ALTECH

YOUR KEY TO AUTOMATION

CB-2830

4TH GENERATION BRUSHLESS BARRIER GATE
USER'S MANUAL

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1. Product description

Thank you for purchasing the fourth generation brushless gate products of our company. This product is a typical mechatronics product with the characteristics of small volume, low noise, high efficiency, wide speed regulation and small steady-state speed error. The fourth generation reducer, special for road brake, with optional multi speed ratio, stable operation, customized gear, higher transmission efficiency and high stability, is more and more respected by the market. It adopts the latest mold design technology, die casting manufacturing technology, brushless control speed regulation technology, fast left and right interchangeability, non clutch design, more reliable quality, more convenient use, and the movement adopts gear transmission with fast speed and high speed The arc-shaped curved arm three-bar structure makes the landing rod fast and stable. Convenient maintenance and long service life.

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

Arm Type	Arm length(L)	Open/ close speed	Center height H
Straight arm	6m≤L＜5m	5S	H=0.83m，Height of arm center from ground
	5m≤L＜4.5m	4S	
	4.5m≤L＜3m	3S	
	3m≤L＜2.5m	1.2S	
90° Folding arm	L≥5m	5S	
180° Folding arm	L≥5m	5S	
Two fence arm	4.5m≤L≤4m	6S	H=0.9m，Height of arm center from ground
	4m≤L≤3m	3S	
Three fence arm	4m≤L≤3.5m	6S	H=1.5m，Height of arm center from ground

3. Features

3.1 The running speed can be adjusted from 3s to 8s

3.2 Can be quickly interchanged

3.3 Open the barrier gate by motor wheel when power off ,automatically reset after power on

3.4 Curved crank arm three- link movement structure, the operation is stable

3.5 Wireless remote control control open/close

3.6 Auto reverse function（force adjustable）

3.7 Infrared photocells connector is available

3.8 Loop detector connector is available.

3.9 Well-integrated with car parking system equipment,with wire control(must be switch signal)

3.10 Connector for traffic light(AC220V,power less than 40W)

3.11 Offering dry contact signal for car parking system(COM,NC,NO)

3.12 Auto-delay when closing(adjustable)

3.13 RS485 or CAN network communication interface（no need to install module）

3.14 Counting interface

3.15 24V backup battery interface（Can be charged by using solar energy)(optional)

4.Technical parameters

Working Temperature	−30℃~+70℃	−30℃~+70℃
Power Supply	24/100/240VAC,50/60Hz	24/100/240VAC,50/60Hz
Open/close Speed	1.2Sec to 3Sec(adjustable)	3Sec to 8Sec(adjustable)
Rated Power	160W	160W
Driving Method	Servo motor	Servo motor
Humidity	≥85%	≥85%
Remote Control Distance	≤100m (open, sunny weather)	≤100m (open, sunny weather)
Protection Grade	IP44	IP44
Motor No−load Speed	1400r/min	1400r/min
Max Boom Length	3M−4.5M	3−6M
Deceleration ratio	1:50	1:150

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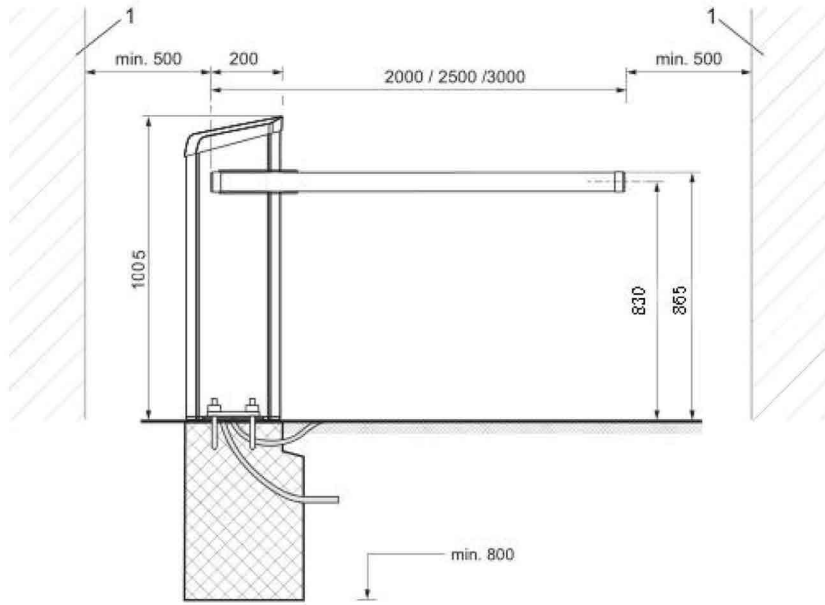_____
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5. Mechanism

