Product Manual

Servo Barrier

CP-CPG133

Safety Precautions

To ensure your operation safety, please strictly follow the regulations stipulated in this manual.

* 1. When the barrier gate is in operation, it is strictly forbidden to open the box door or cover to avoid personal injury accidents.
* 2. The outer casing of the box must be connected to the protective ground to prevent induction electric shock.
* 3. When lowering the lever, it is strictly prohibited for anyone to stand or walk under the lever, or to place objects beneath it.
* 4. When the product leaves the factory, the brake lever and the spring have already been matched to achieve a balanced state. It is not allowed to arbitrarily increase or decrease the length or weight of the brake lever to avoid the lever losing balance and causing danger. If changes are needed, please consult a professional.

Catalogue

1.Product Basic Information

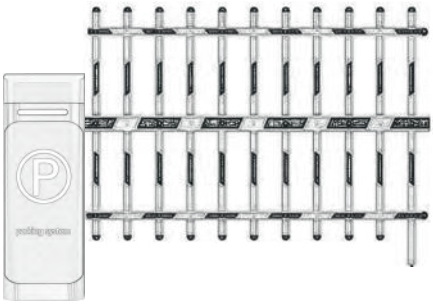
Thank you for purchasing our servo movement control gate product, which is a typical integrated mechanical device electrical product. It has a soft appearance, simple design and easy installation. The condition is stable and the service life is long. The error is very small. The new variable speed device can ensure smooth operation and high efficiency. The product adopts a new mold design die-casting technology, which is widely loved by the market. Moreover, the servo movement also has high precision and a three-in-one pulsed closed-loop, which has safer and more reliable performance. It is also a product chosen by users with strict standards for product quality.

2. Gate type length and operation parameters

Straight arm

Tow-bar railing

180° Folding Rod



Three-bar railing

90° Curved arm

Gate Arm Type	Pole length	Operationg speed
Straight arm	6≤L＜5(meters)	5S
	5≤L＜4.5(meters)	4S
	4.5≤L＜3(meters)	3S
	3≤L＜2.5(meters)	1.2S
90° Curved arm	L≥5(meters)	5S
180° Folding Rod	L≥4.5(meters)	5S
Tow-bar railing	4.5≤L≤4(meters)	6S
	4≤L≤3(meters)	3S
Three-bar railing	4≤L≤3.5(meters)	6S

◆ Core components of the servo drive system: 1. Ball screw reducer, 2. Servo motor, 3. Controller module, 4. Handle component, 5. Spring arm component, 6. Spring component.

◆ The servo drive system materials are not fixed left or right. During assembly, by mirroring and interchanging the ball screw reducer and the spring arm component, it can meet the requirements of left and right fixation.

◆ All linkage transmission mechanisms of the servo drive system adopt concealed design, making assembly convenient.

◆ The spring components of the servo drive system include two specifications of tension springs: 3 cm diameter and 24 mm outer diameter, and 4 cm diameter and 30 mm outer diameter. Up to 3 tension springs can be hung. Different spring quantities can be matched according to different rod lengths.

◆ The mechanical self-locking of the servo drive system when the lever is fully raised, and the motor applies an opposite force when the lever is fully lowered to achieve electrical self-locking. The lowered state cannot be lifted manually. In the event of power failure, the barrier arm can be manually raised, eliminating the clutch structure and hand-winding structure.

◆Highly integrated and integrated movement, with the internal linkage structure of the movement adopting a concealed design, presenting a delicate structure.

◆The core transmission component of the reducer is a ball screw pair, featuring high precision, precise assembly dimensions, and durability.

◆ The reducer is symmetrically designed on both sides, and the gear teeth on the output shaft are exactly the same, enabling the left and right sides to share the same reducer.

◆ The screw reducer is available in two specifications with different speed ratios: medium speed (85:1), and high speed (42.5:1).

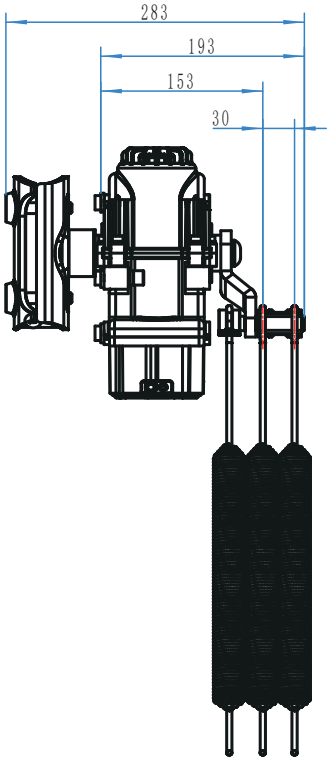
3. Motor dimensions and parameters

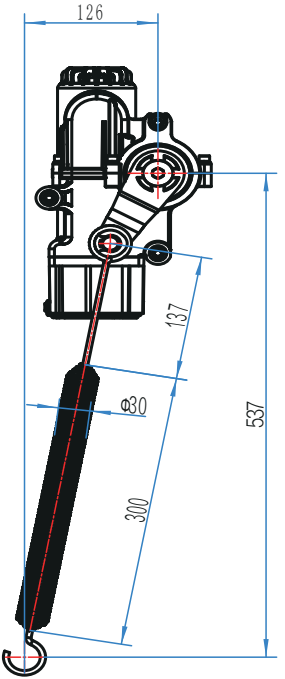
◆ HJ102 servo motor operating voltage: DC24V, rated power: 200W, rated current: 8.3A, rated speed: 900r/min, no-load speed: 1200r/min.

◆ HJ102G servo motor operating voltage: DC36V, rated power: 200W, rated current: 5.6A, rated speed: 1600r/min, no-load speed: 2000r/min.

◆ The insulation class of the servo motor is E, protection class is IP54, operating duty is S2, environmental temperature range is -40° C to 60° C.

◆ The motor has 13 pairs of poles, and the stator slot number of the motor is 24 slots.





4. Functions and Features

1. The lifting speed can be adjusted from 0.8 seconds to 4 seconds, and from 3-6 seconds.
2. The left and right positions can be quickly interchanged.
3. In case of power failure, the lifting pole can be manually lifted, and it will automatically reset upon power restoration.
4. The arc-shaped telescopic arm has a three-link mechanism, ensuring smooth lifting and lowering of the pole.
5. Wireless remote control for lifting and lowering the pole.
6. Return upon encountering resistance (the force can be adjusted).
7. Infrared beam anti-theft (requires a beam sensor device to be configured).
8. Support for ground sensor anti-theft.
9. Receive opening and closing control signals from the parking lot system (must be switch signals).
10. Red and green light interface (2A24V/220VAC, less than 40W for red and green lights).
11. Provide limit status signals to the parking lot system (output COM/NO/NC).
12. Delayed lowering function.

13. RS485 or CAN network communication interface (no additional modules required).

14. Counting interface.

15. 24V battery interface (can use solar charging) (optional).

