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Servo gate series
User Manual _____

Hongmen Advanced Technology Corporation

红门智能科技股份有限公司

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Please read this manual carefully before using the product

Preface

Thank you for choosing the D3 servo barrier gate carefully developed by Hongmen Advanced Technology Corporation. To ensure the safe use of the product and improve the service life of the product, please read this manual to understand the relevant product information before the operation. The pictures in this information are schematic diagram for reference only. If the pictures do not consistent with the physical object, please take the physical object. The company has the final right to interpret this information, and we apologize for any inconvenience.

Hongmen Advanced Technology Corporation

Content

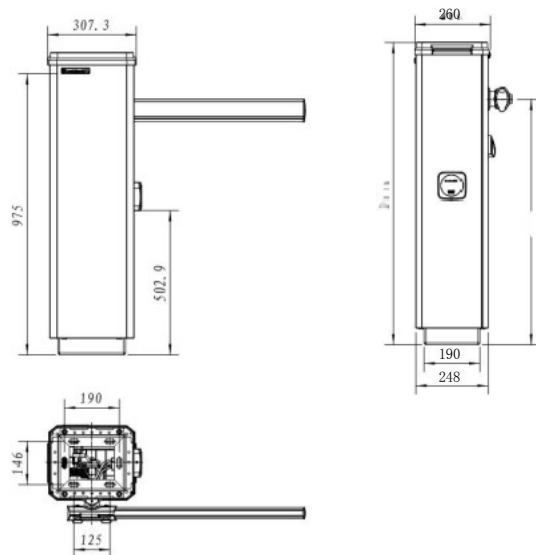
1.product appearance	1
2.performance characteristics.....	2
3.product use and scope of application	3
4.technical parameters and working conditions	3
5.product specifications	4
6.installation and debugging	4
7.safe use and maintenance.....	9
8.safety matter.....	9
9.fault analysis and solutions	10
10.transportation and storage	11
11.after-sales service.....	11
12.information feedback.....	12
13.product handover	13

1. Product appearance

1.1 servo barrier gate appearance picture



1.2、D3 servo barrier gate size drawing



2. performance characteristics

2.1、barrie gate core mechanisim

- 2.1.1. Integrated core mechanism, small size and high degree of integration.
- 2.1.2. The split design of motor + reducer and shaft key connection facilitate on-site disassembly and replacement.
- 2.1.3. The reducer adopts screw mechanism transmission, and the transmission efficiency can reach more than 90%.
- 2.1.4. Multiple spring devices, made of clinker, have long service life and more balanced ups and downs. The springs can be used more than 1.5 million times.
- 2.1.5. Use 24V external rotor servo motor, small size, low speed and high torque.
- 2.1.6. The core transmission part of the reducer is a ball screw pair, which has high precision, accurate assembly dimensions and durability.
- 2.1.7. The core mechnism adopts mechanical self-locking when the lifting rod is in place and electronically controlled self-locking when the lowering rod is in place. In case of sudden power outage, the rod can be lifted manually for quick passage.
- 2.1.8. The core mechnisim is wall-mounted and is easy to assemble and disassemble.
- 2.1.9. The drop bar has no dead center design, and the bar can be lifted manually without clutching after a power outage.
- 2.1.10. The motor housing is made of ADC12 die-casting, with surface electrophoresis, and the front and rear covers are precision processed and assembled.
- 2.1.11. The core mechanism can use both oval and round bar handles.
- 2.1.12. The motor adopts a ring magnetic ring encoder for precise control.

2.2、servo barrier gate control panel

- 2.2.1. Multiple application modes: There are multiple application modes such as normal, fleet, and counting for selection.
- 2.2.2. When the bar launch and drop system automatically adjusts the speed, runs smoothly, and does not shake the bars.
- 2.2.3. There is no lifting bar limit, and the system automatically calculates the angle of the launching and drop operation.
- 2.2.4. Use intelligent high-speed servo control technology to ensure accurate and stable lifting bars.
- 2.2.5. The system has limit position self-locking function or artificial bar raising alarm function.
- 2.2.6. Monitor the operation data of the gate bar in real time, and judge the function of raising the pole immediately when encountering obstacles.
- 2.2.7. Various vehicle protection functions: including radar anti-smashing, pressure wave anti-smashing, and rebound functions when encountering obstacles, etc.
- 2.2.8. Plug-in fool-proof terminal block design.
- 2.2.9. Multiple control methods: onboard buttons, remote control, external wire control, 485 and other control methods to realize functions such as lifting and drop bar.
- 2.2.10. The 485 communication interface is reserved, and the system can realize functions such as remote control, status data collection, and real-time abnormal reporting.

2.2.11. Fire linkage function: can ensure smooth traffic in emergency situations

2.3. case features

2.3.1. It is made of high-strength cold-rolled plates and has no doors. It has good structural strength and unique appearance.

2.3.2. The electronic control components are installed on the top of the case to facilitate internal installation and adjustment. The internal structure is symmetrical, and the core mechanism is installed regardless of left or right.

