# DC Brushless Barrier Gate

## SXK-D01 (DC24V)

## Manual



# Preface

## Symbol Stipulations

The meanings of the following symbols which may appear in this manual

| Symbols | Meanings |
|---|---|
| 危险 DANGER | Indicates that there is a high level of potential danger, if not avoided, it may cause casualties or serious injures. |
| 警告 WARNING | Indicates that there is a medium or low level of potential danger. If not avoided, it may cause minor or moderate injury to personnel. |
| 注意 ATTENTION | Indicates potential risks. If you ignore the information, it may cause equipment damage, data loss, equipment performance degradation, or unpredictable results. |
| 窍门 TIPS | Indicates that it can help you solve a problem or save your time. |
| 说明 EXPLANATION | Indicates that it is the additional information of the main text, which emphasizes and supplements the main text. |

## Revision History

| Version No. | Revision Content | Release Date |
|---|---|---|
| V1.0.0 | First Release | 2020.11 |

# Safety Instructions

The following is the correct methods of using the product, in order to prevent danger, prevent property damage, etc., please read this manual carefully before using the equipment and strictly follow it during use. Please keep the manual properly after reading.

## Operating Environment Requirements

Please transport, use and store the device within the allowable humidity and temperature range.

Please do not let any liquid flow into the device.

Please install the device in a well-ventilated place, and do not block the vents of the device.

Please do not press hard, vibrate violently or soak the equipment.

Please use the factory packaging or materials of the same quality when shipping the equipment.

It is recommended to ground via the grounding hole on the device to improve the reliability of the device.

## Operation and Maintenance Requirements




Please do not disassemble the device privately.

Please use the accessories or attachments of the manufacturer for installation and maintenance by professional service personnel.

Please do not provide two or more power supply methods to the device at the same time, otherwise the device may be damaged.

The self-contained boom is not allowed to be lengthened or cut off, and it is also not allowed to add weight to the boom privately.

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# 1. Production Overview

### 1.1. Brief Introduction

The product consists of five parts: cabinet cap, cabinet body, transmission mechanism, control unit, and boom. It distinguishes between left and right machines and is used in parking lot entrance and exit control systems.

This product is divided into three types: straight boom barrier, folding boom barrier and fence boom barrier.

**Note**: **If any customization which is not listed in the following table is needed, please consult the marketing staff.**

**Barrier Types**

| Type | Description ( Boom length = L, Seconds=S ) |
|---|---|
| Barrier Gate with Straight Boom | ●.....L≤3M, up speed 1.5S.<br>●.....L≤4M, up speed 3S.<br>●.....L≤4.5M, up speed 4S.<br>●.....L≤5M, up speed 5S.<br>●.....L≤5.5M, up speed 6S. |
| Barrier Gate with Folding Boom | ●.....L≤3M， up speed 3S.<br>●.....L≤4M， up speed 4S.<br>●.....L≤5M， up speed 6S. |
| Barrier Gate with Fence Boom | ●.....Two-levels, L≤3M, up speed 4S.<br>●.....Two-levels, L≤3.5M, up speed 5S.<br>●.....Two-levels, L≤4.5M, up speed 6S.<br>●.....Three-levels, L≤3M, up speed 5S.<br>●.....Three-levels, L≤4M, up speed 6S. |

### 1.2. Functions and Features

1.2.1. Motor driven, equipped with connecting rod transmission mechanism, balance spring, stable and reliable operation, motor life up to 2.5 million times, spring life 500,000 times.

1.2.2. With auto-reversing on obstruction functions, the boom will auto reverse when meeting obstacles.

1.2.3. Support external radar, coil, infrared anti-smashing function, built-in DC 12V power output, can be used for external radar power supply.