16. Power failure lifting (add a battery storage module) (optional).

17. Anti-collision alarm device (optional).

18. Selection of normally open or normally closed ground sensor signals.

19. One pole per vehicle (fraud prevention function).

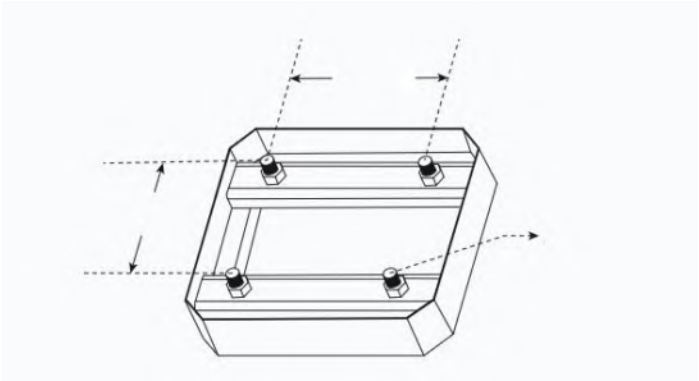
20. Fire-specific signal input.

5. Installation, commissioning and usage

5.1. Installation of the equipment section

5.1.1. Use expansion bolts to fix the machine on the ground.

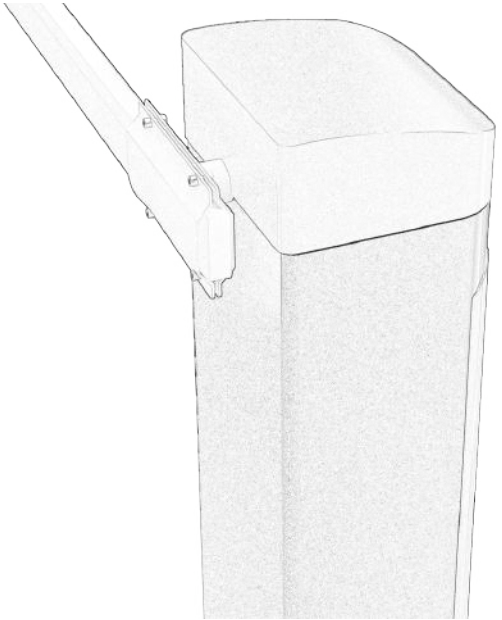
5.1.2. After determining the position, prepare the foundation for the gate according to the on-site conditions. For non-concrete surfaces, a cement foundation should be prepared in advance.



5.2. After the barrier gate is fixed, connect the power supply. You need to manually adjust the horizontal and vertical positions. This can be done by using the remote control or the buttons on the controller, or by using the control panel buttons or the ground sensing signal. During the learning process, there is no specific order for the horizontal and vertical positions. The initial learning speed is slower than the normal operation speed. After the learning is completed, the barrier gate can operate normally, or other parameters can be further adjusted to meet various usage requirements. The parameter debugging of the controller and the wiring method will not be explained in detail here. You can refer to the "Controller Manual" for more information.

5.3. Gate Rod Installation Instructions

5.3.1. Place the barrier gate in the slot, adjust it to the appropriate position, cover the cover plate and tighten the screws.



5.3.2. After the entire machine is assembled, check whether the components are tightly, accurately and firmly connected. Rotate the handwheel at the tail of the motor to lift and lower the lever once. After checking that everything is correct, power on for testing and level the lever.

5.4. Electrical Installation and Wiring Diagrams

5.4.1. The internal wiring has been completed when this machine is manufactured. Do not make any modifications. Just connect to a 220V power supply and a protective ground wire to start working.

5.4.2. Grounding/Radar Interface: Supports external ground sensing and radar. When using an external ground sensing device, simply connect the switch signal output by the ground sensing device.

5.4.3. Parking System Interface Line Control Interface: Connect the switch signals from the system to this interface to control the gate.

6. Controller parameter setting

6.1.Instructions for product installation and commissioning

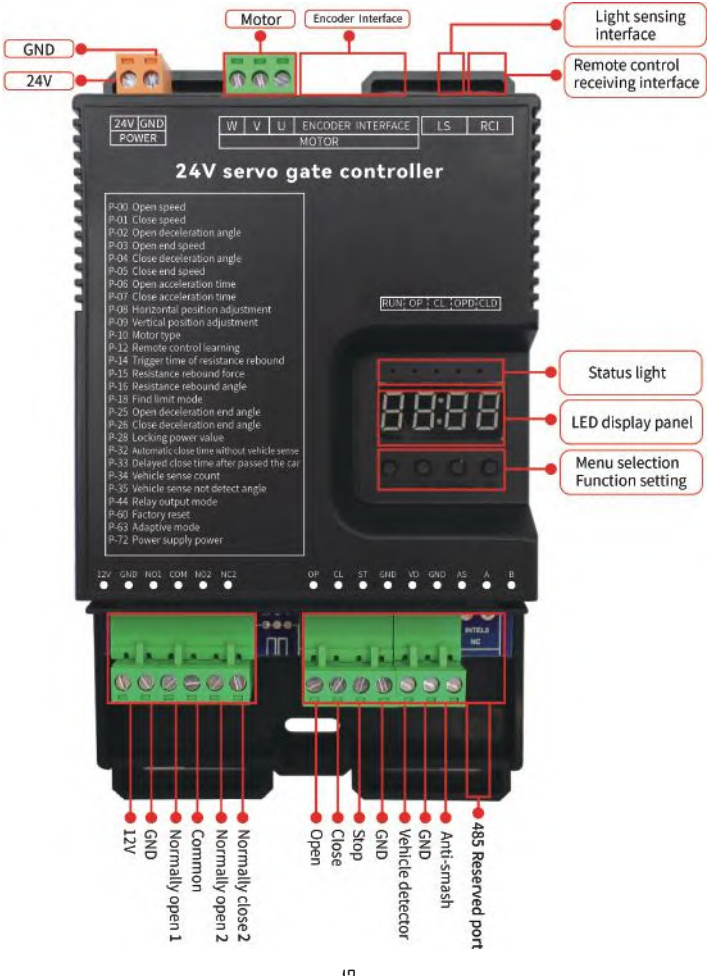
6.1.1.Main board peripheral configuration product requirements

6.1.1.1.Powersupply:24V/10A

6.1.1.2.Motor:24V servo motor

6.1.1.3.Vehicledetectoror12Vradargroundsense

6.2.The main board wiring diagram



※ Safety instructions for use

The following is about the proper use of the product, to prevent danger, to prevent damage to property, etc. Please read this manual carefully before using the equipment and strictly observe it when using it, and keep the manual properly after reading it.

Environmental requirements for use

1.Please transport, use and store the equipment within the permited humidlty and temperature ranges!

2.Do not allow anyliquids to flow into the device.

3.Instal the equipment in a well-ventilated area and do not block the ventilation openings of the equipment.

4.Do not subject the device to heavy pressure, severe vibralion or immersion.

5.Pack the equipment in the factory packaging or in materials of equivalent quality when transporting it.