2.3.3. Multiple color options, fixed on the base.

2.3.4. The surface of the case is treated with phosphating process, electrostatic powder spraying, high temperature curing and automotive topcoat.

The case is resistant to rust, ultraviolet rays, and discoloration when exposed to sunlight in harsh outdoor environments.

2.3.5. The gate bars can be paired with symmetrical elliptical bars, symmetrical elliptical light bars, and new model round bars.

3. product use and scope of application

This product is specially used to manage the entrance and exit of passages on roads that restrict the movement of motor vehicles. It is now widely used in highway toll stations and parking lot systems to manage vehicle passages to manage the entry and exit of vehicles. It is suitable for the management of entrances and exits in various government agencies, residences, science and technology parks, logistics parks, special parking lots, highways, communities, shopping malls, railway crossings and other public places.

4. technical parameters and working conditions

4.1 Technical parameters

core mechanism type	gearbox speed ratio	opening time	bar type	bar length limit	Description			
)small servo barrier core mechanism (small screw gearbox+100W external rotor servo motor)	42.5:1	1.5s fast	symmetrical elliptical straight bar /Symmetric ellipse light bar/new round bar	$L\leq 3.5m$	Equipped with servo gate control panel, the lifting and drop bar have a deceleration function when they are ready to be in place.			
	85:1	3.0s medium		$3.5m\leq L\leq 4.5m$				

4.2. External environmental characteristics of the product

4.2.1. Working environment temperature: -40℃~60℃.

4.2.2. Relative humidity of working environment: $\leq 90\%$.

4.2.3. Ambient atmospheric pressure: 86~106KPa.

4.3. Motor performance characteristics

4.3.1. Working voltage: DC24V.

4.3.2. There is no severely corrosive medium in the working environment.

4.3.3. Rated current: 6.3A.

4.3.4. No-load current: 1.2A.

4.3.5. Rated power: 150W.

4.3.6. Working system: S2.

4.3.7. Protection level: IP44.

4.3.8. Motor rated speed: 1000r/min.

4.3.9. Motor no-load speed: 1300r/min.

4.3.10. Motor rated torque: 1.2NM.

4.3.11. Insulation resistance: $>50MQ$.

4.3.12. Insulation level: E.

4.4. Overall dimensions: 292X248X1048.

4.5. How many times the product has been run without failure: 2 million times

5. product specifications

5.1 Standard configuration table:

No.	Name	Configuration type	Configuration description	Remarks
1	Remote control (HM434X)	standard	used to connect to the barrier gate control board. The quantity is 2 PCS; for double door orders, the quantity is 4 PCS	All optional accessories are available for an additional fee
2	External rotor servo motor	standard	matched with reducer, end face size is 90X90, quantity 1PCS	
3	external receiving antenna (HM434X)	standard	used for docking barrier gate remote control, quantity 1PCS; for double door orders, quantity 2PCS	
4	Infrared pillar	optional	used to prevent pedestrians from being injured by gate bar.	
5	Wireless key box (HM434X)	optional	to barrier gate control board	
6	Servo barrier control pane	standard	Used to control barrier operations.	
7	Time control switch	optional for lighting bar	Used to control the light strip switch	
8	Switching power supply	optional for lighting bar	used to provide voltage and current for light strips	
9	Intelligent radar	optional	used to detect vehicles and pedestrians to avoid injuries	
10	Ratchet wrench	optional	for fixing the case and base	

5.2 Product color configuration

No.	Accessory Name	Color configuration				Description
		1	2	3	4	
1	case	Orange-grained red	Orange-grained yellow	Orange	customized	Customized color needs to be confirmed by

Servo gate series

2	Case cover	gloss black	sending a color plate for proofing, and the delivery time is subject to review
3	Fixed base	matte black	

6. installation and debugging

6.1. Product installation

Please read this manual carefully before installation, and please hire professionals for installation, wiring and debugging. Barrier gate installation is divided into six parts: line pre-embedding, case fixation, controller wiring, case cover fixation, bar installation, and operation and debugging.