1.2.4. Support remote control, open and interference-free environment, the maximum distance is 50 meters.



# 2. Technical Data

2.1. Working temperature (motor): -35℃~ + 80℃

2.2. Power supply input voltage: AC110~120V, or AC200~240V

2.3. Controller input voltage: DC24V±10%, 10A

2.4. Motor power: 200W MAX

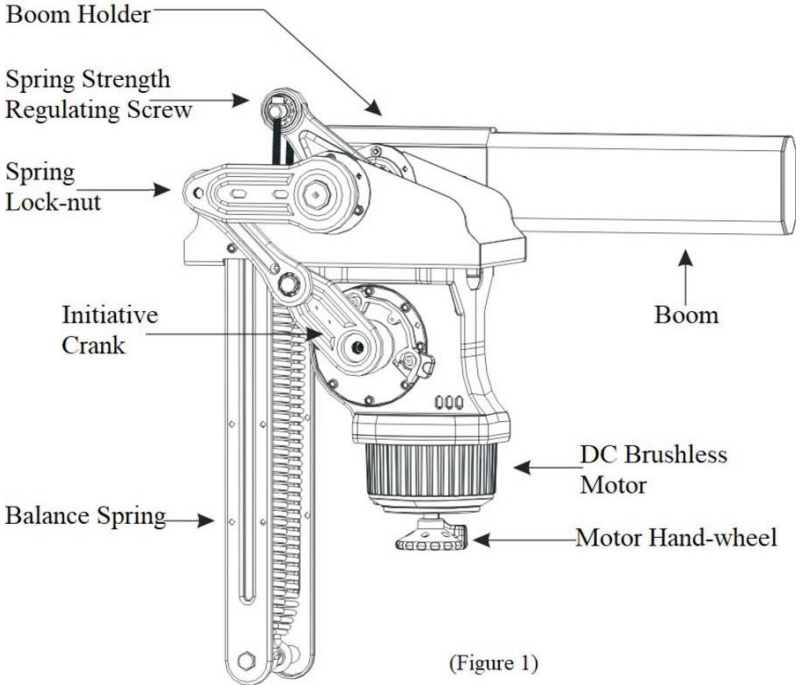
2.5. Relative Humidity: 30%~80%, No condensation

2.6. Distance of remote control: L≥30M

2.7. Insulation grade: F

# 3. Product Structure

### 3.1. Mechanism Structure

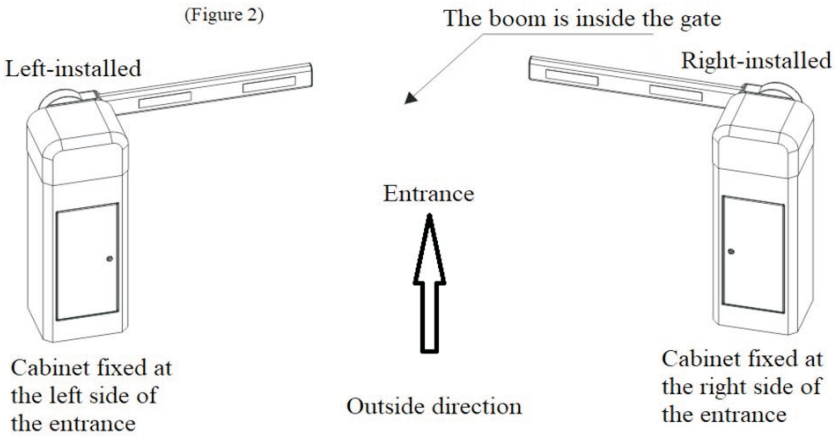



(Figure 1)

### 3.2. Installation Direction Definition

When placing the order, please confirm “left-installed” or “right-installed”. Figures as below:

(Figure 2)



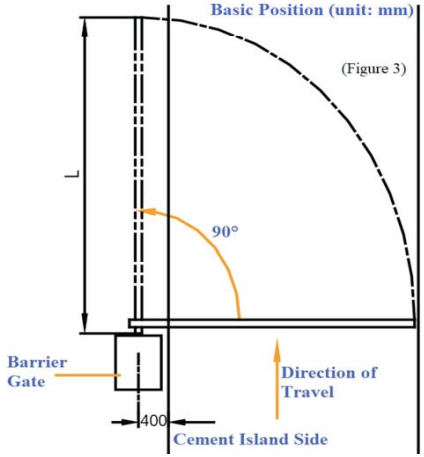

## 4. Product Installation and Adjustment

### 4.1. Preparation before Installation

**Note**: This part briefly introduces cement island location selection and construction requirements. For detailed operations, please refer to the corresponding construction manual.