6.It is recommended that the grounding hole on the equipment be grounded to improve equipment reliabilty.

Operation and Maintenance Requirements

1.Do not disassemblethis equipment privately.

2.Please use the parts or accessories specified by the manufac-turer and have them installed and maintained by professional service personnel.

3.The matching pole is not allowed to be lengthened or cut off, and it is not allowed to privately add weight to the pole.

Product Features

Safety: 24V DC power supply, to protect personal safety.

Energy saving: static power is less than 2 watts,can be connected to the maximum power of 200W motor; speed adjustable: the speed of the pole up and down independently adjustable.

Smooth working: Muli-stage speed design, make the working state performance, smooth.Quiet working noise is less than 50db.

Multi-protectlion: motor over-curent, overload, short circuit protection, motor failure protection, power reverse connection protection.

Support extemal remote controlinput.

Support various parameters can be set.

Support photosensitve swiching on the light of advertising gate.

Support windproof, anti-reezing, anti-rust and other functions.

Support various relay output modes.

Specification

Power supply	DC 24V earth 10% 10A
Motor power	maximum 200W
Static power	<2W
Open/close speed	1%-100% can be adjust
Operating ambient temperature	-40°C~80°C
Operating ambient humidity	30% ~ 80% (no condensation)

Function Catalogue

P-00 Open arm speed

P01 Close arm speed

P-02 Open arm deceleration angle

P-03 Open arm end speed

P-04 Downswing Deceleration Angle

P-05 Downswing End Speed

P-06 Take-off acceleration time

P-07 Downswing Acceleration Time

P-08 Horizontal Position Trim

P-09 Vertical position fine adjustment

P-10 Motor Type

P-11 Remote control learning method

P-12 Remote control learning

P-13 Remote control fleet mode

P-14 Trigger time for rebound

P-15 Rebound force

P-21 Manually Learning Upperand Lower Limits P-22 Take-up lever rebound buffer time

P-23 Down Lever Bounce Buffer Time

P-24 Stop buffer time

P-25 Starting bar deceleration end angle

P-26 End angle of deceleration of falling bar

P-27 Anti-smashing function

P-28 Locking power

P-29 Open position locking time

P-30 Locking time in closed position

P-31 Reverse Locking Turns

P-32 No ground sensing auto drop time

P-33 Passing delay time

P-34 Loop detector count

P-35 Loop detector non-detection angle

P-36 Loop detector trigger buzzer frequency

P-37 Loop detector signal trigger judgement time

P-38 Loop detector signal validity judgement time

P-39 /

P-40 /

P-41/

P-42 Priority for open arm

P-43 Lever Start Signal Judgement Time

P-44 Relay Output Mode

P-45 Light Sensitive Value

P-46 Light Sensitive Value

P47 Delay On

P-48 Delay Off

P-49 Ambient Temperature

P-50 Antifreeze Temperature Smell Value

P-51 Antifreeze Lift Angle

P-52 Antifreeze Lift Time Interval

P-53 Rustproof opening angle

P-54 Rustproof Lift Interval

P-55 Setting 485 baud rate

P-56 Setting 485 address

P-57 Controller master-slave mode

P-58 Number of times to close the gate automatically after manual lever up P-59 Automatic test

P-60 Restore Default Settings

P-61 Parameter Backup

P-62 /

P-63 Adaptive mode

P-64 Timeout for gate start/fall

P-65 Power failure auto start/stop voltage

P-66 Brake recoil voltage warning value

P-67 Digital display of drive voltage and drive curent

P-68 Trigger the ground-sensitive gate to pause when the pole is dropped.P-69 Power failure automatic operation function

P-70 Customised parameter setting

P-71 Over-current protection value

P-72 Power supply power

P-73 Automatic speed of pole drop without ground sensing

P-74/

P-75/

P-76/

P-77/

P-78 Auto send gate status data

P-79/

P-80 /

P-81 Adaptive mode learning limit power

P-82 Bluetooth connection

P-83 Pole lift loop detector without detecting angle

Key Description

The controller has4 butrons, from left to right are "On/+","O-fl/","Menu","Stop/Cancel"."You can set various parameters of the controller by these four keys.

"On /+": Press this button to start the lever under normal working condition, and you can use this button to increase the menu items and adjust the setting value upwards after entering thesetting state. In the parameter setting state, short press adds one each time.Long presswill continuously add to the maximum value and then start from the minimum value upwards if the long press time is longer, the continuous addition will speed up.

"OFF/". Press this button to drop the lever under normal working condition, after entering the seting state, you can use this button to reduce the menu itemsand adjust the seting value downwards. In the parameter setting state, short press to reduce one each time. If long press, it willreduce continuously to the minimum value and then start to reduce from the maximum value. If you press and hold for a longer period of time, the continuous reduction will speed up.

“Menu"This key has 3 functions.

1.Under normal working mode, press and hold this key for 3 seconds to enter the menu item selection state LED display "P-XX", then you can press "On 1+","Off -" button to select the menu item;

2.In the menu item selection state short press "menu" to enter the set parameters state;

3.After the parameter setting is finished, short press is used to save and exit.

Stop/Cancel": this key is stop function in normal operation, in the menu item selection state is to exit the setting state, in the parameter setting state, press this key will exit the state and return to the menu selection state, i.e., return to the previous menu, and at the same time, the set value is invalid. If there is no key operation within 60 seconds in the menu selection state and parameter setting state, the controller will return to the normal working state after a long beep from the buzzer.

Display

The control board has a four-digit LED display that can be used to show the operating status, parameters, menu items and other information. After power-on, it operates in low-power mode, at which time the LED display is dimmed. Pressing any key will make the LED display enter the normal working mode and the LED will be brightly displayed. If no key is pressed, it will enter the low power consumption mode after 60 seconds, the LED brightness will be dimmed to reduce power consumption.2 minutes later,if no key is pressed, the LED display will be turned off. The LED display willturn off after 2 minutes if no key is pressed.

Parameter setting

You can enter the parameter setting state by long pressing the "Menu" button for 3 seconds, the LED will display "P-XX", you can select the menu items by short pressing or long pressing the "On/+" button,"Off" button, short pressing will add or subtract one,long pressing will add or subtract continuously,"OFF /" two buttons to select the menu items,short press once plus one or minus one, long press will be continuous plus or minus.Press the "Menu" bulton again to enter the setting of the specified item, press the "Stop/Cancel" button to return to the previous level or exit the setting. When the setting of thespecified parameter is complet-ed,itmust be confirmed by pressing the "Menu" key to take effect. The parameters set by pressing "stop/cancel" key will not take effect.60 seconds without pressing the key, the buzzer on the control board will beep once to exit the setting state and return to the normal working state.

List of commands for DC Brushless Barrier Gate Controller:

Note: Some of the preset defaults have versions that differ from the defaults listed in the table.