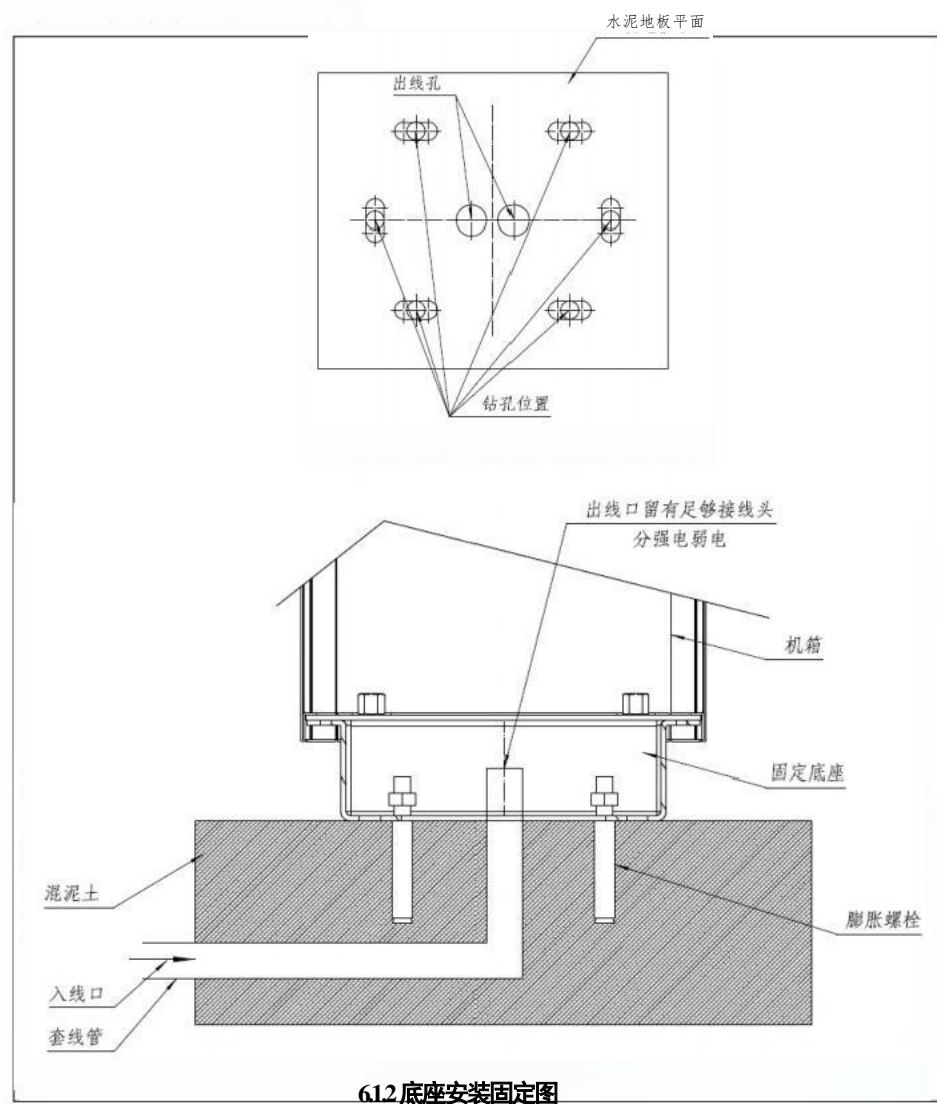
6.1.1. Line burial

Determine the position of the cases according to the customer's requirements, and set signal lines such as power lines and communication lines within the range of 1000mm. It is best to bury or excavate cable trenches in the pre-embedded area, put in equipment power cords and three-core signal lines and then backfill with concrete.

6.1.2. Fix cases

The installation position should be selected to ensure that the main machine is perpendicular to the horizontal plane after the gate is installed, and the error is not greater than $\pm 1.5^\circ$. Use an impact drill to drill holes at the marked positions. After the base is fixed to the ground with expansion screws, place the case on the base and align it. After adjusting the level, use a ratchet wrench to secure the base and the case.