#### 4.1.1 Cement island location selection

The distance between the center of the barrier cement island and the roadside should be greater than 300mm, and the boom should be able to open 90° on the vertical plane to the ground. (refer to Figure 3)

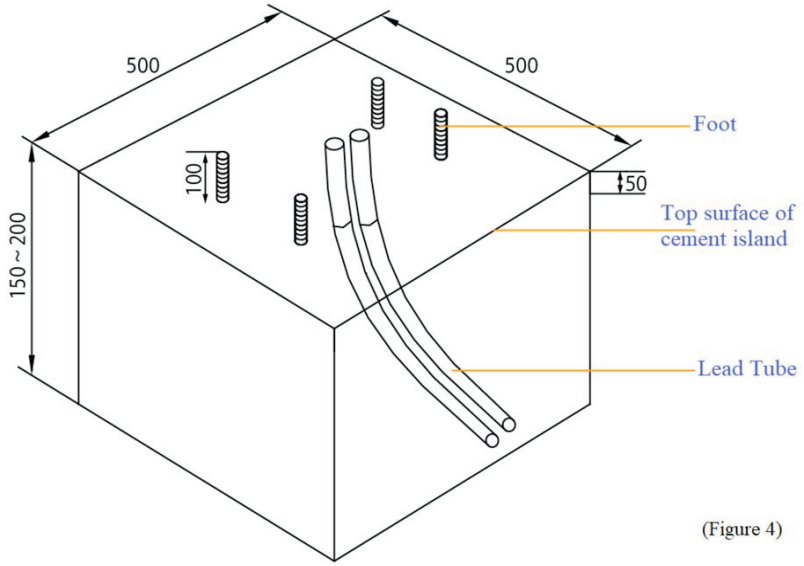



(Figure 3)



#### 4.1.2. Construction requirements for cement island

Note: The cement island construction is a necessary part of the installation, please do not ignore it. (refer to Figure 4)

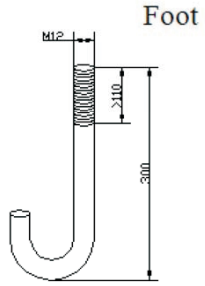



(Figure 4)

The concrete is poured into a cement island of 500mm (length) × 500mm (width), and the depth is guaranteed within 150mm～200mm. If it is not within this range, it will greatly affect the accuracy of radar detection.

The concrete adopts C15 and above.

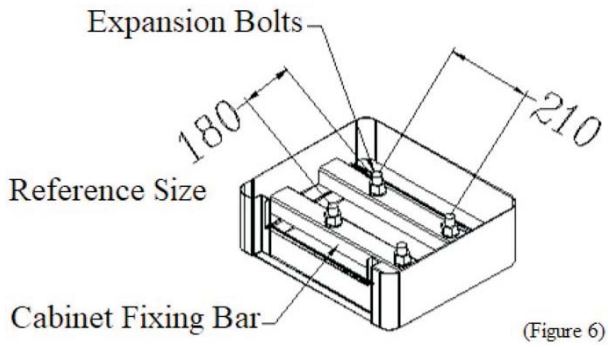
The foot is embedded, and the exposed part of the foot should be 100mm higher than the top surface of the cement island.




(Figure 5)

(Optional) If there is no embedded foot on site, the expansion bolts included in the accessory box of the barrier can be used for installation.

The drilling and installation positions should meet the requirements shown in Figure 6, which is convenient for installing the bar to fix the case.
The bolt model adopts M12 expansion bolts, the thread length should be greater than 80mm, and the total length is greater than 150mm.
The number of drilling holes is 4, and the drilling diameter is Φ16mm. The drill gun can be used to drill after the concrete cement island is hardened.