5.1 Diagram of 3rd DC brushless mechanism
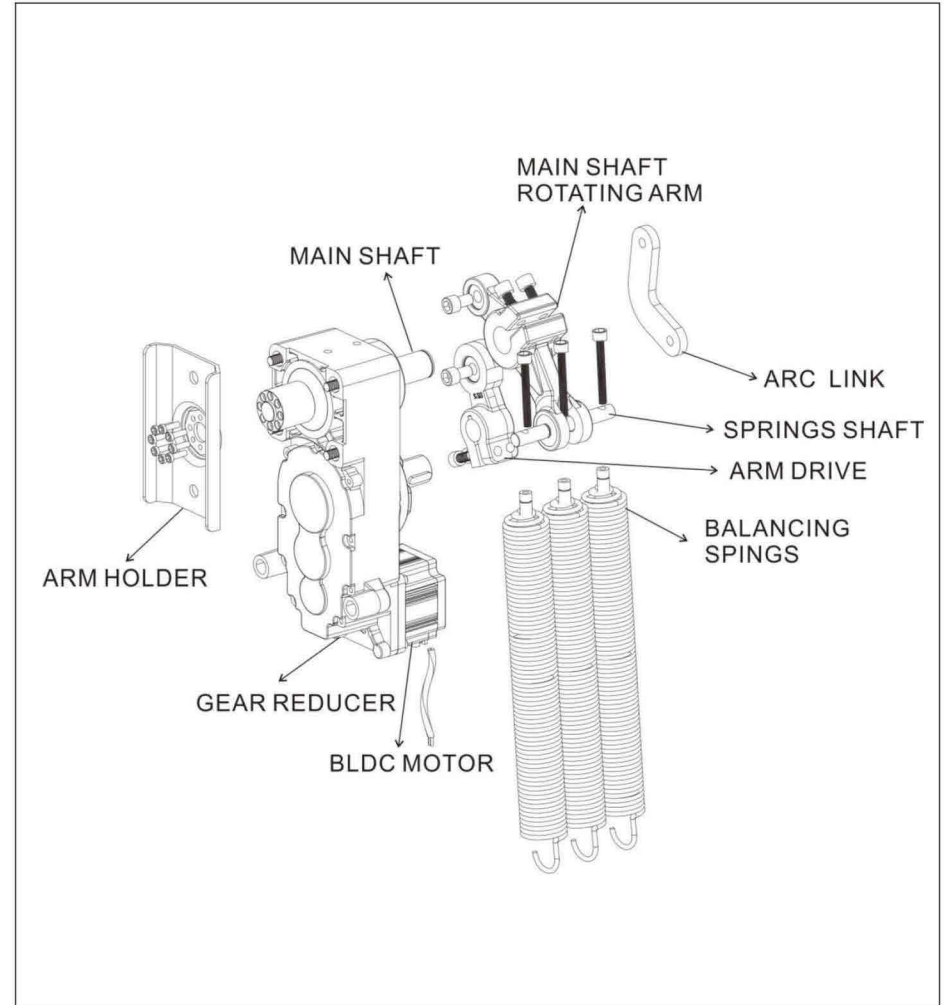
6. Installation direction definition

Arm directions definition:
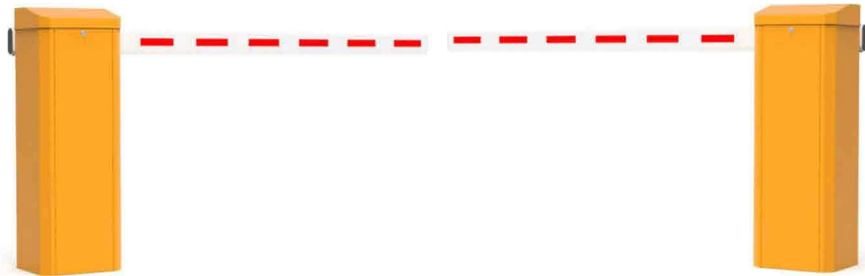
(Barrier gate fix at left side of the gate)   (Barrier gate fix at right side of gate)

Appendix

1.Infrared Photocell Installation

The installation method is as shown in Figure 9.