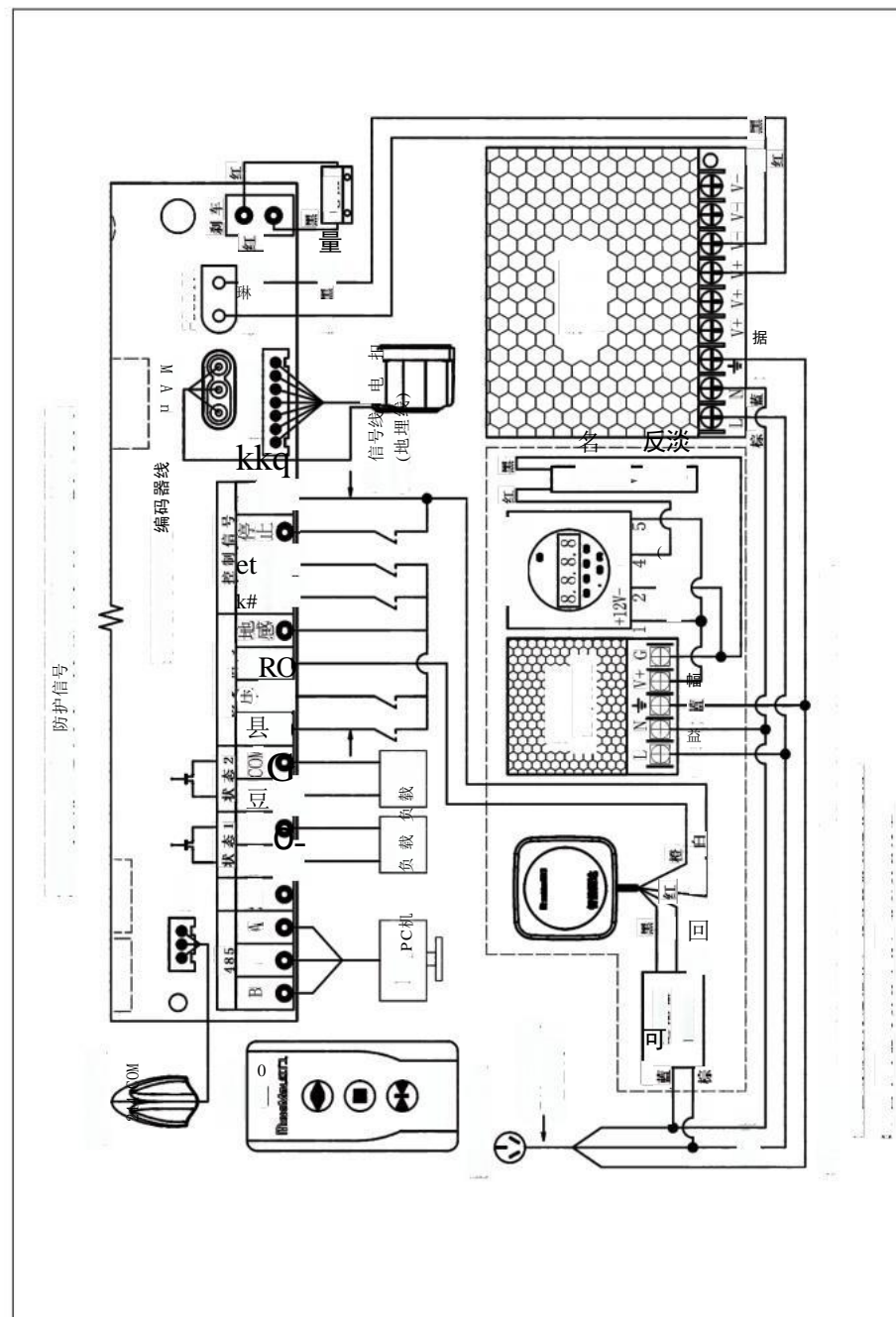
Fasten with 4 M10 screws (Figure 6. 1.2).

