) (Enhanced Parameters)			
F4-0	Run hole time s	0~99.9s 0: keep continuous operation	00.0

Function Number	Name	Setting Range	Default Value
		stop when the time is up	
F4-1	Power on V mm/s	10~100mm/s	0100
F4-2	Learn V mm/s	10~100mm/s	0100
F4-3	Close arrival(ms)	200~3000ms	1400
F4-4	Open arrival(ms)	500~3000ms Hold torque after arrival	800
F4-5	Arr sw select	0:with open arrival and close arrival 1:without open arrival but close arrival 2:without open arrival or close arrival	1
F4-6	Open Hold torq%	0~200.0%	100.0%
F4-7	Close Hold torq%	0~200.0%	
F4-8	Baffle time ms	0~999ms 0:No function	200
F4-9	Baffle torq Hi%	0~200.0% Baffle torque during acceleration	180.0%
F4-10	Baffle torq Mid%	0~200.0%ACC=0Retarding torque for when ACC = 0	160.0%
F4-11	Baffle torq Low%	0~200.0%Baffle torque during deceleration	150.0%
F4-12	RY1 RY1 function	0:open arrival signal (switch or pulse) 1:close arrival signal (switch or	0
F4-13	RY2 RY2 function	pulse) 2:fault output 3:baffle detection output	7

Function Number	Name	Setting Range	Default Value
		4:open door output 5:close door output 6:limited open arrival signal 7:1SDelay 1S output after close limit 8:0.5SDelay 0.5S output after close limit 9:Direct output while close limit	
F4-14	Power on mode	0~2	2
F4-15	Open limit mm	0~1000mm	10
F4-16	Open Speed mm/s	0~1000mm/s	0508
F4-17	Open Arrival speed	5~50mm/s	020
F4-18	Door couple 0~3	0:Asynchronous door cutter 1: Synchronous door cutter 3: Synchronous door cutter	3
F4-19	Close limit mm	0~1000mm	5
F4-20	Close Speed mm/s	0~1000mm/s	508
F4-21	Open decel mm/s <sup>2</sup>	500~9999mm/s/s	5000
F4-22	Open Jerk mm/s <sup>3</sup>	500~9999mm/s/s/s	5000
F4-23	Demo open hold s	0~999.9s	003.0
F4-24	Demo close hold s	0~999.9s	003.0
F4-25	Manual accel mm/s <sup>2</sup>	10~2048mm/s <sup>2</sup>	0300
F4-26	Manual decel mm/s <sup>2</sup>	10~2048mm/s <sup>2</sup>	0500

Function Number	Name	Setting Range	Default Value
F4-27	Man speed mm/s	0~999mm/s	0050
F4-28	Master or Slave	0:Master status. Reopening door is possible 1:Slave status. Reopening door is impossible	0
F4-29	Empty	0	00000
F5 (3316) (VF)			
F5-0	AD OFFSETmode	0~2	0
F5-1	Torque boost	0~2.5PU	1.50
F5-2	Close 33% torq	0~100s	35
F5-3	AD (W) AD OFFSET W	0~999	1860
F5-4	AD (V) AD OFFSET V	0~999	1860
F5-5	Force open delay	0~9999ms	800
F5-6	Force open EN	0: DISABLE 1: ENABLE	1
F5-7	ErrorReset time	1000~9000ms	5000
F5-8	DCLPoweron DCL dly	0~9000ms	0
F5-9	Reset torq time	0~3000ms	500

## Viewing faults

Use the operator to view the fault code (F6). Common fault related information is shown in

Table 4 (Common Fault Codes):

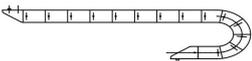
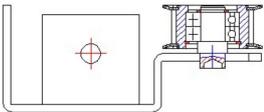
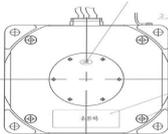
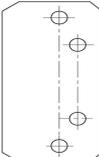
Table 4