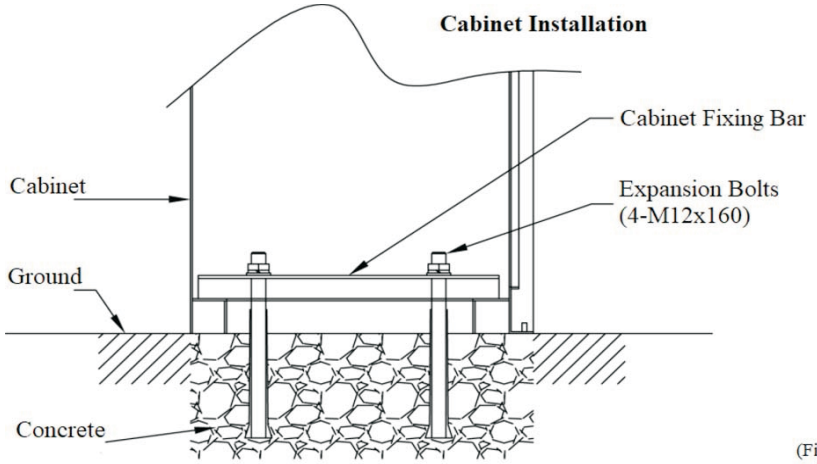
(Figure 6)

**Lead tube**: A total of two 1-inch PVC conduits are embedded in the cement island of the barrier, which respectively penetrate the power line and control signal line, and all lead to the cable hole beside the cement island.
**Site requirements**: After the boom is opened horizontally, there is no obstacle in the vertical 90° range.

### 4.2. Cabinet Installation

**Note:** The power supply must be cut off for installation.
Handle with care to avoid damaging the sprayed layer on the outer surface of the cabinet
For aesthetics, the barriers of the same lane should be in the same straight line during installation.





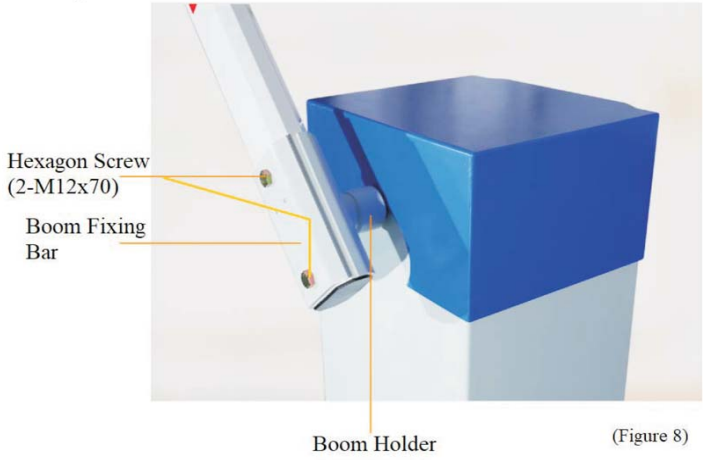
(Figure 7)

**Step 1.** Unpack the packing box and take out the barrier gate and its accessories.
**Step 2.** Place the barrier gate cabinet on the cement island so that the boom runs perpendicular to the lane (it is recommended to lay a layer of 3mm thick rubber under the box to slow down the running vibration).
**Step 3.** Use the key to open the door,put down the control panel, place the bar on the anchor bolts to press the cabinet, adjust the horizontal and vertical position of the cabinet, and then tighten the nuts with a wrench.

### 4.3 Boom Installation

**Note:** Installation Pictures for reference only, the product prevails in kind.

#### 4.3.1 Straight boom installation



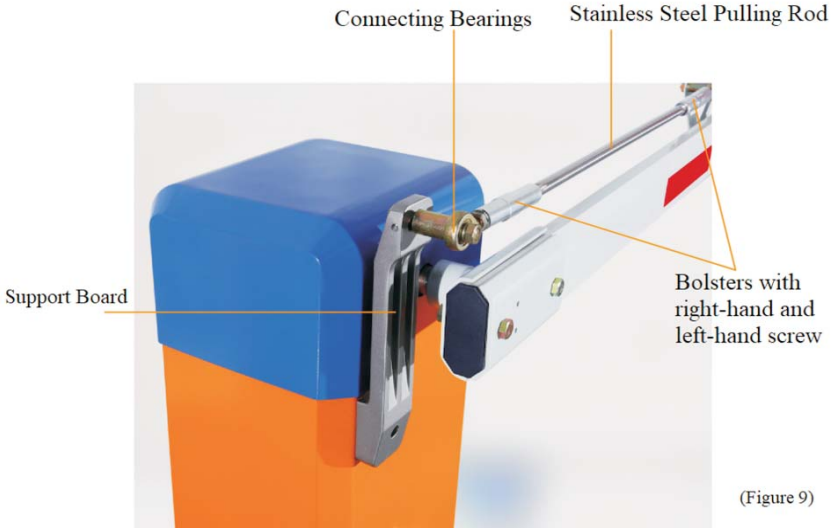
(Figure 8)