Menu	Function	function	Default value	Range
P-00	Open arm speed	The larger the value, the faster the speedthe smaller the value, the slower the speed;when adjusting to 200 still can't reach therequired speed,you can increase P-72.(When P63 is 0 or 1,more than 100 istreated as 100; when P63 is set to 2,morethan 100 is valid)	60	10-200
P-01	Close arm speed	Same as takeoff speed	60	10-200
P-02	Open arm deceleration angle	Used to set the position at which deceleration begins during pole raising. Thisparameter is used to set the position ofdeceleration in the process of starting thelever. It is measured in angle, which means0 degree when the gate lever is in thehorizontal position, and 90 degree when itis in the vertical position. This parameterindicates that the gate bar starts todecelerate when it reaches this angle.	45	10-90
P-03	Open arm end speed	If the speed is too small, the gate will notopen in place, and if it is too large, the gatewill wobble.	10	1-80
P-04	Downswing Deceleration Angle	This parameter is used to set the position atwhich deceleration begins during poledrop. This parameter is measured indegrees,0 degreesfor the horizontalposition and 90 degrees for the verticaposition of the bar. This parameterindicates that the gate bar starts todecelerate when it reaches this angle.	70	0-80

Menu	Function	function	Default value	Range
P-05	Downswing End Speed	If this speed is used to end the drop, toosmall a drop will cause the gate to fail toclose, and too large a drop will cause it towobble. If the P-26 command sets the baldrop low speed angle and is within the validrange, it will operate at that speed in thelow speed uniformity zone.	15	1-80
P-06	Take-off acceleration time	The time it takes for the start of the take-offto accelerate to the take-off speed set byP-00(the larger the value, the longer thetime). (Unit 0.01 sec.).	30	0-255
P-07	Downswing Acceleration Time	The time it takes for the start of the dropbar to accelerate to the drop bar speed setby P-01 (the larger the value, the longer thetime).(Unit 0.01 sec.).	30	0-255
P-08	Horizontal Position Trim	The distance of the horizontal position ofthe pole from the horizontal mechani-calimit, the larger the value, the further awayand vice versa.	10	0-255
P-09	Vertical position fine adjustment	The distance of vertical position of the polefrom the vertical mechanical limit, thelarger the value the further away, and viceversa.	10	0-255
P-10	Motor Type	Value range: 0-3; default: 1. Due to the Hall polarity of the motor, thenumber of deceleration stages of the gatemovement is not the same, and there is aleft exit pole and a right exit pole. So thisparameter is used for compatibility	0	0-3

Menu	Function	function	Default value	Range
		withvarious types of motors and gates. 0:Positive motor polarity, positive gearboXpolarity 1:Positive motorpolarity,negativegear-head polarity Negative motorpolarity,positivegearhead polarity 3:Motor negative polarity,gearheadnega-tive polarity		
P-11	Downswing Acceleration Time	0:Press the switch in sequence to stop thelearning process.1: Press any switch to finish learning	0	0-1
P-12	Remote control learning	Remote control learning: Enter P-12, it willshow the number of remote controls savedthen press the switch of the remote controlin order to learn, pay attention to pressuntil the control board "drops" and releaseto press a key until the control board"drops" or the number shown on the digitaltube increases upwards. When the digitaldisplay is up,it means the learning isfinished, you can go on to learn the nextone or press the cancellation button to goback. Remote Control Delete In this menu,press "+"or "Modify the value of thelearned remote control" and click the menukey to confirm,then delete the learnedremote control behind the value	0	0-50

Menu	Function	function	Default value	Range
P-13	Remote control fleet mode	0: Normal remote control mode; 1: Remotecontrol "on";2:Normal remote controlmode; 3: Normal remote control mode1: Remote control "on" to enter fleet mode,will not process the ground sensing signalbefore manually pressing the down lever,straight up lever state;(Normal remotecontrol mode temporarily enter fleet modemethod: When the setting value is O, the remote control will not process the groundsensing signal before manually pressing thedown lever,-straight up lever state;(Normal remote control mode temporarilyenter fleet mode method: When the settingval-ue is 0. When the setting value is 0, youcan press and hold the remote control ONbutton for more than 5 seconds to enterthe fleet mode temporarily, and the buzzerwill beep for 2 seconds. The buzzer willbeep for 2 seconds.(Pressing OFF will exitthe fleet mode,and at the same time,Daoxin will be turned off).	0	0-1
P-14	Trigger time for rebound	How long does it take to judge that there isan obstruction (unit: 0.05 seconds).	5	1-40
P-15	Rebound force	The amount of resistance encountered isconsidered to be a blockage. The reboundcondition is when the club meets theresistance set by p-15 and lasts for theduration of p-14 and then the club is liftedfor a rebound.	45	1-100

Menu	Function	function	Default value	Range
P-16	Bounce angle	When the club is below the angle of thisoption, no resistance will be encounteredand 0 is to turn off the sub-function.	2	0-90
P-17	Learn Limit Speed	Setting different speeds of upper limit andlower limit, after entering the menu, thefirst setting is the speed of upper limit, thedigital tube shows "1-XX"XX means thespeed of upper limit, you can set the speedof upper limit by pressing "On/+" and"Off/", you can set the speed of upper limitby pressing "On/+" and "Off/". The speedcan be adjusted by pressing the "On/+" and"Off/" buttons. After the upper limit speedis set, press "menu key", the digital tubewill display "2-XX",then XX means thespeed of lower limit. The same can beadjusted by pressing the "on / +" and "off /"two keys to adjust the speed and finally findthe upper and lower speed limits are set tocomplete and then press the "menu" key tosave theparame-ters.Ifyou press'stop/cancel" key during the settingprocess, the set parameters will be invalid.	40	10-80
P-18	Find Limit Mode	0:Search for double limit position. 1:Search for upper limit position. 2: Searchfor lower limit position.2: Search for lower limit.	0	0-2

Menu	Function	function	Default value	Range
P-19	Manually Learning Upper Limit	After entering this setting, the digital tubewill display L-00,the lever will automaticallystart and stop in place, and display L-01, theoperation will be the same as P-21 to findthe vertical and horizontal limit positionsand after learning the horizontal position, itwill automatically return to the settingpage,which means itis successful, andthen p-18 will be set to 1 and can be used.	no	no
P-20	Manually Learning Lower Limits	The operation is the same as P-19, butreversed. Enter into the setting display L-00automatically find the lower limit positionstop in place,display L-01,the usermanually find the horizontal and verticaposition, press the first OK that is thehorizontal position, display L-02, the secondtime for the vertical position and return tothe setup page,and then set P-18 to 2 canbe used.	no	no
P-21	Manually Learning Upper and Lower Limits	After entering this setting, the digital tubedisplays L-00,and the wen machine willautomatically drop the pole first,and-display L01 when it is in place, and stopwhen it is in place, and display L-02. At thistime, press and hold the pole lifting ordropping pole, it will lift or drop the poleand then stop when it is loosened, and thenit will report the worry when it is in themechanical limit position. Users can adjusttheir own position, to determine a goodpress menu to learn a limit, the first	no	no

