

BG-BDC-RL-100

USER MANUAL

Non-springing DC Brushless Barrier gate



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Safety Precautions

To ensure your safe operation, please strictly in accordance with the provisions of this manual.

1. To avoid personal injury, it is strictly forbidden to open the door or cover when barrier working.
2. The barrier housing must be connected to the ground to prevent inductive electric shock.
3. It is strictly forbidden to stand, walk or place objects under the boom/ arm when barrier working.
4. The boom/arm and the spring have been matched to the balance state before goods leave out our factory. To avoid the danger of the balance being lost, the length and weight of the boom/arm can not be increased or decreased at random. If you need to change it, please

ask the professional for advice.

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1. Product Overview

Thank you for purchasing the non-spring DC brushless motor barrier gate from WONSUN. This product is a typical mechatronics product. It has the characteristics of small size, low noise, high efficiency, wide speed regulation, and small steady-state speed error. The springless reduction box is dedicated to the gate, multi-speed ratio can be selected, the operation is stable, the special gear transmission has higher efficiency and high stability, and is more and more respected by the market. It adopts the latest mold design technology, mold die-casting manufacturing technology, and brushless control constant Force algorithm technology, fast interchangeable left and right, no clutch design, more reliable quality, more convenient to use, the movement adopts four-stage gear transmission, large torque, long life, high efficiency, curved crank arm three-link structure, landing rod Fast and stable, self-locking in place, easy maintenance.

2. Parameters of Barrier Arm Type,Length and Operation Speed

Arm type	Arm Length(L)	Operation time(S)	Height between arm and ground (M)
Straight arm	$6m \geq L > 5m$	5S	H=0.83m, height of arm center from ground level
	$5m \geq L \geq 4.5m$	4S	
	$4.5m > L \geq 3m$	3S	
90°folding arm	$L \leq 5m$	5S	
180°folding arm	$L \leq 5m$	5S	
Two fence arm	$5m \geq L \geq 4m$	6S	H=0.9m, height of arm center from ground level
	$4m > L \geq 3m$	3S	
Three fence arm	$5m \geq L \geq 4m$	6S	H=1.5m, height of arm center from ground level
	$4m > L \geq 3m$	5S	

3. Features

1. The running speed can be adjusted from 1.2s to 3s,2.5s to 8s.
2. Arm direction can be quickly interchanged
3. Open the barrier gate by motor wheel when power off ,automatically reset after power on
4. Curved crank arm three- link movement structure, the operation is stable
5. Wireless remote control control open/close
6. Auto reverse function (force adjustable)
7. Infrared photocells connector is available
8. Loop detector connector is available.
9. Well-integrated with car parking system equipment,with wire control(must be switch signal)
10. Connector for traffic light(AC220V,power less than 40W)
11. Offering dry contact signal for car parking system(COM,NC,NO)
12. Auto-delay when closing(adjustable)
13. RS485 or CAN network communication interface (no need to install module)
14. Counting interface
15. 24V backup battery interface (Can be charged by using solar energy)(optional)
16. Auto-open when power-off (installation of power storage module) (optional)
17. Anti-collision alarm device (optional)
18. Loop detector normally open and normally closed signal selection
19. One car and one open (fee evasion function)
20. Special signal input for fire protection