Emitter

Receiver

install on the vetical position
under the boom

Emitter

AC 12V power supply

Receiver

Infrared signal

Receiver

Emitter

install on the vetical position
under the boom

Fig.9

The following situations are charged for servicing(or changing):
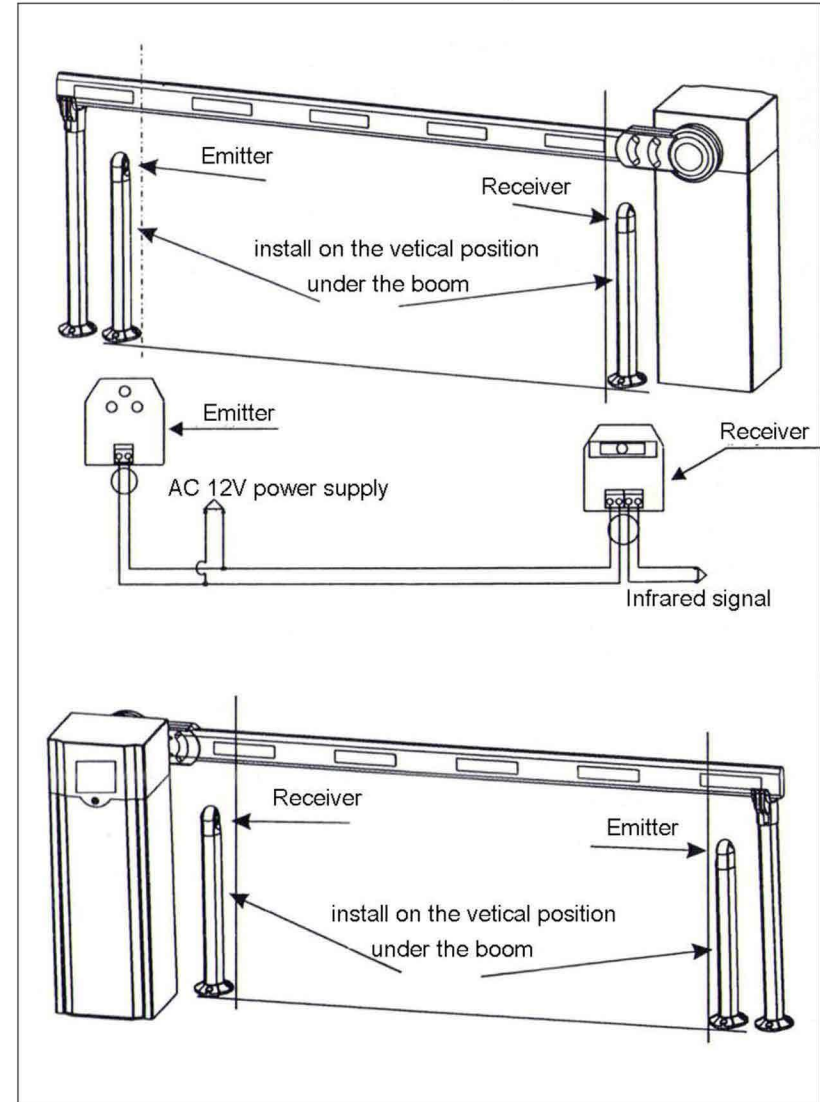
9.1Broken by the wrong installation.