Menu	Function	function	Default value	Range
		time topress the menu for the vertical limit, digitaltube display L-03, the second time for thehorizontal limit, press the second time willautomatically return to the setup page, saidthe learning>success, this function is set upafter the need to set the P-18 0.		
P-22	Take-up lever rebound buffertime	Buffer time from start to finish, The time ifit is too short, it will be easy to have theinstantaneous current too big.(Unit 0.01second)	80	10-255
P-23	Down Lever Bounce BufferTime	The buffer time from down to up,The timeif it is too short, it will be easy to have theinstantaneous current too big.(Unit 0.01second)	50	10-255
P-24	Stop buffer time	The time it takes for the motor to stop fromthe starting lever or the stopping lever, if itis too big,the motor will stop slowly andsteadily, if it is too short, it will be easy tohave the instantaneous current too big(Unit 0.01 second)	60	10-255
P-25	Starting bar deceleration end angle	In the take-off motion, the pole will firstaccelerate toP00，andthenstartto-decelerate at P-02,stop decelerating at thisoption and enterinto constantspeed-motion until the end of the take-off.	90	45-90
P-26	End angle of deceleration of falling bar	During the downswing,the clubwillaccelerate to P-01, then decelerate at P-04stop decelerating at this option and moveat a constant speed until the end of thedownswing.	0	0-45

Menu	Function	function	Default value	Range
P-27	Anti-smash-ing function	If the anti-smash port signal is valid, 0:invalid,trigger anti-smash signal will notmove the pole,1:valid, trigger anti-smashsignal to start the pole in the process ofdropping the pole, 2: Anti-smash interface ismultiplexed as "open" interface function, 3:Anti-smash interface is multiplexedas"close" interface function, 4: Anti-smashinterface is multiplexed as ground sensinginterface function.interface is multiplexedas ground sensor interface function.(Afterthe anti-smash interface reuse function, theoriginal interface of this function is invalid).5:Anti smashing terminal connected toradar, distinguishing between people andvehicles(radar triggering is effective afterreceiving groundsensingsignal,radartriggering is invalid if not receiving groundsensing signal)6:Reuse the anti smashinginter-face as an"on" interface function andkeep the original "on" interface valid.	1	0-6
P-28	End angle of deceleration of falling bar	When themotorstopsinthenon-mechani-cal locking area,the springforce will pull up the pole because there isno mechanicallocking.This function iscontrolled by the controller output forlocking, which will cause the motor and theboard to be hot,so it is recommended toset it according to the actual situation, andit should not be too large. When the settingvalue is 255, it is to adapt the locking powerautomatically.	8	0-21, 255

Menu	Function	function	Default value	Range
P-29	Open position locking time	How long does it take to close the lock gatewhen the pole is opened in place.(Unit:seconds)When the setting value is 255,thelock gate is kept when it is in place, and thetiming is not done.	0	0-255
P-30	Locking time in closed position	How long it takes for the lock gate toclose when the pole is closed. (Unit:sec-ond)When the setting value is 255the lock is kept when the switch is inplace, and the timing is not done.	0	0-255
P-31	Reverse Locking Turns	If the motor is reversed for any reasonwhen the pole is raised,how-manyrevolutions are made before the lock gate isclosed.	0	0-20
P-32	No ground sensing auto drop time	The time for the pole to fall automatically-when there is no ground triggering, set to 0means there is no ground triggering andthe pole will not fall automatical-ly.(Unit:second)	0	0-255
P-33	Passing delay time	How long after the ground sensing signaldisappears, the default is 0.2 seconds.(Unit: 0.1sec)	2	0-255
P-34	Loop detector count	0:no counting of start signal, drop the pole after passing the vehicle. 1:count the start signal, the maximum-count value is 1, when the ground sense istriggered, the count will be self-sub-tractedwhen the ground sense disappears and thecount is 0, the pole will be dropped.	1	0-4

Menu	Function	function	Default value	Range
		2:Count the start signal, the maximum-count value is 2,the count is self-reducingwhen the ground sense is triggered, thecount is 0 whenthe ground sensedisappears and the count is 0. 3:Counts the start signal, the maximum-count value is 3,the count is self-salted-when the ground sense is triggered, andthe club is dropped when the ground sensedisappears and the count is 0. 4:counts the start signal,the maximum-value is 255, counts down when the groundsense is triggered, and drops the club whenthe ground sense disappears and the countis 0		
P-35	Loop detector non-detection angle	If the angle of the pole is lower than this value, the ground sensing signal will not be processed, and the pole will be dropped directly.	0	0-45
P-36	Loop detector trigger buzzer frequency	When the ground sensing is triggered, the buzzer will beep at 0,the bigger the number is, the faster the buzzer will beep.	4	0-20
P-37	Loop detector signal trigger judgement time	How long does the signal stay on for theground sensor to be triggered. (Unit:0.01seconds)	4	1-255
P-38	Loop detector signal validity judgement time	When the ground sensor is triggered, how long it still keeps triggering to consider it as a real ground sensor signal, i.e. there is a car (unit: 0.01 seconds).	4	1-255

Menu	Function	function	Default value	Range
P-39	/	/	/	/
P-40	/	/	/	/
P-41	/	/	/	/
P-42	Priority open arm	0: All control signals have the same priority in any state. 1: The highest priority is given to the starting lever, and other signals are useless when starting the lever. 2:If a vehicle has passed the ground sensor during the starting lever, the lever will start to drop immediately,instead of waiting until the gate is in position to drop the lever. 50-80: If a vehicle has already passed the ground sensor during the starting lever before it is put into position, the lever will start to drop immediately when the gate is opened to the angle of this setting value.The gate will start dropping the lever as soon as it reaches the set angle.	0	0-2 50-80
P-43	Lever start signal judgement time	The duration of the start signal is considered to be a valid start signal.(Unit:0.01sec)	5	1-255
P-44	Relay output mod	Default:0.The controller has two relays. The outputs of the relays can be set to meet different application requirements by setting the output mode. 0:Pass Light Mode(Relay 1:Disconnects when relay 1 is openin place. Relay 1 closes when it is closed in place. Relay 2: Relay 2closes when open in positionRelay 2 coses when closed inposition).	0	0-10

Menu	Function	function	Default value	Range
		1: Advertising light mode (Relay 1:Used for advertising gates to switch on/off the lights of the advertising gate according to the external light sensor. Relay 2:When relay 2 is closed in place,manually lift the pole to more than 5 degrees to close the relay, which can be used to connect to the alarm to realise the alarm. 2: Ground Sensing Mode (Relay 1: Closed when Relay 1 starts to lift the bar and closed when Relay 1 is closed in place. Relay 2: Not used) 3:Traffic light mode 1(Relay 1: Same as advertising light mode used for advertising gate, switch on/off the light of advertising gate according to the external light sensor. Relay 2:Normally closed for red light, normally open for green light.When the gate is opened in place, the relay closes and lights up green, otherwise the relay breaks and lights up red). 4:Red and green light mode 2(Relay 1: red light is closed when the gate starts to close, open when the gate is in place. Relay 2: Green light, relay closes when the gate opens and closes when the gate starts to close. 5:Pulse mode(Relay 1:close safter 1 second.Relay 2:Relay closes when gate is closed. Relay opens when gate opens.		