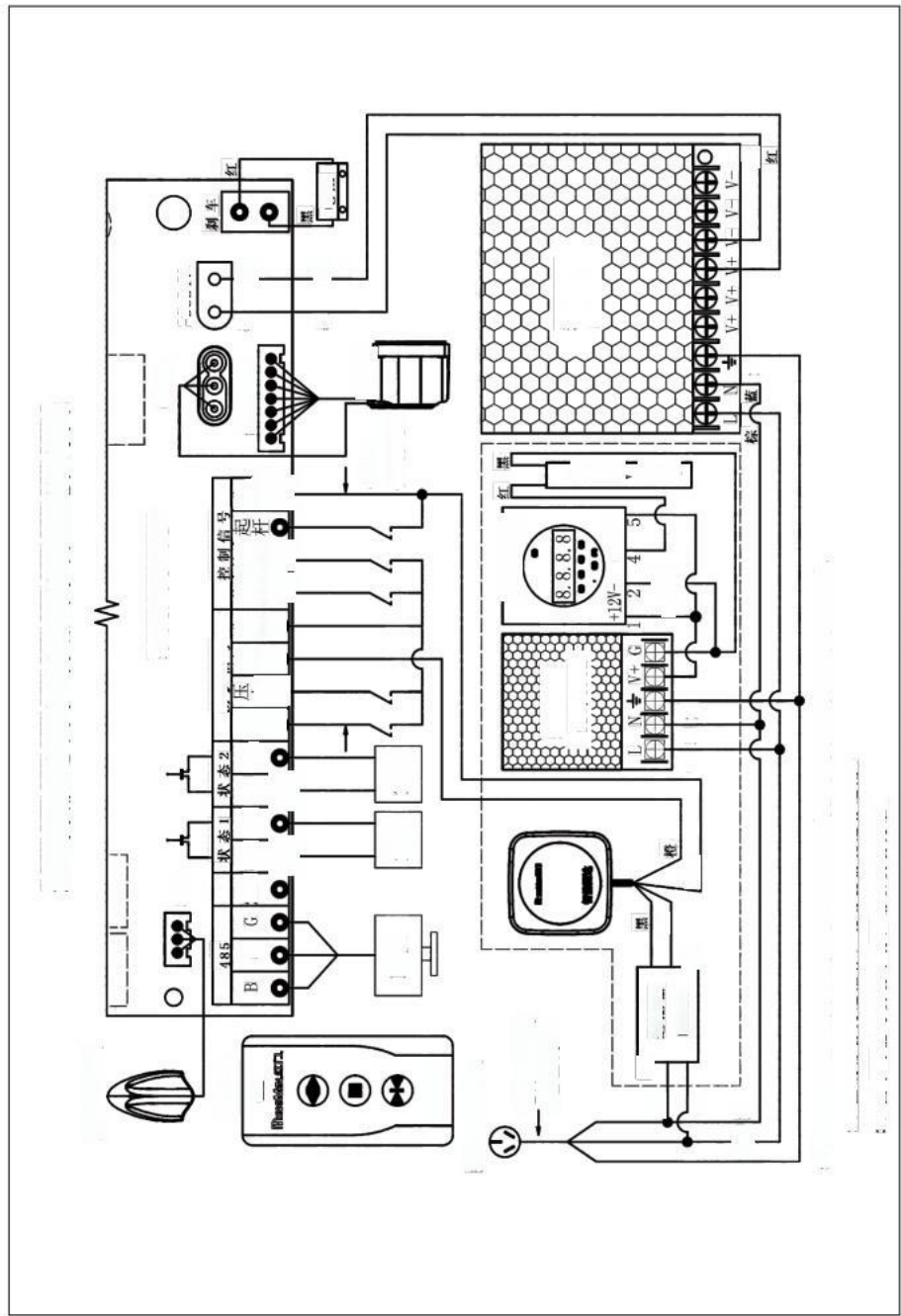
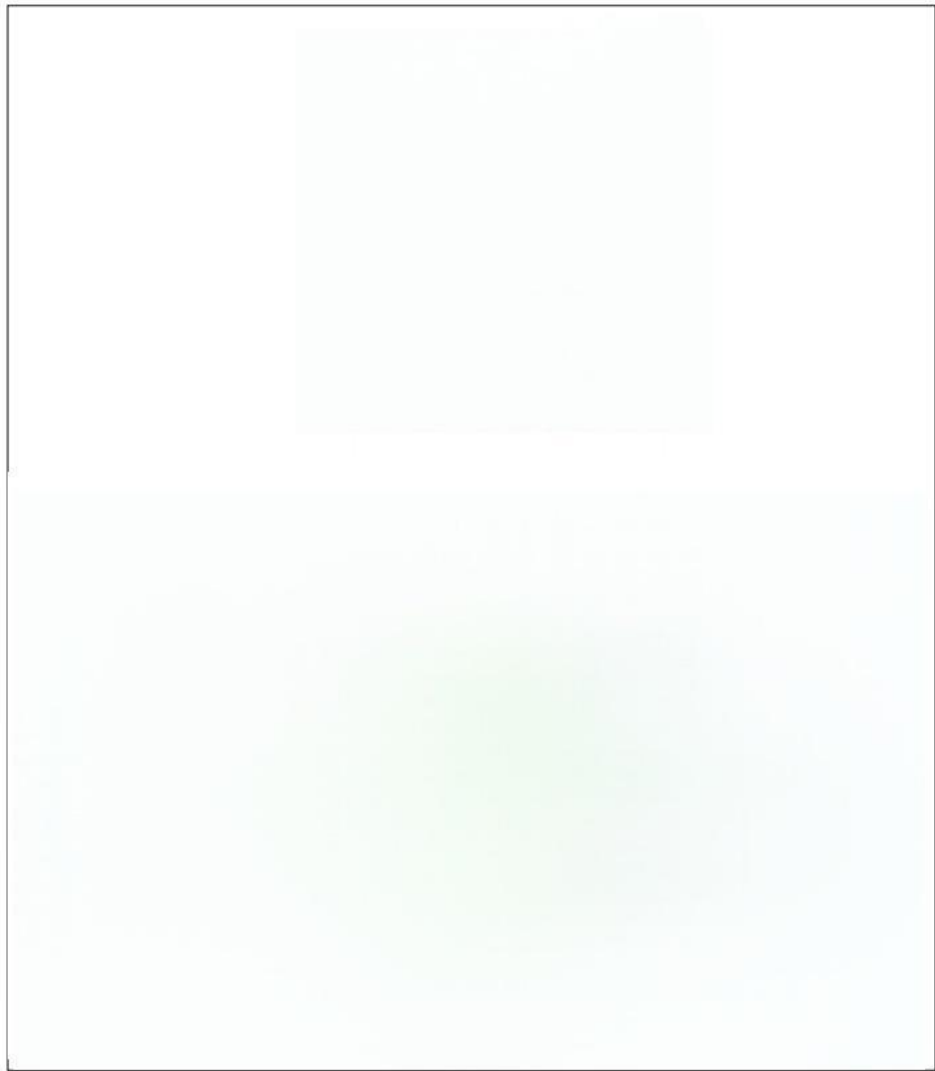


6.1.3. Control line wiring

Before the product leaves the factory, all electronic components in the control have been installed and all internal cables have been connected. According to the control wiring diagram (Figure 6.1.3), connect the chassis lines and the controller socket to start debugging. The specific location depends on the site conditions.