4. Technical parameters

The first

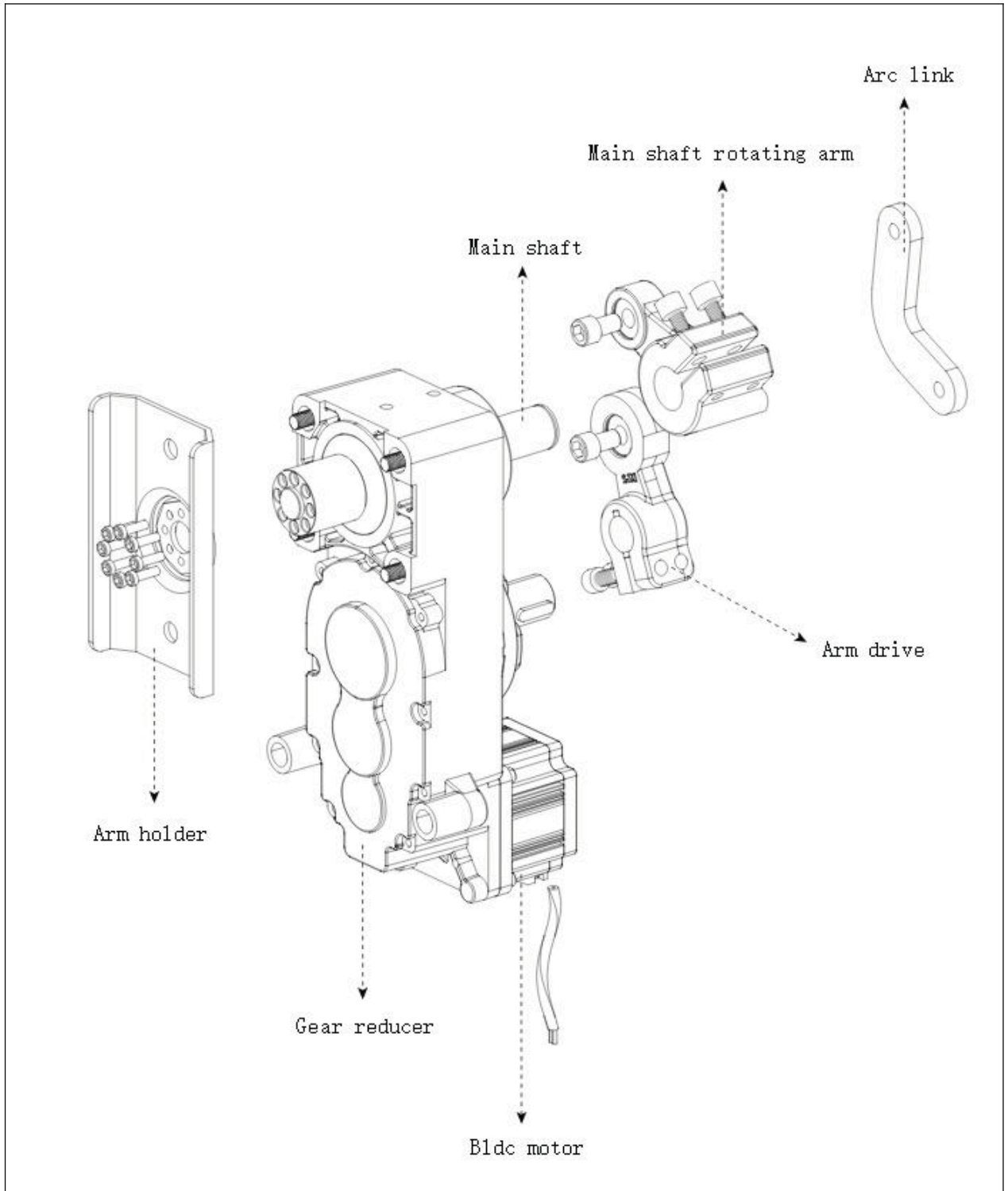
5. Working temperature(motor): -25°C~+60°C
6. Rated Supply: 24/100/240VAC,50/60Hz
7. Running speed: 1.2sec to 3Sec(adjustable)
8. Rated power: 200W
9. Driving Method: Brushless motor
10. Humidity: $\geq 85\%$
11. Remote control distance: $\leq 50M$ (open,sunny weather)
12. IP Degree: IP54
13. Motor No-load Speed: 1800r/min
14. Max Boom Length: 3M Straight arm
15. Deceleration ratio: 1:50