Menu	Function	function	Default value	Range
		6:Red and green light mode 3 (Relay 1: Same as advertising light mode, used for advertising gate.switch on/off the light of advertising gate according to the external light sensor. Relay 2:Normally closed for red light, normally open for green light. If the angle of the gate is greater than 60° , the green light will be on when the relay is closed,otherwise the red light will be on when the relay is closed). 7:Traffic light mode 4(Relay 1:Relay 1 opens when the gate is raised and closes when the gate is lowered Relay 2:Relay 2 closes when the gate is raised and opens when the gate is lowered). 8: Relay 1 is closed when the gate is closed in position,relay 2 is closed when the gate is opened in position, both relays are closed during the operation of the gate and during the intermediate pause. 9:Traffic light mode 5,Relay 1–Switching on/off the lights of the advertising gate according to the externallight sensor.Re–lay 2–Closed when the gate is closed in position, closed in all other states 10:Pulse Mode 2 Relay 1–Closes for 1 second when the gate is open,can be used as a synchronised signal for the same rise and fall. Relay 2 –Relay closes when the gate is closed. Relay opens when the gate is open.		

Menu	Function	function	Default value	Range
P-45	Light Sensitive Value	A light intensity of the current environment,the smaller the value the brighter	no	no
P-46	Light Sensitive Value	If the current ambient light intensity is greater than this value and P44 is set, a relay signal will be output.	70	0-200
P-47	Delay On	When the current light intensity is greater than P-46, how long the delay time is to output the relay signal.(Unit: second)	10	0-255
P-48	Delay Off	How long to delay switching off the relay output when the current ambient light is lower than P46.(Unit: second)	250	0-255
P-49	Ambient Temperature	This option is used to display the current ambient temperature on the digital tube.	no	no
P-50	Antifreeze Temperature Smell Value	When the temperature is low, it prevents the machine from freezing,when this function is turned on when the temperature is lower than the temperature set by this option if there is no movement within the interval P-52 then it will automatically run to the angle of p-51, and then turn off.	0	-40-0
P-51	Antifreeze Life Angle	Range:0-45 Default:0,Anti-freezing open angle When the ambient temperature drops to the temperature set by P-50 after the P-52 Anti-freezing interval command set timing time arrives, the gate will open to the angle set by this parameter, and then automatically close.If the parameter is 0,the anti-freeze function is disabled. If P-51 and p-52 are not 0 at the same time, the anti-freeze function is enabled.	0	-40-0

Menu	Function	function	Default value	Range
P-52	Antifreeze Life Time Interval	When the ambient temperature is lower than the set temperature, the timer starts,and if there is no operation during the timer time, the gate opens at the angle set by P-51 at the time interval set by the change command,and then closes automatically. If this parameter is set to 0,the anti-freezing function will be turned off.(Unit: minutes)	0	0-255
P-53	Rustproof opening angle	The angle of the anti-rust start, together with If this parameter is not 0,the controller will turn on the angle specified in this parameter after the time interval specified in the p-54 command has not elapsed, and then turn off automatical-ly.During normal operation, the starting and dropping of the gate will clear the time interval and restart the timing of the time interval. If this parameter is O, the anti-rust function will be turned off.	0	0-45
P-54	Rustproof Life Interval	If the gate is installed on the site and not activated for a long time, it may rust, so you can turn on the parameter and open the gate once after a certain time interval. The opening angle is set by the P-53 command.If this parameter is 0, the rust prevention function is turned off. Both P-53 and P-54 must not be 0 to turn on the rust prevention function. (Unit: hour)	0	0-255
P-55	Setting 485 baud rate	Set the baud rate of the control board, set parameters: 0:9600; 1:19200; 2:38400; 357600; 4:115200	0	0-4

Menu	Function	function	Default value	Range
P-56	Setting 485 address	Address of this control board on the 485 bus.	0	0-255
P-57	Controller master-slave mode	Set the master-slave mode of the control board:0: Slave Mode 1: Master Mode 0: Slave mode 1: Master mode	0	0-1
P-58	Number of times to close the gate automatically after manual lever up	When the bar is closed in place, the machine will automatically drop the bar when the manual lifting rod exceeds 10° This parameter is a few times. When the manual lifting rod and dropping rod exceeds this value, the drop rod will not be triggered again.Each normal takeoff and landing once,the cumulative automatic drop bar count will be cleared to zero. If the value is set to 255,the function is always valid without counting.	0	0-255
P-59	Automatic test	Automatic test interval. 0 means that the automatic test is closed, for automatict esting and aging test test is completed after the parameter is set to 0 to lift the automatic test. Short press the "On" button to start on/off in place auto test, long press the "On" button to start simulation of falling pole to the middle position when the pole start auto test.(Unit: second)	0	0-255
P-60	Restore Default Settings	This option has four functions: Clear Remote Control, Partial recovery parameter backup data、 Partial Restore Factory Settings and Full Restore Factory Settings.In order to prevent misuse, you need to set specific values	0	0-255

Menu	Function	function	Default value	Range
		and then press the "Menu" key to complete the operation. 5: Empty the remote control 6:Restore parameter backup data (learned remote control does not clear) 10: Restore factory settings (remote control and motor type are not restored) 15: Fully restore factory settings		
P-61	Parameter Backup	In the setting mode, long press the "Menu" button for 3S, it will automatically save all the current settings (except P-12 remote control learning)and beep twice, the digital tube will display the serial number of the saved parameters for 2 seconds and then exit.	/	/
P-62	/	/	/	/
P-63	Adaptive mode	0:Conventional mode; 1: Adaptive mode is used for initialisation limits; 2: Adaptive mode is used for both initialisation limit sand the landing bar. Both use adaptive mode.	0	0-2
P-64	Timeout for gate start/fall	Set the timeout for the gate to raise/lower the pole, if the gate raise/lower the pole beyond the set time is not in place, then the gate will automatically pause and report the raise timeout type warning (Err5)or lower the pole timeout warning (Err6)(unit seconds).	20	6-40
P-65	Power failure auto start/ stop voltage	0:Off;1:21 Trigger the automatic lever up/down voltage, this function needs to be equipped with a backup power supply, and also with the P-69 setting item,it is recommended to set it to 15.	0	0-21