**Step 1**. Fix the boom holder press board on boom with 2pcs of M12*70mm hexagon screw.

**Step 2**. Press the board by hand, then lift up the boom vertically and install it on the boom holder.

**Step 3**. Install the flat washer, spring washer, and M12 nut on the screw in turn, and fix the screw with a wrench.

### 4.3.2 Folding Boom Installation




(Figure 9)

**Step 1**. Fix the boom holder press board on boom with 2pcs of M12*70mm hexagon screw.

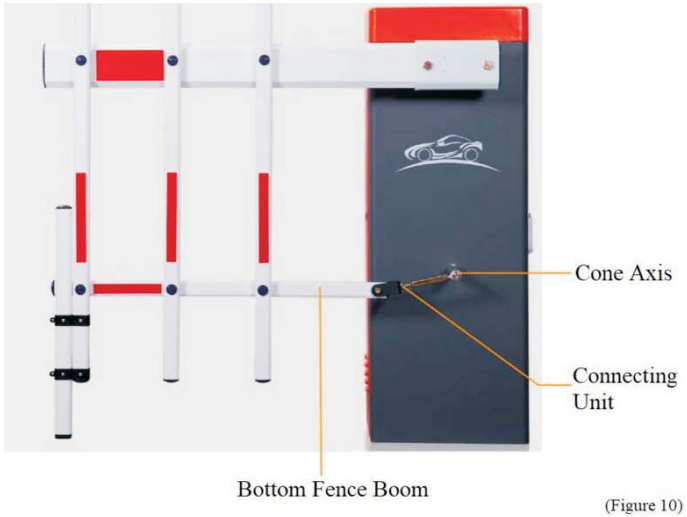
**Step 2**. Step 2. Press the board by hand, then lift up the boom vertically and install it on the boom holder. Install the flat washer, spring washer, and M12 nut on the screw in turn, and fix the screw with a wrench.

**Step 3**. Fix the connecting bearing on the support board with screw.

**Step 4**. Loosen the bolsters with right-hand and left -hand screw, rotate the stainless steel pulling rod then adjust the Horizontal and vertical of the boom; after adjustment, lock the bolsters with right-hand and left -hand screw.



### 4.3.3 Fence Boom Installation




(Figure 10)

**Step 1**. Fix the boom holder press board on boom with 2pcs of M12*70mm hexagon screw.

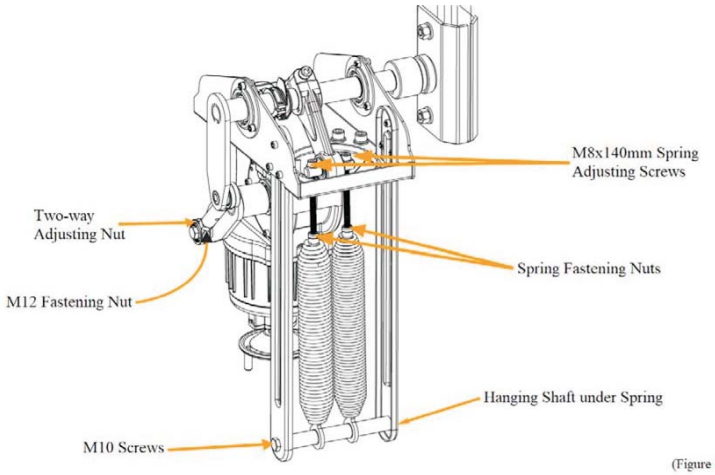
**Step 2**. Press the board by hand, then lift up the boom vertically and install it on the boom holder. Install the flat washer, spring washer, and M12 nut on the screw in turn, and fix the screw with a wrench.