The second

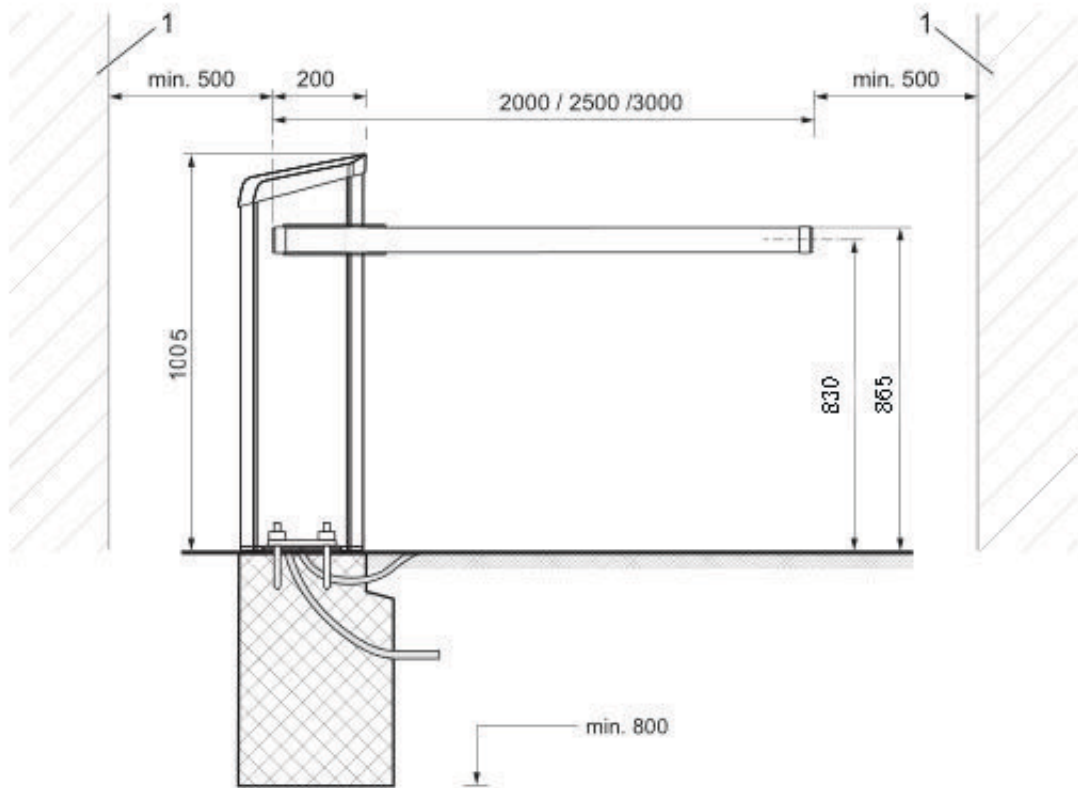
1. Working temperature(motor): $-25^{\circ}\text{C}\sim+60^{\circ}\text{C}$
2. Rated Supply: 24/100/240VAC,50/60Hz
3. Running speed: 2.5sec to 8Sec(adjustable)
4. Rated power: 200W
5. Driving Method: Brushless motor
6. Humidity: $\geq 85\%$
7. Remote control distance: $\leq 50\text{M}$ (open,sunny weather)
8. IP Degree: IP54
9. Motor No-load Speed: 1400r/min
10. Max Boom Length: Straight arm 6M、 90° Folding arm 5M、 180° Folding arm 4.5M、Two fence arm 4.5M、Three fence arm 4M
11. Deceleration ratio: 1:150

5.Mechanism

5.1 Diagram of NON-spring DC brushless mechanism



6. Installation direction definition



Arm directions definition:

(Barrier gate fix at left side of the gate)

(Barrier gate fix at right side of gate)



7. Installation, commissioning and use

7.1 Equipment installation

7.1.1 Please select the correct type of barrier gate according to the specifications of the place, and then fix the barrier cabinet with expansion bolts (refer to Figure 3).

After determined the position, the barrier gate foundation should be done according to the site conditions, and also make the cast-in-place basement for the non-concrete ground.