Menu	Function	function	Default value	Range
P-66	Brake recoil voltage warning value	If the spring of the gate is not well matched, the motor deceleration generates a warning that the recoil voltage is too high, the buzzer will sound 5 times, and the digital tube will display ERR2, the warning will not interrupt the operation of the gate; the effect of the recoil voltage can be reduced by lowering the operating speed of the gate or by matching the balance between the spring and the pole. (unit: V). Setting a value of 0 turns off this alert warning.	32	30-40
P-67	Digital display of drive voltage and drive current	0-No voltage and current data is displayed. 1-During the process of raising and lowering the gate, the digital tube displays the driving voltage(unit:V)or driving current (unit: A),and you can switch the display of current or voltage by pressing the "Menu" button briefly under the working mode.	1	0-1
P-68	Trigger the ground-sensitive gate to pause when the pole is dropped	0:When the ground sensor is triggered during the pole drop process, the gate will start automatically. 1:When the ground sensing is triggered during pole drop,the gate stops at the current position (it can play the role of fee evasion prevention to a certain extent).	1	0-1
P-69	Power failure automatic operation function	Set the option of automatic operation in case of power failure, when the P-65 setting is not 0, when the power supply voltage is detected to be lower than the set value of P-65, the processing method of the road smell;0:no processing;1:auto-	0	0-4

Menu	Function	function	Default value	Range
		matic lever up;2:automatic lever down;3:automatic lever up in the middle of the position when the gate is in the open/close position; 4: automatic low-speed lever down in the middle of the position when the gate is in the open/close position;		
P-70	Customised parameter setting	No effect for the being	/	/
P-71	Over-current protection value	Overcurrent protection value,when the gate operating current exceeds the value, the road smell automatically stop running. If overcurrent protection occurs in the falling pole, the road gate will be treated as a rebound in case of obstruction. (Unit:0.1A)	140	20-160
P-72	Power supply power	During the operation of the gate,the maximum limitation of output power%	100	20-100
P-73	Automatic speed of pole drop without ground sensing	Groundless automatic rod speed, when set to 0is invalid,groundless automatic drop gate use p01(rod speed)as the rod running speed, when the set value is not 0, change the parameter instead of PO1(rod speed)as the rod running speed. This function solves the problem that the speed is too fast and may hit the pedestrians when there is no ground sensing automatic pole drop,you can set a relatively small parameter of the automatic pole drop speed to prevent the automatic pole drop from hitting the pedestrians.	0	0-80

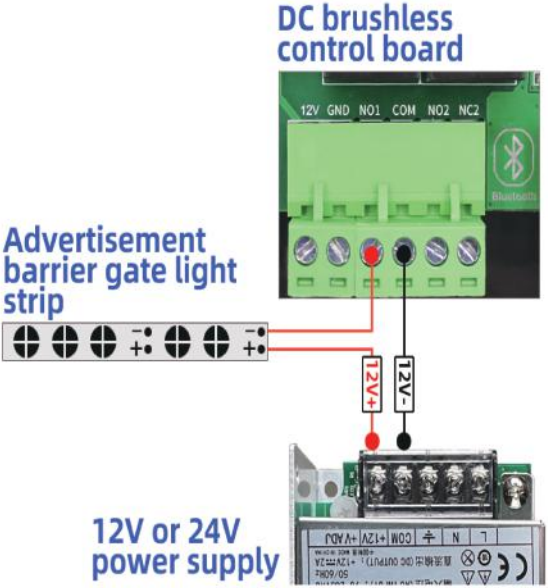
Menu	Function	function	Default value	Range
P-74			/	/
P-75			/	/
P-76			/	/
P-77			/	/
P-78	Auto send gate status data	When the setting is 1,the gate automati-cally sends out the gate status command when the road smell triggers the up/down action.	0	0-1
P-79			/	/
P-80			/	/
P-81	Adaptive mode learning limit power	In adaptive mode, learn to limit the maximum power setting; For some lowpower power supplies, if there is a learning limit during power overcurrent protection, this parameter can be reduced; For spring counterweights that are not good, the torque of the learning limit lifting/lowering rod motor is insufficient,so increase this parameter.	50	10-80
P-82	Bluetooth connection	The first time the applet connects to the motherboard via Bluetooth,please enter the P82 menu,and then connect to the motherboard Bluetooth to connect. After the applet has the connection data of the motherboard,it can be directly connected to the Bluetooth without entering the P82 menu.	/	/
P-83	Pole lift loop detector without detecting angle	When the ground sense is lower than the set angle in the process of starting the lever, the ground sense trigger is invalid.	20	0-80

Table of relationships between relay output modes and relay switch closures:

porst / Mode	Relay 1	Relay 2
0：pass-through light mode	Relay 1 opens in the open position. Relay 1 closes when closed.	Relay 2 closed in open position Relay 2 closed when in position
1:Advertising light mode	Used for advertising gates to switch on/off the advertising light according to the external light sensor.	Relay 2 closes when manually lifting the bar to more than 5 degrees after relay 2 is closed in place,can be used toconnect to analarm to achieve an alarm.
2:Ground Sense Mode	Relay 1 is closed when it starts to raise the bar and is closed when it closes in position.	Not used.
3: Traffic light mode 1	The same as the advertising light mode, used for advertising road gates to switch on/off the light of the factory road gate according to the external light sense.	Normally closed to red light, normally open to green light. The relay closes and lights green when the gate isopened in place, otherwise the relay opens and lights red
4: Traffic Light mode 2	Connect the red light, close when the road explication starts to close, and disconnect when the road gate opens in place.	Connect the green light, the relay coses when the gate opens in place, and it is disconnected when the gate starts to close.
5:Pulse Mode 1	When the gate is closed, it closes for 1 second and then disconnects.	Relay closes when the gate is closed. When the gate is opened, the relay is closed.

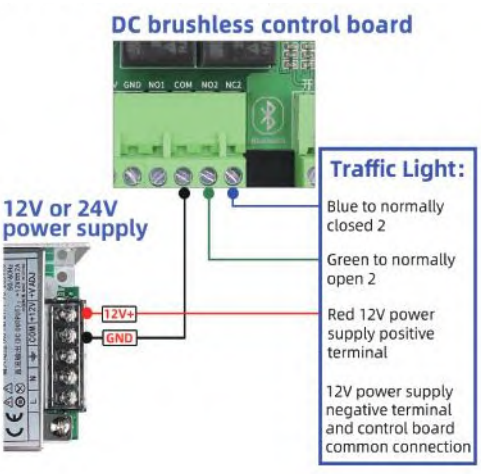
porst / Mode	Relay 1	Relay 2
6: Traffic Light Mode 3	Same as advertising light mode, used for advertising gate to switch on/off the light of advertising gate according to the external light sense.	Normally closed to red light, normally open to green light.If the gate angle is greater than 60° ,the relay closes and lights green, otherwise the relay opens and lights red.
7: Traffic light mode 4	Relay 1 opens when the gate is raised and closes when the gate is lowered	Relay 2 is closed when the pole is raised and open when the pole is lowered.
8: Gate working status mode	Closed when the gate is closed in position, disconnected when the gate is in operation and in the intermediate pause state.	It is closed when the gate is open and open when the gate is in operation or in the interme-diate pause state.
9: Traffic light mode 5	Switching on/off the lights of the advertising gate according to the external light sensor.	Closed when the gate is closed in position, closed in all other states.
10: Pulse Mode 2	When the gate is open, it closes for 1 second and (an be used as a synchronisation signal for the same start and stop.	The relay is closed when the gate is closed in position.Relay closes when the gate isopen.
11: Pulse Mode 3	Switching on/off the lights of the advertising gate according to the external light sensor	Nhen the gate is open, it closes for 1 second and can be used as a synchronisation signal for the same start and stop.