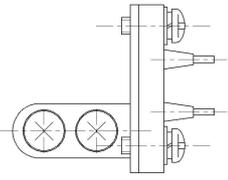
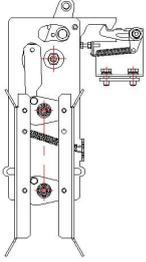
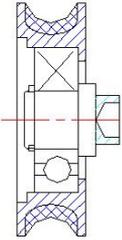
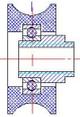
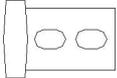
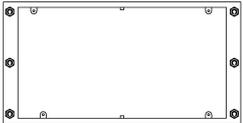
	Corresponding fault name	Possible fault causes	Solution measures
1	BASE FAULT	1, IPM module heating 2, power interference 3, door operator instantaneous current is too large	1, Inverter fault 2, Door operator power isolation, to determine whether it is caused by interference 3, Check the motor current parameters, if it cannot be self-recovery, inverter or motor is faulty
10	PVT lost	1, The encoder circuit of the inverter is abnormal 2, Encoder connection line broken or short circuited 3, Encoder signal abnormal	1, Replace inverter 2, Check the encoder connection line 3, Encoder fault
5	MOTOR OVERLOAD	1, Obstruction during door opening and closing, door operator overload 2, During the operation of the door operator, the	1, Check if there are any foreign objects or mechanical blockages, or if the door panel itself is too heavy 2, Check the motor power line

		motor is out of phase	
7	DC link OVT	1, input voltage too high 2, Short circuiting of any phase to ground in the three phases of the motor	1, Check the input supply voltage 2, Check the motor power cable
8	POWER LOST	Input power is low	1, Check that the input power should be at AC220V±20%

## Spare parts list

Table 5

Component drawing number	Name	key	Spare (quantity per unit)	Remark
XTA4215ABT	Arc tooth synchronous belt		1	Vulnerable parts
XTA3052ABM	Drag chain		2	Vulnerable parts
XTA3052AAN	Tensioning component		1	
XTA4522ACQ	Motor		1	
XTA4386ABA001	Plug		3	

XTA3386AEY	Synchronize door cam		2	
XTA2703AAY	Plug assembly of fast hanging plate		1	
XTA3117AJQ001	Hanging plate roller		4	Vulnerable parts
XTA3117AJP	Adjusting roller of hanging plate		4	Vulnerable parts
XTA3138DXG002	stop block		4	
XTA3446ADE	inverter		1	

# Door operator installation instructions

## 1 Definition of related parameters

OP----net opening width

OPH--net opening height

E-----Car door sill width

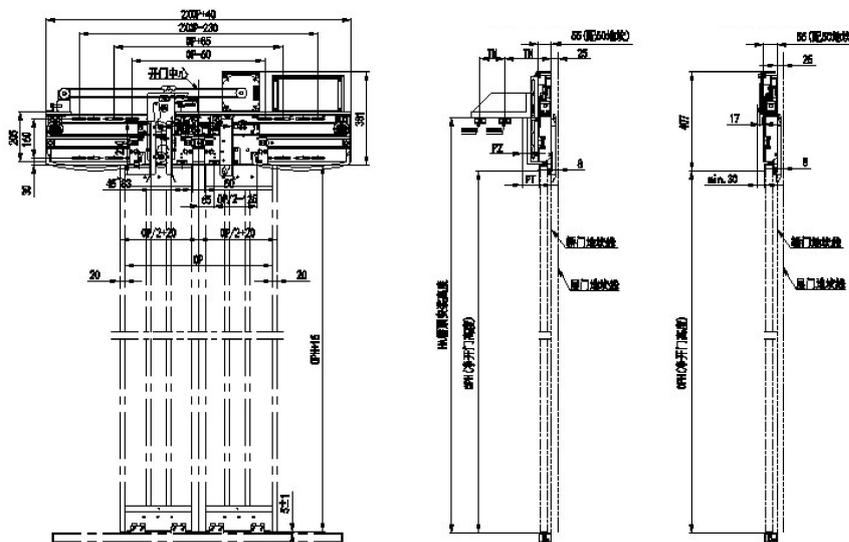
L1----The installation space of the door operator refers to the distance between the car door sill line and the installation surface of the door operator bracket. The parameter values related to the door operator.

Table

Type	E	L1
Center open two panel	50	55

## 2 Check the general drawing of the door operator to determine the relevant installation dimensions

- 1、 door operator installation height
- 2、 door panel height
- 3、 door cam installation position



### 3 Fix the mounting bracket to the car

Take out the mounting bracket and its fasteners, and fix the mounting bracket on the C-groove on the car roof according to the actual installation method of the door operator.