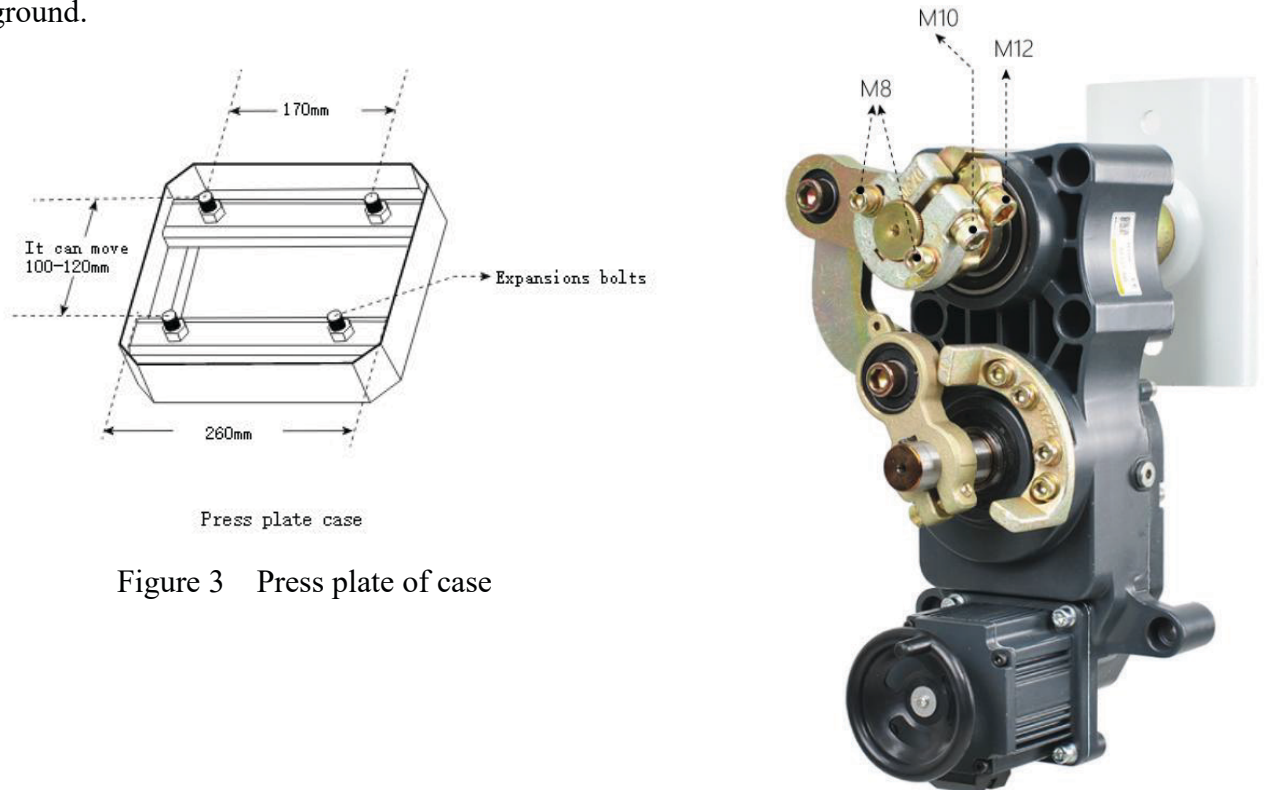


Figure 3 Press plate of case

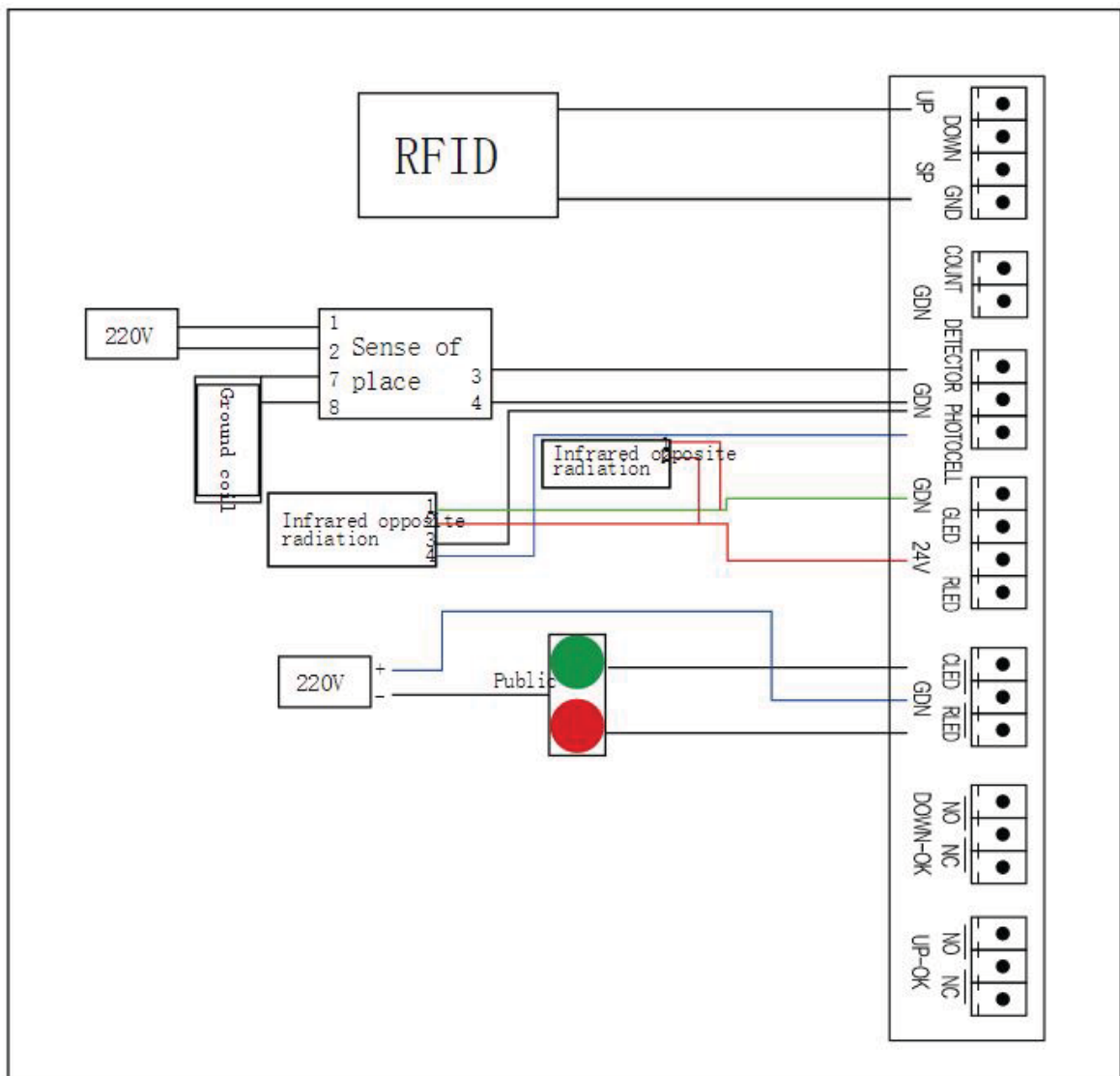
7.1.2 Calibrate the barrier gate arm position