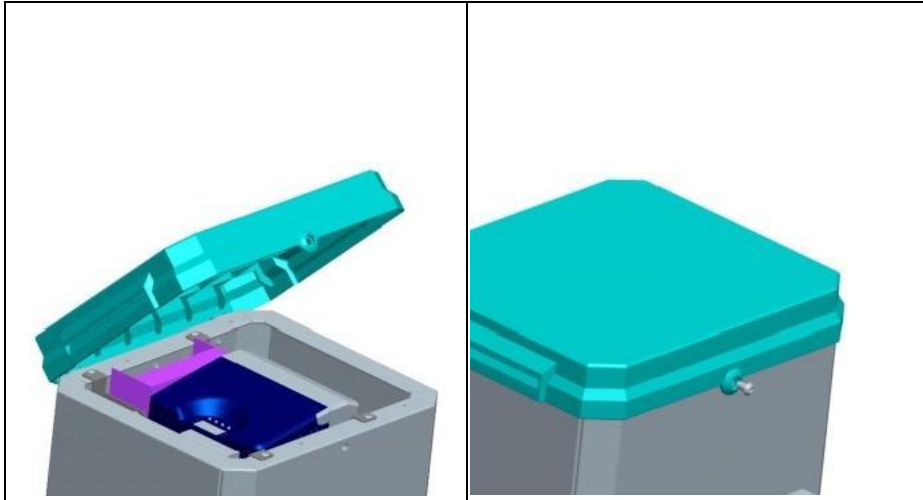
Note: The installation of smart radar is carried out in accordance with the "Smart Radar User Manual".





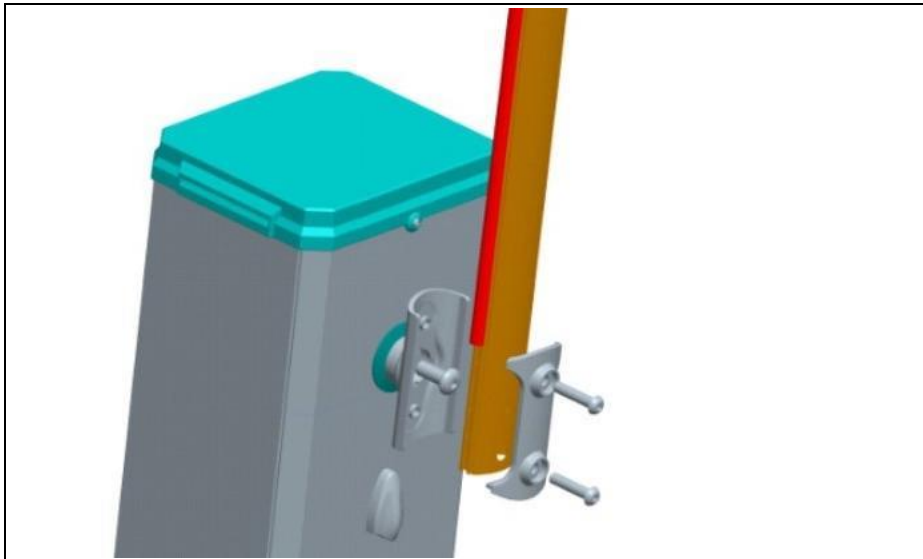
6.1.4. Fixing the case cover

Attach the underside of the case cover to the corresponding opening of the case. After placing it, use M6 pan-head screws to fix the case cover to the case and secure it firmly.



6.1.5 Barrier bar fixed

The handle is fixed to the main shaft of the core mechanism main axis through M16 screws. The round bar is directly inserted into the handle of the round bar. Use 2 pcs of long M12 screws to fix the upper cover of the handle to the round bar. For oval bar, you need to add a lining to the handle. After determining the installation direction, fixed with screws, the light bar has the same profile as the new elliptical bar.



6.1.6. Product debugging

(1) Debugging of gate bar

After the barrier is installed and put into trial operation, adjust the barrier bar to the level and check whether the barrier is operating normally.

(2) Product self-inspection process

Make sure that the case is firmly fixed and the gate bar is installed. Press the bar lifting button on the remote control. The gate will operate at low speed to lift the bar. After it moves to the upper limit stop, the motor will stall and the control board will automatically recognize this position as the starting point. pole position. Press the bar

drop button on the remote control, and the gate will run at low speed to drop the bar. After moving until it hits the lower limit stop, the motor will stall, and the control panel will automatically identify this position as the bar drop position.

(3) Spring adjustment:

The springs of our company's products have been hung according to different products before sale, and no adjustment is required. Due to long-term operation of the product, resulting in spring elongation, spring breakage, insufficient spring force, etc. If you need to replace the spring or add more springs, you can adjust the number of springs by yourself.

(4) Manual lifting:

The movement adopts mechanical self-locking when the lifting rod is in place, and electronically controlled self-locking when the lowering rod is in place. In case of sudden power outage, the rod can be manually lifted for quick passage.

(5) Horizontal and vertical adjustment of the gate bar: If the gate bar is not in a vertical or horizontal state when it rises and falls to the position, in addition to adjusting the mechanical level, the control panel can set the horizontal/vertical position, and the gate rod changes from horizontal/vertical to The number of Hall change steps required to move the vertical mechanical limit back to the ideal position. When adjusting horizontally, the larger the number, the farther the gate bar moves upward. When adjusting vertically, the larger the number, the farther the gate bar moves downward. The settings will take effect immediately after being saved. Press the "bar launch" and "bar drop" keys to observe whether the gate bar is horizontal and vertical, otherwise repeat the operation once.