#### a. Car roof installation

① Fix the car roof installation bracket on the C-groove of the car roof

② Adjust the horizontal spacing of the car roof mounting brackets and arrange them symmetrically with the center of the door.

③ Adjust the distance between the mounting surface of the bracket and the front edge of the sill line of the car door so that the L1 value shown in the diagram meets the requirements (refer to Table 1), and tighten the bolts.

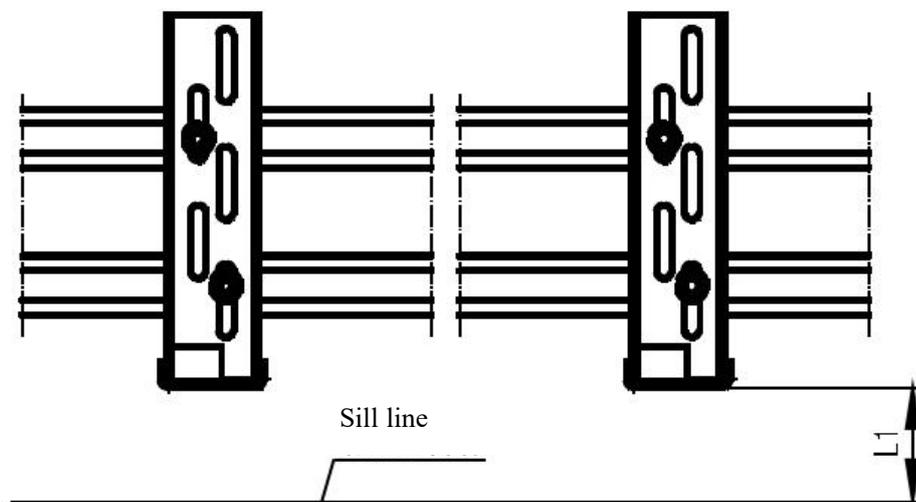


Figure 2 Car roof installation diagram

### 4 Install the door operator on the mounting bracket

① Connect the door operator to the mounting bracket and pre-tighten the nuts on the mounting bracket.

② Adjust the height and levelness of door operator, and the distance between the bottom

surface of the hanging plate and the surface of the sill. Adjust the verticality of the door operator and the horizontality of the door guide rail to a deviation of  $\leq 0.5\text{mm}/600\text{mm}$ . Level deviation between door operator guide rail and car sill  $\leq 1\text{mm}/1000\text{mm}$

③ Adjust the center of the door operator so that the center of the door operator coincides with the center of the door.

④ Tighten the nuts for installing the door operator.

## 5 Hang the door panel onto the door operator

① Install the door slider in the plastic packaging onto the car door panel.

② Attach the car door panel to the hanging panel and tighten the bolts

③ Adjust the verticality of the hanging plate. If the hanging plate is tilted, insert shims at the connection between the hanging plate and the door panel.

④ Adjust the distance between the caster wheel and guide rail to 0.1~0.3mm

⑤ Adjust the verticality of the door panels and the distance between the panel ,car front and sill

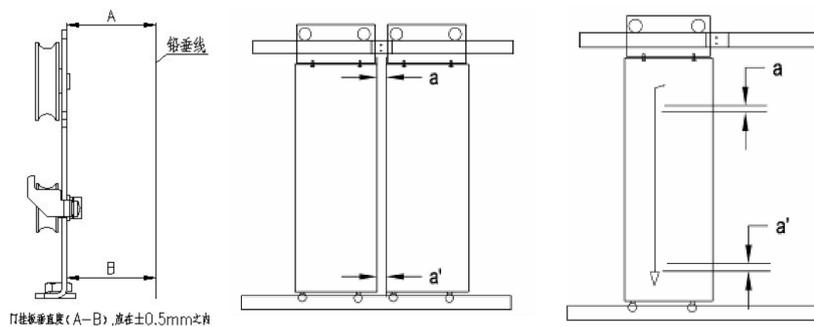


Figure 3.