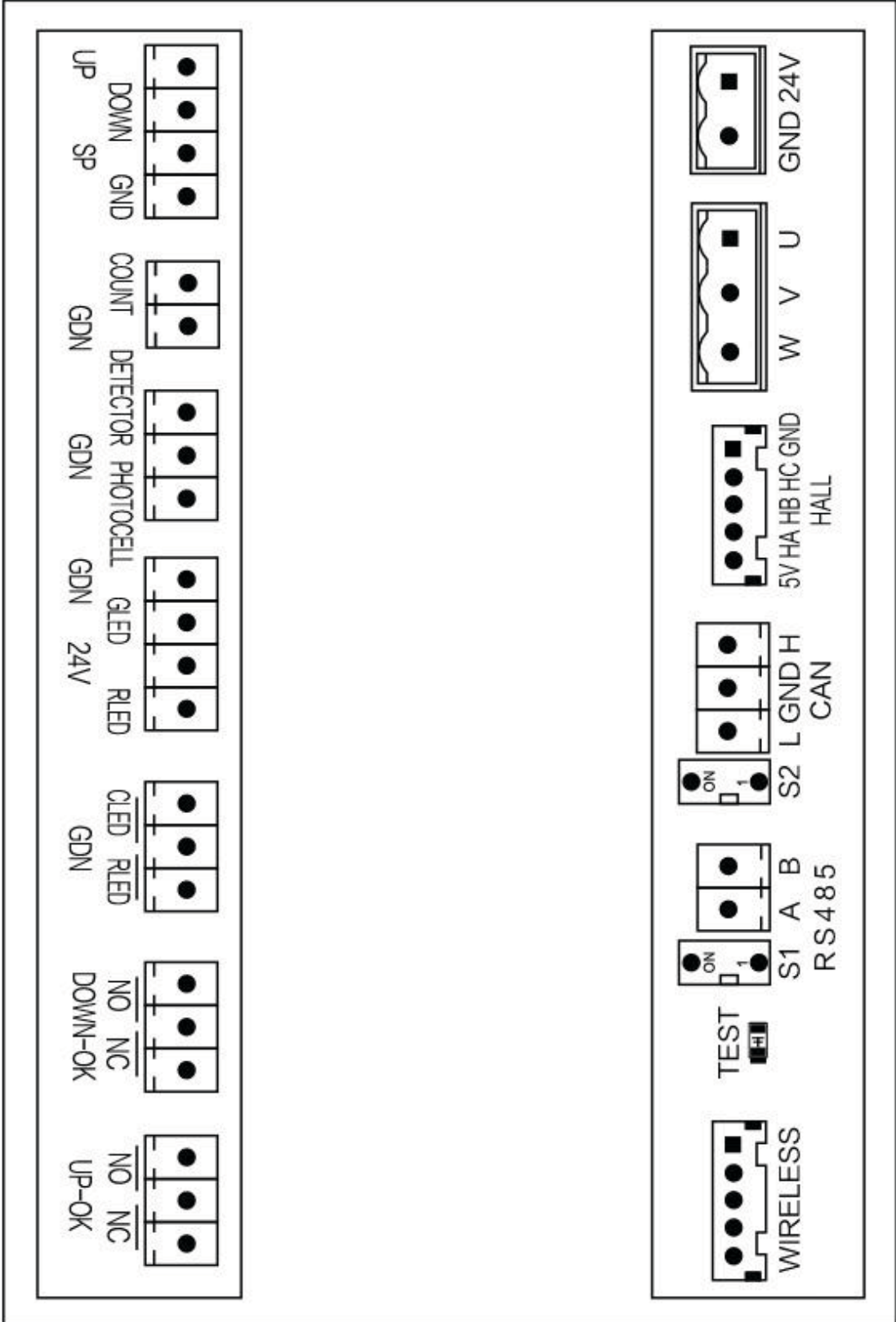
To calibrate the position of the barrier arm (for example, after applying excessive force), proceed as follows:

First determine the horizontal and vertical state of the brake lever, then tighten 1 M12 locking screw on the swing arm, then lock the 2 M8 screws on the upper side of the anti-skid device, and finally lock the M10 screw on the anti-skid device to adjust horizontally. Done!