(6) Launching operation: When the lever is not in place, press the "bar launch" button to raise the gate lever.

(7) Drop operation: When the lever is not in position or raised, and pressure waves and radar do not detect obstacles, press the "bar drop" button, and the gate will drop; during the drop operation In the status, if the protection signal is valid during the pole falling process (emergency, radar, pressure wave, bar lifting, etc.), the bar will be lifted automatically.

(8) Radar function: When the gate bar is rotating and descending, if there are vehicles or pedestrians passing by, the gate bar will immediately move in the

direction of rotation and upward. Otherwise, check whether the radar wiring is correct.

(9) Pressure wave function: If the gate bar touches vehicles or pedestrians during its rotation and descent, the gate bar will immediately move in the direction of rotation and upward movement. Otherwise, check whether the pressure wave air pipe is leaking, whether the pressure wave switch is intact and whether the wiring is correct.

(10) Emergency opening: the gate bar is in the non-raised state (vertical). If the emergency signal is valid, the gate bar will immediately switch to the launching state until the launching bar is in place. During this period, other control signals will not be responded to.

FCC Caution:

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

7. safe use and maintenance

7.1. Use of product

7.1.1. Before use, you must check whether the power supply voltage is consistent with this product which is AC220V±10%. In order to consider the phenomenon of under voltage in some areas, reliable working performance can still be maintained when the voltage is as low as 180V.

7.1.2. Facing the front of the barrier gate (the side with the logo), the barrier gate bar is on the left, that is, right-fixed, and on the right, that is, left-fixed.

7.1.3. The controller should be placed in a dry and ventilated place to ensure the stability of performance and improve service life.

7.1.4. When you need to open the gate bar, press the "small" button on the controller or remote control. At this time, the gate bar will automatically lift and stop automatically when it is in place.

7.1.5. When it is necessary to close the gate bar, press the " " button on the controller or remote control. At this time, the gate bar will automatically drop and stop automatically when it reaches the position.

7.1.6. Regularly check the connection cable of the controller and keep the appearance of the device clean. The controller and remote control must not be washed or soaked in water.

7.1.7. If the purchased product has a remote control function, all functions on the remote control can be completed with the remote control, and the buttons are used in the same way as on the remote control. The remote control can be used in places without shielding or signal interference, and the remote control distance can reach 20-50 meters. After using the remote control for a period of time, if the indicator light becomes dim, please replace the battery with the same specification.

7.1.8. Before opening or closing the gate, you must check whether there are people or animals under the gate bar. If there are any, you must lead them away from the scene.

7.1.9. When not in use for a long time, please unplug the power supply.


7.2 Product maintenance




7.2.1. Regularly clean the dust and turbidity on the surface of the gate body to maintain the beautiful appearance of the product.

7.2.2. Regularly check the connection conditions of various parts of the gate. If the connecting nuts and screws are found to be loose, they should be tightened in time to avoid failure of the gate in long-term operation.

8 safety matter

8.1 In order to avoid personal injury and property damage, please read and comply with the following safety tips carefully before using this product. The following safety signs may be used in documents or on products and product packaging. Each safety sign is described in the following table:

	warn Warning signs that appear when there is a possible danger to health or life
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	warn Warning signs that appear when there is a possible danger to health or life
	prohibit When signs of possible danger to health or life and damage to things appear
	Prohibited operation Non-professionals are prohibited from disassembling, repairing or modifying
	direction Indicates the direction in which the object runs

8.3. It is strictly prohibited to hang any objects on the gate bar, as well as to step over or jump over the gate bar.

8.4. It is strictly prohibited for vehicles or other objects to collide with the gate bar and case.

8.5. The case cover must be fixed. When the barrier gate is in operation, do not touch the moving parts.

8.6. Non-professionals are prohibited from disassembling, repairing or modifying the product. If there is any abnormality, please contact our company.

9. fault analysis and eliminate

When an abnormality occurs in the system, please first record the recent operations and the status of the door at the time of the failure, and then refer to the following table to troubleshoot the fault. Make sure that all faults are resolved before normal operation begins. If the cause of the fault cannot be identified, Keep the gate body in a power-off state, and contact our company's maintenance personnel for assistance.