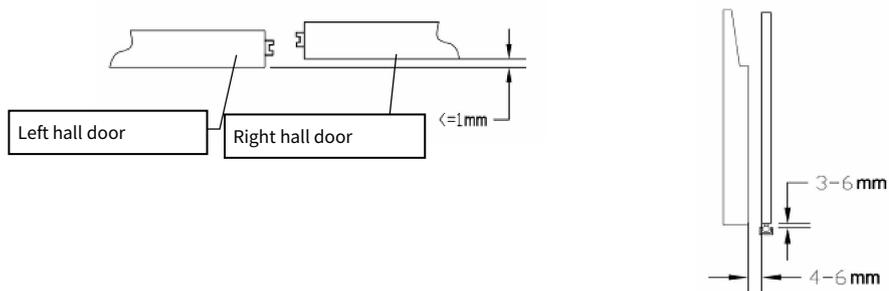


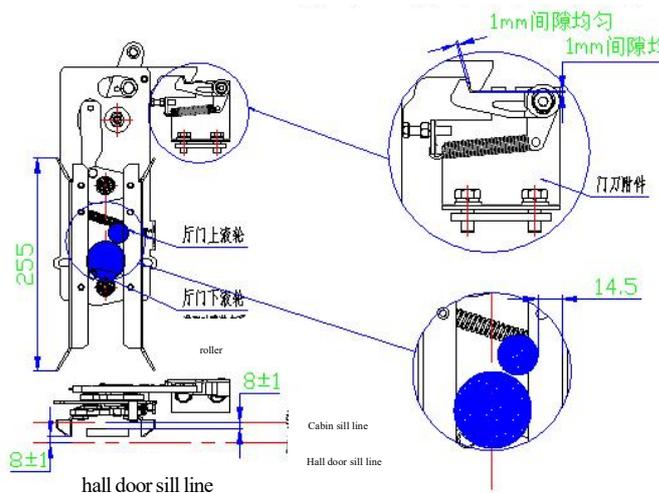
Figure 4

## 6 Install the door cam onto the door operator

### 6.1 Installation of synchronous door cam

Install the synchronous door cam on the door panel hanging board by tightening the bolts, as shown in figure 5

Adjustment instructions for synchronous door cam and hall door roller

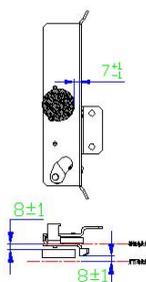


Note:

1. The adjustment position of the hall door lock roller: make the lower roller on the center line of the two door cam blades or the distance between the upper roller and the door closing side blade  $14.5 \pm 1$ . (If the roller adjustment is too biased, it can cause the door cam to open during the door closing process, or it cannot open after the door is closed in place, resulting in the door operator running dead.)
2. The adjustment position of the door knife lock hook and the accessory lock hook: the gap is both 1.
3. If the size is too large, the natural gap between the car doors after closing is too large or cannot be locked firmly, which can easily cause the door lock to break and the elevator to return to the base station; The size is too small, which may cause the blade to fail to operate tightly when opening the door, or there may be abnormal noise.

## 7 Install anti pick device on the door operator

### a. Installation of anti pick device



### Instructions for adjusting the anti pick device and rubber wheel

1. Hall door rubber wheel adjustment position: make the distance between the rubber wheel and the anti pick device blade  $7 \pm 1$

(If the adjustment distance between the rubber wheel and the anti pick blade is too large, it will cause the door opening process to be unable to open, and the door operator will crash during operation)

## 8 Door protection wiring

a、 Door protection wiring

When distributing the light curtain, follow Figure 7 for the wiring of the light curtain. The cable is tied tightly on the car door with a pull-down strap and passes through the cable drag chain bracket to connect to the control circuit.