9.2Broken by improper voltage.

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

9.4Broken by natural disaster.

9.5Overdue.

9.6Servicing 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	

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 pace,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.
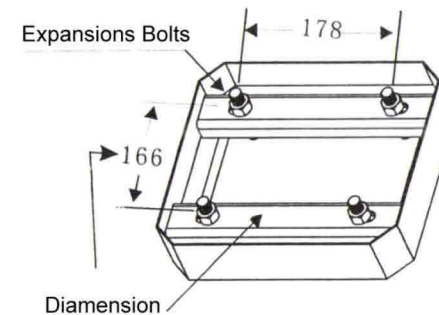
Figure 3   Press plate of case

7.2 Select and commission spring

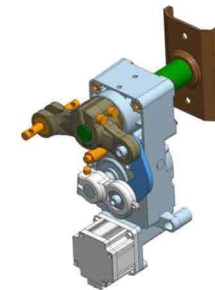7.2.1 The barrier gate is well-adjusted before delivery.For further adjustment,please follow below instructions.

A.Selection of spring

The spring is stretchable one and the specification is as follows:

Diameter   4.0MM   green color
Diameter   4.5MM   red color
Diameter   5.5MM   blue color

Diameter   6.8MM   yellow color
Diameter   7.0MM   white color

Picture 6 double spring

The spring length is subject to the actual product. Design changes will be notified separately.

7.2.2 Adjust the Position of Barrier Arm

To adjust the position of the arm (for example, after exerting excessive force), please take the steps as below:

1. open the barrier gate door and remove the cover
2. Loosen the two fastening screws of the DZ-8 on the pendulum shaft with an M12 Allen key, so that the barrier arm can be repositioned by hand.
3. Calibrate the position of the barrier arm (horizontal position, as shown in Figure 1).
4. Use a hexagon wrench to re-tighten the two fastening screws

M12 calibration position
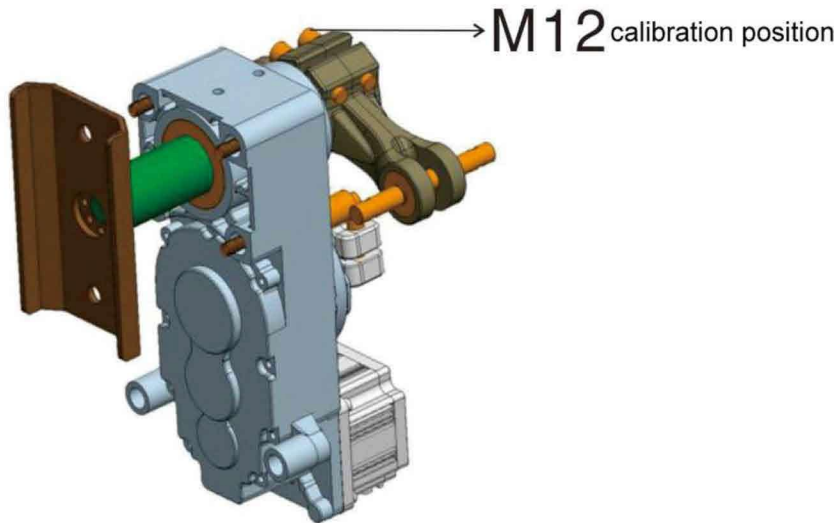
7.5.Learning type remote control

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

1．2sec~4sec

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.