7.2 Electrical installation, wiring diagram

1. The internal wiring of this machine has been completed when it leaves the factory, please do not change it, just connect the 220V power supply and the protective ground wire to work.
2. Traffic light interface: 2A 24V voltage traffic light use.
3. Infrared anti-smashing interface: external infrared anti-radiation device, and the switch signal of the anti-radiation output can be connected.
4. Ground sense interface: support external ground sense. When using an external ground sensor, you only need to connect the switch signal output by the ground sensor.
5. Parking system interface wire control interface: connect the switch signal from the system to this interface to control the barrier.
6. Starting limit and landing limit signal output: output COM/NO/NC switch signal to the system to inform the current state of the barrier.
7. RS485 or CAN communication interface: PC software can be used to manage more than 15 barriers.





Function setting description:

When setting the function, please press the menu button on the control panel. The Nixie tube displays H00-00 or H00-other numbers. We correspond to the function parameter table code to enter the required function parameter setting. For example, H00-00 is the UP ARM speed adjustment, and then press the confirm button Enter the parameter setting, the number will be displayed on the digital tube, then press the up or down key to set the required UP ARM speed number, and then press the confirm button to complete the ARM-up speed setting.

The other function settings are the same as the example settings.

7.3 Function setting parameter table

Menu code	Parameter Scale	Parameter name	Default	Unit	Remark
H00-00	25-95	Open speed adjustment	35		Corresponding PWM duty cycle 25%-95%, step size is 1
H00-01	25-95	Close speed adjustment	35		Corresponding PWM duty cycle 25%-95%, step size is 1
H00-02	5-40	Open in place decelerate angle	35		The larger the angle value, the less likely it is to shake the arm when it is in place.
H00-03	5-40	Close in place decelerate angle	35		The larger the angle value, the less likely it is to shake the arm when it is in place.
H00-04	1-20	Open accelerate adjustment	1	ms	The smaller the number, the faster the speed
H00-05	1-20	Close accelerate adjustment	8	ms	The smaller the number, the faster the speed

H00-06	1-30	Open in place angle	1	degree	step size is 1, when big than 11, will automatically check one side
H00-07	1-30	Close in place angle	1	degree	step size is 1
H00-08	7-13	Auto reverse force adjustment	10	A	step size is 1
H00-09	0-90	Delay closing adjustment	0	second	step size is 100; 0 is not closing automatically, Other value will be closing automatically; This parameter is for the situation that there is no loop detector signals and non-automatic operation occasions
H00-10	10-50	Self-check speed adjustment	30		Corresponding PWM duty cycle 10%-50%, step size is 1
H00-11	0-2	Self-check mode	0		0: no operate automatically; 1: operate automatically, eliminate after power off; 2: operate automatically, Power failure memory.3.intelligent automatically operation.
H00-12	0-5	Self-lock force adjustment	0		0: Invalid , 1or 2 valid
H00-13	1-20	Motor deceleration time when paused	5		The larger the setting, the longer the pause time will take
H00-14	0-1	Bid-direction setting	0		0: Closing, 1: opening
H00-15	0-2	Energy saving closing arm direction	0		0: invalid 1: close arm valid (energy saving voltage is determined by 49 items) 2: open arm valid
H00-16	1-32	RS485communication address	1		Up to 32 slaves can be connected

H00-17	0-2	RS485communication rate	0		0:9600, 1:19200, 2:38400; Change the parameter and will be valid after power on again.			
H00-18	0-2	Whether to self-check when power on	1		0: no self-check, 1: self-check; 2: self-check with remote control;			
H00-19	0-3	self-check setting	2		0: Manually invalid, 1: Keyboard SET button, 2: remote control valid, 3, Keyboard SET button and remote control both valid			
H00-20	0-15	Monitoring parameter setting index	7		0	0XD000	Rotate speed	0~2500
					1	0XD001	Motor feedback angle	0~90 degree
					2	0XD002	Busbar voltage (V)	0~40.0
					3	0XD003	Current output	
					4	0XD004	Hall state	0~7
					5	0XD005	Commutation number	
					6	0XD006	Total number of trips	
					7	0XD007	Run time(ms)	0~9000
					8	0XD008	Cumulative running times	0~99999999
					9	0xD00A	Time of automation operation	0~99999999
					10	0xD00C	Time of anti-Collision	0~99999999
					11	0xD00E	The number of times of the arm is close in place	0~99999999