Advertising Light Wiring Diagram



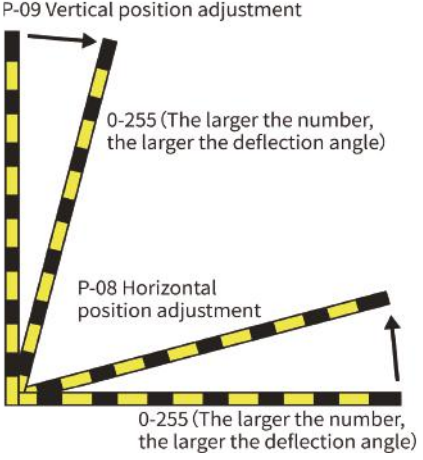
Traffic Light Wiring Diagram

(As shown in the following diagram, the wiring schematic for the common cathode strip; the common anode strip can be connected by reversing the 12V and GND of the power supply.(The following figure shows the wiring diagram of the common negative strip; thecommon positive strip can be connected by reversing the 12V and GND ofthe power supply)

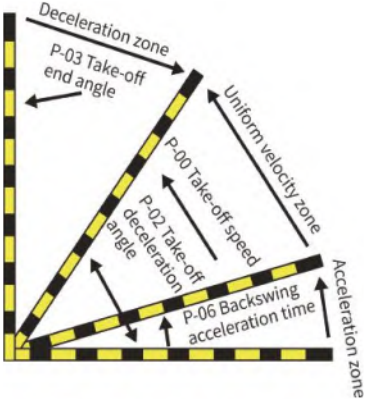


Functional diagram

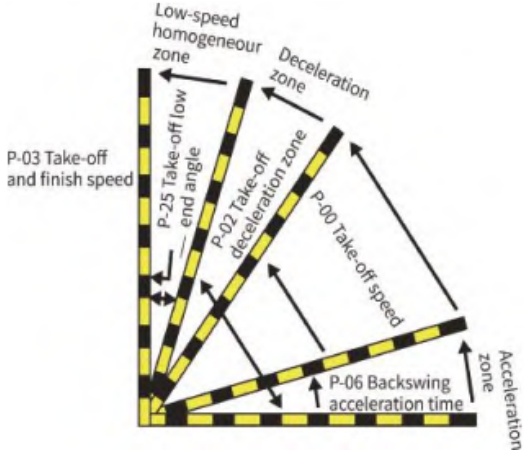
1. Diagram of horizontal and vertical position adjustment by P-08/P-09



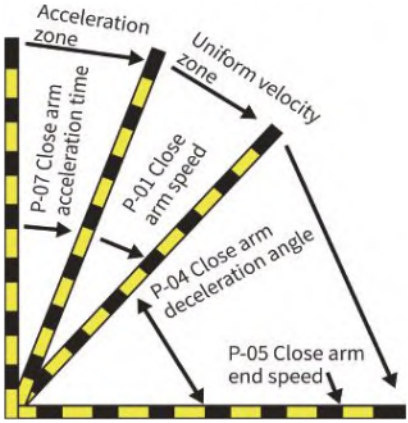
2. Schematic diagram of take-off arm without low-speed operating zone (P-25 greater than or equal to 90)



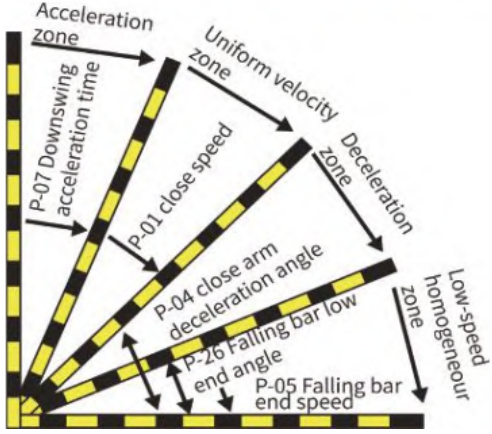
3. Schematic diagram of take-off arm with low-speed operating zone (P-25 less than 90 and P-25 greater than P-02)



4. Schematic diagram ofthe close arm without low-speed operation zone (P-26 equals 0)



5. Schematic of close arm with low-speed operating zone (P-26 not 0 and P-26 less than P-04)



7. Common Errors and Their Causes

Error code

When the controller detects an exception, the type of error is indicated by an error code display.

The details are as follows.

Error code	Cause of error
Error 0	When clearing the remote control and restoring the factory settings, it is necessary to set the correct confirmation value, and an incorrect confirmation value will prompt an ErrO error.
Error 1	Reserved
Error 2	Brake recoil voltage is too high, usually caused by the spring is not matched well and the speed is too fast, it can be solved by matching the balance of the spring and the lever, and reducing the running speed. It can be solved by matching the balance between spring and lever and reducing the running speed. You can also increase the P-66 setting to increase the trigger value.
Error 3	ReservPossible causes: spring is broken, too small starting speed, too small ending speed. You can increase the starting speed and ending speed.ed
Error 4	Possible reasons: the spring of the gate is too tight, the gate pole is not hung, the speed of the pole or the end speed of the pole is too small.Check whether the spring is too tight, whether to hang the gate pole,increase the drop speed or drop end speed.
Error 5	Take-off timeout because the take-off time is more than 15 seconds. Increase start speed and end speed.
Error 6	Take-off timeout because the take-off time is more than 15 seconds. Increase start speed and end speed.
Error 7	Motor type is incorrectly selected and can be changed to the correct type with P-10.
Error 8	Retention.
Error 9	Motor reversal due to broken spring etc. during take-off.

8. Maintenance and upkeep

1. Regularly clean the dust and debris on the surface of the box to keep the barrier surface clean.

2. Check the fasteners for looseness or detachment once a month and tighten them in time.

3. Check the spring balance state after 30,000 operations and readjust the balance.

4. Have professionals check the wear of the easily worn parts every six months and replace the worn parts in time.

5. If the remote control distance is too short, please check whether the receiver is shielded by metal objects or if the battery power is insuffi-cient. The remote control distance is greatly affected by the weather. In bad weather conditions such as rain, fog, wind, and snow, the remote control distance will be shortened, which is a normal phenomenon.

9. after-sales service

1. Free maintenance for 1 year (the barrier arm and remote control are not covered by the warranty).
2. Lifetime paid maintenance is provided.
3. Lifetime technical support is available.

※The following situations are not covered by free repair (or replace ment):

1. Product damage caused by the user's failure to install in accordance with the manufacturer's service manual;
2. Product damage caused by unstable power supply, exceeding the system's specified voltage range, and not meeting national safety standards for electricity use;
3. Damage to the system's appearance caused by improper installa tion or use by the user;
4. Product damage caused by irresistible factors such as natural disasters;
5. Beyond the warranty period;
6. Services not covered by the manufacturer's commitment.