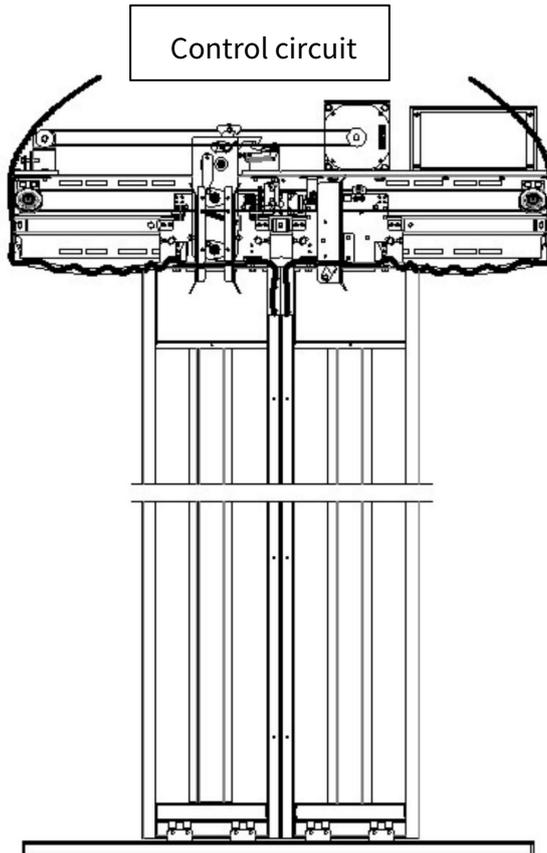


Figure 7

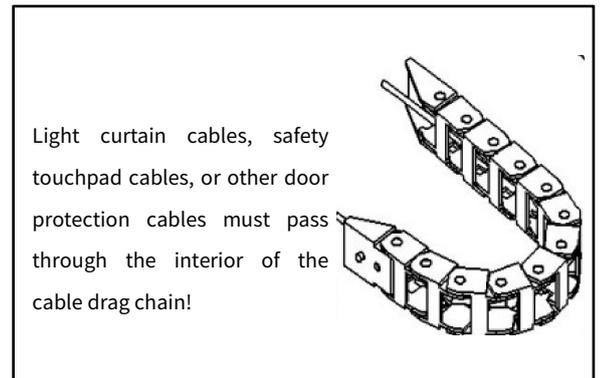


Figure 8

b、 Light curtain installation requirements

1. Installation requirements for light curtain: 1. The lower end face of the light curtain should be flush with the lower end face of the fixed bracket, and the distance from the lower end face of the light curtain fixed bracket to the lower end face of the car door panel should be greater than 10mm; The distance between the two light curtains should be maintained at 10-20mm when the door is closed; All assembly holes of the light curtain should be fixed to the door panel.

2.The light curtain wire is tied tightly along the door panel reinforcement with an inverted tie and connected to the car roof light curtain junction box.

3.After the installation of the light curtain, it must be grounded, and the grounding wire should be connected to the car door with screws and connected back to the car roof grounding wire.

## Maintenance

### 1 Door operator regular maintenance and maintenance items

In order to ensure the reliable operation of the door operator, it is necessary to regularly maintain and maintain the door operator. Please refer to the table below for details.

Table 7

No	Item	Content
1	Door guide shoe	Adjustment of gap between door guide shoe and sill groove and observation of wear degree
2	Adjusting roller below hanging plate	Adjust the distance between the caster wheel and guide rail, and observation of wear degree
3	Hanging roller	Observation of hanging roller running status
4	Guide	Clean the surface of the guide rail, add grease and replace it, and observe the degree of wear
5	Timing belt	Observation and adjustment of tension
6	Wire rope	Observation and adjustment of steel wire rope status, degree of tension, and degree of compression of steel wire

		rope pressure plate
7	Contact switch	Observe whether the contact switch contacts well and adjust the relative position
8	Cable drag chain	Observe the status and ensure the fixation is secure
9	Cable	Observe if the cable is damaged

## 2 Standard for replacing vulnerable parts of products

Table 8

Standard for replacing vulnerable parts of products		
No	Name	Replace standard
1	Contact switch	Plastic casing cracked, spring contacts blackened
2	Door guide shoe	The door guide shoe is severely worn and the door panel is shaking during operation
3	Adjusting roller below hanging plate	The adjustment wheel does not rotate smoothly or is severely worn
4	Hanging plate roller	Significant wear of polyurethane, shaking of wheels, and abnormal noise during rotation
5	Timing belt	Severe wear or obvious cracks
6	Timing belt wheel	The timing belt wheel does not rotate smoothly, there is obvious abnormal noise, and axial shaking
8	Wire rope	Hairing and breakage
9	Cable drag chain	chain break

### 3 Product scrapping standards

1. Severe plastic deformation of mechanical components of the door operator caused by transportation, installation, or abnormal faults.

2. After long-term use, the mechanical components of the door operator are worn, twisted, and deformed, making it impossible to complete normal door opening and closing or making loud noise. After replacing relevant vulnerable parts, they still cannot meet the requirements.

3. The controller and motor exceed the product life cycle and cannot be replaced with spare parts after a malfunction occurs.