No.	Fault phenomenon	Fault reason	Troubleshooting method
1	The system is not powered on.	AC220V is out of power.	Check the power input.
		The switching power supply does not output 24V.	Replace the switching power supply with the same specification.
		The control board is broken.	Replace the control board.
2	The system cannot self-check	The control board is broken	Replace the control board
		Motor wiring error	Check motor wiring
		Motor is broken	Replace the motor
3	The system does not operate	The control board is broken	Replace the control board
		Motor is damaged	Replace the motor
		The motor wire is not connected	Check the motor wiring
4	The remote control fails	The remote control battery is out of power	Replace the remote control battery
		The external receiver is broken	Replace the external receiver
		There is an interference source nearby	Check the interference source
5	The (lifting) drop bar does not stop when it is in place	The structural parts are misaligned	Check the structural parts
		Horizontal and vertical fine-tuning is incorrect	Fine-tune again
6	485 communication is not available	The 485 line is connected reversely	Check the 485 wiring
		485 communication address error	Keep the 485 address consistent with the communication protocol address
		485 module is bad	Replace with new control board
7	Bar will not	The automatic bar drop	The automatic lever lowering

	automatically drop	function is not enabled	function is enabled
		The setting is incorrect	Reconfirm the setting adjustment
8	No output of status port	Setting error	Check setting parameters
		The wiring is abnormal	Check the wiring connection
9	The bar cannot be raised when swiping the card	The card reader is damaged	Replace the card reader.
		The connection is abnormal.	Check the line connection.
10	The bar automatically lifts up after the bar is in place.	The spring force is too large	Remove one spring.
		he control board is broken	Replace the control board.
11	The bar hits the ground when it is in place.	The spring force is too small	Add a spring or tighten the spring.
		Horizontal position is too low	Set horizontal position
12	no response if pressing the lifting bar	The terminals may be short-circuited	Check each terminal
		The button is broken	Replace the button
		The control board is broken.	Replace the control board.
13	The bar does not automatically drop when passing a car.	The digital tube does not display Car	Grounding sensor is broken. Change new one.
		After passing the car, it keeps showing Car	Grounding sensor is broken. Change new one.
		Bar launch by remote controller in automatic mode	Change to ordinary mode

10. transportation and storage

- 10.1. The product should be lifted and handled with care when loading and unloading.
- 10.2. Packaged products can be transported by conventional means of transportation.
- 10.3. The product should be placed and firmly fixed on the transportation vehicle according to the actual working condition of the product, and protective measures should be taken.
- 10.4. The packaged products should be stored in a dry place according to the actual working condition of the product and the surrounding air does not contain corrosive and In places with explosive gases, measures should be taken to prevent moisture, rain, sun, and corrosion.

11. after-sales service

- 11.1. The company promises: free warranty for one year from the date of product acceptance. Repairs are required after the warranty period has expired. Parts and labor costs will be charged.
- 11.2. Scope of the Three Guarantees: If the product fails if it is operated strictly according to the specifications, it falls within the scope of the Three Guarantees; if the product is operated in violation of regulations, Failure or damage to the product caused by the operation is not within the scope of the three guarantees, and the company will perform paid repairs. (In case of force majeure If product failure occurs due to force or natural disaster, the company will charge material cost.)
- 11.3. Our company is responsible for product lifetime maintenance and maintenance consultation.: 400 8844 668
- 11.4. Non-warranty scope: ① Damage caused by customer's misoperation and unauthorized maintenance of the product.
② Damage caused by failure to use Hongmen spare parts.
③ Abnormality or damage caused by poor usage conditions or usage environment.
④ Due to abnormal usage conditions (such as failure to install embedded parts and wiring as required) or use of Abnormality or damage caused by harsh operating environment.

12. information feedback

We sincerely welcome users to visit our company's website (www.hongmen.com) to learn about our company's latest products and developments, and to provide valuable opinions and suggestions on the quality, installation, after-sales service and product technical performance of our company's products.

Contact details are:

- 1. central office: +86-0755-28770313
- 2. Fax: +86-0755-28770153
- 3. E-mail: MKT@hongmen.com

4. Send a letter:

Postal code: 518129

Address: Hongmen Road, Jihua Street, Longgang District, Shenzhen City

Hongmen Advanced Technology Corporation Close

No matter how you contact us, please leave your company's name, detailed address, name, model, specification, factory number of the purchased product from our company, as well as your name and contact information, so that we can contact you more conveniently.

13.product handover

name	Qty	remark
D3 barrier gate	1 unit	
Gate bar	1 pcs	
expansion bolt	6 pcs	M12X100
remote controller	2 pcs	
Product certification	1 pcs	
D3 Servo Barrier gate User Manual	1 book	
24V servo barrier controller user manual	1 book	
Warranty card	1 pcs	
power cable	N	Additional purchased

Remark:handover items vary by customized order

name	Qty	remark
D3 barrier gate	1 unit	
Gate bar	1 pcs	
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Warranty card	1 pcs	
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Remark:handover items vary by customized order

User: _____ Date: _____

*This "User link" should be kept properly by the user.
*This form is made in duplicate, please keep it properly. When repairing, please contact the local Hongmen authorized service center with this user manual, warranty card and purchase invoice for repair.

User: _____ Date: _____

Please keep this "stub copy" in a safe place by Hongmen authorized dealers.
*This form is made in duplicate, please keep it properly. When repairing, please contact the local Hongmen authorized service center with this user manual, warranty card and purchase invoice for repair.

No warranty statement

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All rights reserved. Any reproduction will be prosecuted.

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Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

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