**Step 3**. Fix the bearing of the connecting unit to the cone axis on barrier with screw.

**Step 4**. Fix the bottom fence to the connecting unit, then release the 2 pcs screw of the unit and adjust them to make the fence be perpendicular to the ground.

### 4.4 Spring Installation and Adjustment

**Note:** The barrier gate is well adjusted before delivery. Please do not change boom type and boom length at will. The length of springs prevails in kind, designing change without notice. Periodic maintenance of springs is required due to its wear-tear feature.




(Figure 11)

**Step 1**. Spring installation, dis-assembly and replacement

Keep the boom at vertical position, loosen the spring fastening nuts, unscrew the M8x140mm spring adjusting screws by a hexagonal spanner, then take off the spring. The steps for installation and disassemble the spring are the opposite.

**Step 2**. Spring force adjustment

When power off, please turn the motor hand wheel to make the boom move towards the closing direction, when the boom gets close to the horizontal position, if the hand wheel can not be turned smoothly, which means that the spring force is small, users need to tighten the spring; and then please turn the motor hand wheel to make the boom move towards the opening direction, when the boom gets close to the vertical position, if the hand wheel can not be turned smoothly, which means that the spring force is big, users need to loose the spring. Repeat the below operations and adjustment until the hand wheel can be turned smoothly, which mean the spring force is at balance status.

**Note**: Judging spring force by observing boom running situation also works. If boom shaking when opening, spring force is too strong. If boom shaking when closing, spring force is low.

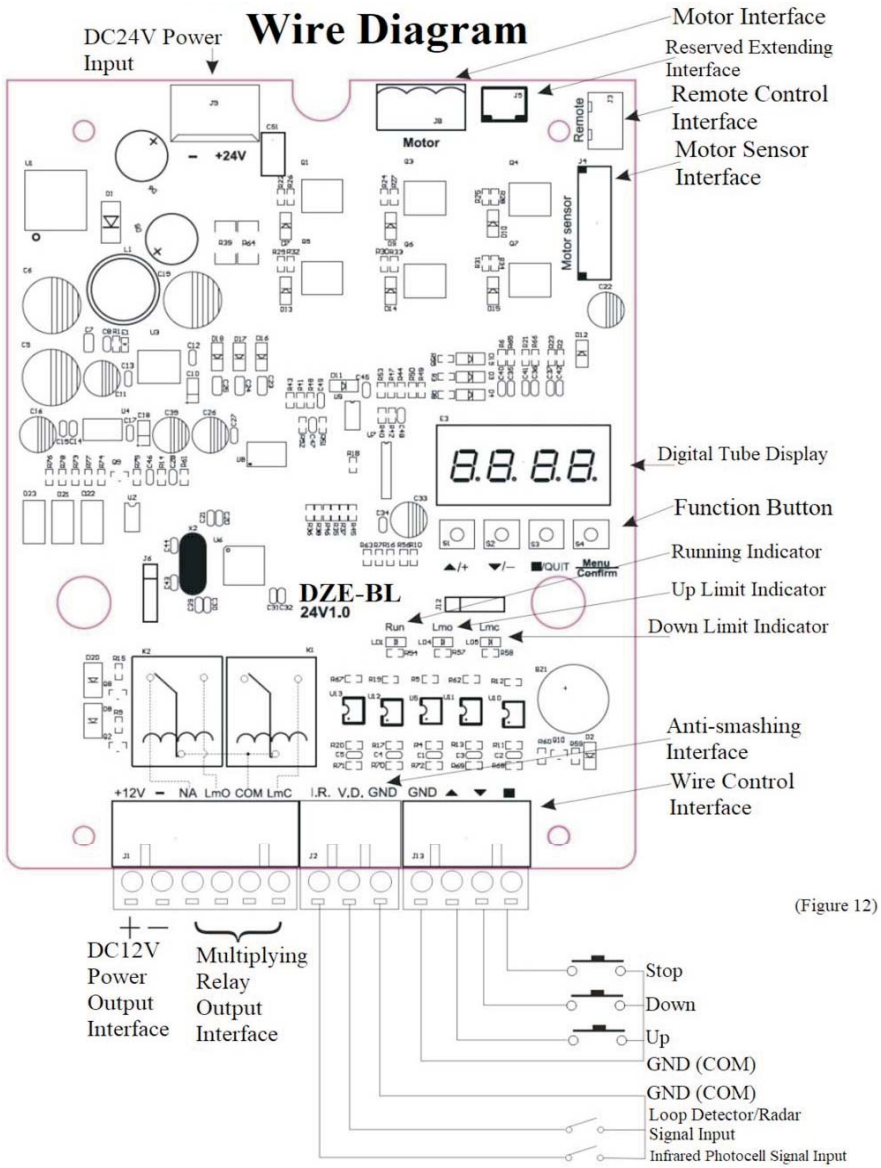
## 5. Controller Explanations and Instructions