					12	0xD010	Power on time(minute)	0~99999999
					13	0xD012	Power supply power on times	0~99999999
					14	0xD014	Running status	Binary display
					15	0xD015	Fault code	0~7
					19		Number of UP arm	0-65535
					20		Number of DOWN arm	0-65535
					21		Number of STOP	0-65535
					22		Number of Loop detector	0-65535
					23		Number of Photocell	0-65535
					24		Number of Camera	0-65535
H00-21	0-3	Factory data reset	0		1: Factory data rest,2:cumulative number of times cleared 3: Accumulate the number of times to clear and restore factory settings, return to 0 after execution			
H00-22	0-1	Start acceleration time constant	0		The higher the value, the slower the acceleration			
H00-23	12-30	Minimal output	10		Minimum output duty cycle of UP/DOWN arm			
H00-24	12-30	STOP key function setting			0: whenever you press pause, ARM stay in the current state 1: when close arm, press the STOP key to switch the arm to up command			
H00-25	1-20	Reserve						
H00-26	0-1	Camera count		S	0: count cleared when10 minutes time out, Not 0 is timing close arm			

		timeout(seconds)			
H00-27	0-1				
H00-28	0-3	LED light output mode			0: Do not flash alternately during operation; 1: Allow flashing; 2:Green light when UP arm on 45 Degree
H00-29	0-2	Multi function count input			0: no counting function 1: UP counting 2: Counting input 3: directly stop when the alarm input is valid 4: when the alarm input is valid, it only prompts the alarm, and run normally
H00-30	0~1	DO1 functional output			0: UP in place
H00-31		DO2 functional output	0-5		1: DOWN in place
H00-32		DO3 functional output			2: UP&DOWN in place 3: Fault input alarm(valid when 29 item set to 1)
H00-33		485 communication status control			485 communication, analog input port data
H00-34		Peak pattern	0-1		Long press remote control whether to prohibit the use of IO port; 0: No prohibition effect; 1: effective
H00-35		Peak status	0		1 or 2 : Peak pattern is effective, 3: close loop detector function (setting it when 34 item is valid)
H00-36		Beeper setup	0		0:close 1: effective

H00-37		Single stroke setting			500~1000 (In bilateral detection, see item 6 of monitoring parameters. In bilateral detection, parameters are invalid.)
H00-47		Motor type setting			0: Gear 1: Turbine vortex rod 2: Advertising machine
H00-48		Loop detector detect time constant			The smaller the setting, the more sensitive it is to the loop detector
H00-49		Energy-saving voltage of UP&DOWN arm			18.0~23.0V; over-setting will not work properly when power off
H00-50		The delay time of closing arm when loop detector invalid			how long is the delay after turnover is in place, then close arm again

Fault code:

EFF01: Hall error	Check motor or wiring connection	Generally, the motor or motor cable is not connected properly
EFF02.Under-voltage fault	The voltage is lower than 22.0V	Power supply or the battery voltage is not enough
EFF03.Over current protection	The load is too heavy or the drive board is damaged, or the motor wiring is incorrect.	Check whether the motor cable is in good contact or replace the drive.
EFF04.Locked rotation protection	The limit has not been reached in place for 5 consecutive times	Reset the limit point, or eliminate whether there is a problem with the limit device

7.4 Learning type remote control

The remote control using special IC learning code remote controller, 418MHz wireless frequency, strong anti-interference, long remote control distance, that can up to 100meters in good weather, use easily and durable. The receiver of learning code remote control can store 16 different remote control codes, and support unlimited number of same code remote control. The external receiver learned the remote control within 5 seconds when power on,press the open/close key at the same time to complete the learning, and reset to continue learn when not complete. If repeat the learning, open the external receiver shell, there is a white button on circuit board, hold down 15 seconds to delete the remote control code, continue to learn or press the white button to learn.

8.Arm length and speed comparison table

Arm length speed comparison table

1.2sec~3sec

Menu code Arm length	Open arm		Close arm	
	H00-00	H00-02	H00-01	H00-03
Octagonal boom 3m 1.2sec	70	35	70	40
Octagonal boom 4.5m 3sec	10	35	10	40

3sec~8sec

Menu code Arm length	Open arm		Close arm	
	H00-00	H00-02	H00-01	H00-03
Octagonal boom 5m 4sec	98	35	78	40
Octagonal boom 6m 6sec	80	35	80	40

(the parameter is based on the company' s arm)

9.Service Items

9.1 One year's free servicing is supplied(not including arm and remote);

9.2 Lifetime charged servicing is offered;

9.3 Technology servicing is supplied.

The following situations are charged for servicing(or changing):

9.1 Broken by the wrong installation.

9.2 Broken by improper voltage.

9.3 The surfaces of the system destroyed by wrong installation or use.

9.4 Broken by natural disaster.

9.5 Overdue.

9.6 Servicing items out of our promises.

10. Product Maintenance

10.1 Keep the barrier gate clean

10.2 Check the joints ever month in case of any loose parts.

10.3 Check the spring elasticity after the barrier gate running 3000 times.

10.4 Check the easily worn-out parts (like the spring, limit switch), every half year and renew it.

10.5 Remote control distance will be shortened or not work in case like big object screening, battery exhausting, extreme weathers.