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 timeout(seconds)		S	0: count cleared when10 minutes time out, Not 0 is timing close arm
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 1: DOWN in place 2: UP&DOWN in place 3: Fault input alarm(valid when 29 item set to 1)
H00-31		DO2 functional output	0-5		
H00-32		DO3 functional output			
H00-33		485 communication			485 communication, analog input port data

		status control			
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：

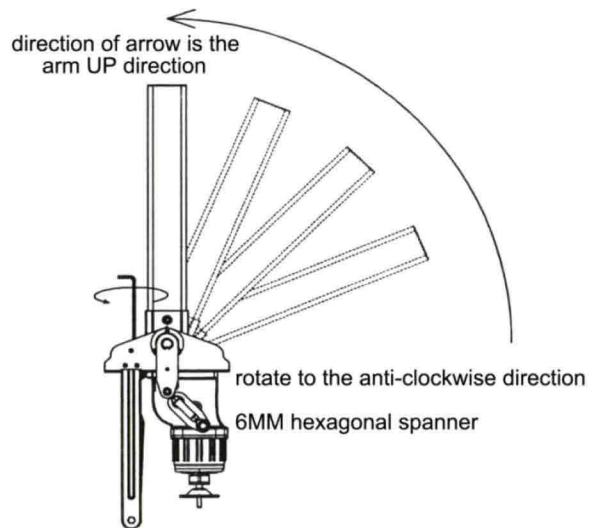|			
EFF01：Hall error	Check motor or wiring connection		Generally, the motor or motor cable is not connected properly
EFF02.Under-voltage fault	The voltage is lower than 22.0V		Power supply or the battery voltage is not enough
EFF03.Over current protection	The load is too heavy or the drive board is 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

Spring selection table

Arm type	Arm length	Spring Selection	
		Spring type	Specification（diameter*length）
Straight arm	6m	Tension spring	4.5+4.5+4.5
	5m		4.5+4.5+4.5
	4.5m		4.5+4.5
	4m		4.5+4.5
	3.5m		4.5
	3m		4.5
Two fence arm	4.5m		4.5+4.5+5.5
	4m		4.5+4.5+4.5
	3.5m		4.5+4.5+4.5
	3m		4.5+4.5
90 degree arm	5m		4.5+4.5+5.5
	4.5m		4.5+4.5+4.5
	4m		4.5+4.5+4.5
	3.5m		4.5+4.5
	3m		4.5+4.5
Three fence arm	4.5m		5.5+5.5+5.5
	4m		5.5+5.5+5.5
	3.5m		4.5+4.5+5.5
	3m		4.5+4.5+4.5

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

C、Barrier arm balance adjustment

1、Please check and confirm arm status in horizon and vertical position，then tighten 2pcs M12 screw.

2、According to arm balance status, repeat adjusting the spring level of tightness of M8*140MM, make sure the arm open and close in stable.

3、For the barrier gate with double springs,please adjust the two springs simultaneously.

4、If arm open and close shake too much, Please check below picture. Open arm shaking a lot means spring is too tight, loose a little. Close arm shaking too much means spring too lose, repeat tighten a little spring.

direction of arrow is the arm UP direction

rotate to the anti-clockwise direction

6MM hexagonal spanner

the boom fluttered when arm up,it's spring force too enough
---should to loose the spring.

rotate to the clockwise direction

6MM hexagonal spanner
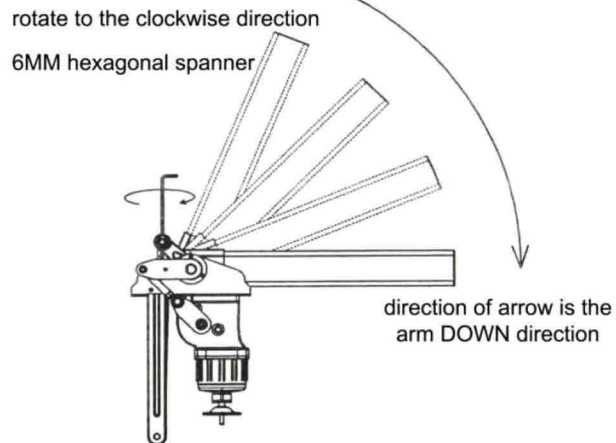
the boom fluttered when arm down,it's spring force not enough
---should to tight the spring.

direction of arrow is the arm DOWN direction

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	RS485 communication 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				
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		

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.

7.4 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	8	ms	The smaller the number, the faster the speed

		adjustment			
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

7.3 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: 2A24V 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.

Controller wiring diagram