11. Packing List

Name	Specification	Qty	Unit	Note
Hexagon screw	M12*70	2	Piece	Fixing the boom
Boom press board		1	piece	
Mounting batten		2	piece	Fixing the case
Expansion bolt	M12*150	4	unit	Fixing the case
Case Key		2	unit	
Remote controller		2	unit	
Instruction		1	piece	

Appendix

1. Infrared Photocell Installation

The installation method is as shown in Figure 9.

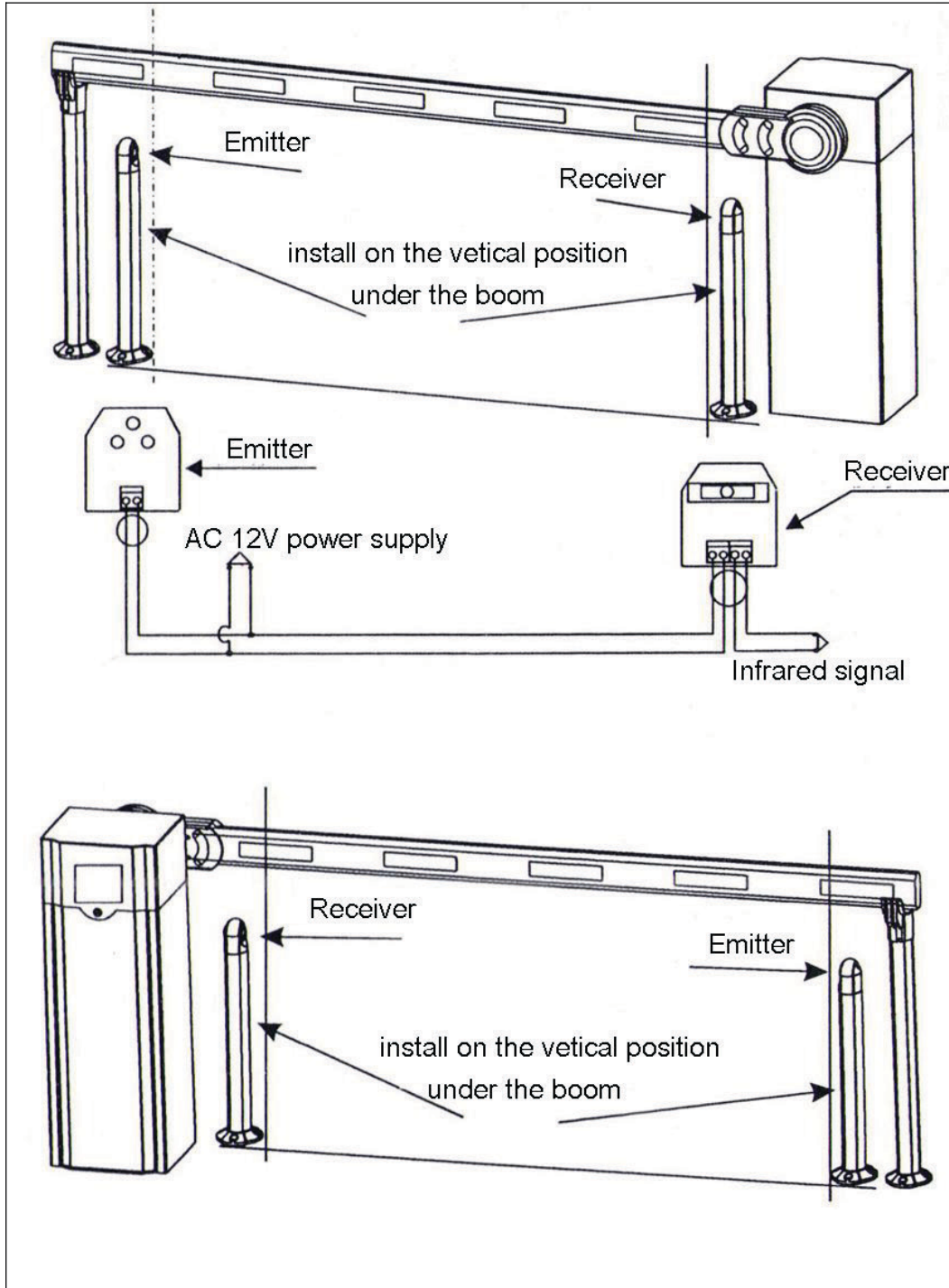


Fig.9