**Note:** All the electrical connections are done before delivery. The necessity is to connect the power and grounding connection.

### 5.1. Controller Explanations

#### 5.1.1. Controller Wire Diagram






(Figure 12)

### 5.1.2. Controller Interface Explanations

| Item | Explanation |
|---|---|
| Wire Control Interface | This interface is available for parking system, also available for external controller to control barrier gate.<br>UP: Short circulate “UP” and “GND”<br>Down:Short circulate “Down” and “GND”<br>Stop:Short circulate “Stop” and “GND” |
| Anti-smashing Interface | Infrared Photocell: boom will lift up when short circulate “Infrared photocell interface” and “GND” during boom falling down.<br>Loop Detector: boom will lift up when short circulate “loop detector interface” and “GND” during boom falling down; when boom moves to up limit position, boom will fall down after these two interfaces disconnected. |
| Relay Output Interface | The relay output can be set to meet different application requirements by setting the output mode. For details, please refer to item H-16 of advanced settings. |
| DC12VPower Output | Provide 1A current output, available for radar or small light strips. |
| Indicator | Indicating barrier boom and motor running situation |
| Function Button | The 4 buttons have two working status: normal working status and menu setting status，The function of normal working status is that the“▲/+”is the opening function，“▼/-”is the closing function，“ ■/QUIT”is the stopping function，“Menu Confirm” short press has no function under normal work，Long press for 3 seconds to enter the menu setting status.In the menu setting status，“▲/+”and“▼/-” are used to adjust menu items or parameters，“ ■/QUIT”is to cancel the set value or exit the menu setting status.“Menu Confirm”is used to enter the next menu or save the set value. |



| Item | Explanation |
|---|---|
| Digital Tube | It can be used to display the working status, parameters, menu items and other information of the barrier gate. It runs in low power consumption mode after power on, and the LED display brightness is dim at this time. Pressing any button will make the LED display enter the normal working mode, and the LED will be highlighted. If there is no button, the low power consumption mode will be entered after 60 seconds, and the LED brightness will be dimmed to reduce power consumption. If there is no button after 30 minutes, the LED display will be turned off. Enter the lowest energy consumption status. |

### 5.2. Controller Menu Setting

Long press the " Menu Confirm " button for 3 seconds to enter the general menu setting status, the LED will display "F-XX". Select menu items by short press or long press "▲/+" and "▼/-" two buttons, short press once to increase or decrease by one, long press to continuously increase or decrease. When the "F-XX" item displayed by the LED is the parameter that needs to be set, press the " Menu Confirm " again to enter the setting of the specified item, and press the "■/QUIT" to return to the previous level or exit the setting. When the specified parameter setting is completed, you must press the " Menu Confirm " to confirm it to take effect. The parameters currently set by pressing the "■/QUIT" will not take effect. If there is no button within 60 seconds, the buzzer on the control panel will beep once, exit the setting status and return to the normal working status.

### 5.2.1. "Regular Menu" Command List

| Menu | Function | Defaults | Range | Remark |
|---|---|---|---|---|
| F-00 | Boom Up Speed | 40 | 10-100 | The larger the value, the faster the boom up speed |
| F-01 | Boom Down Speed | 40 | 10-100 | The smaller the value, the faster the boom down speed |

| | | | | |
|---|---|---|---|---|
| F-02 | Boom Up deceleration position | 60 | 45-80 | The angle at which the boom up starts to decelerate, unit: degree |
| F-03 | Boom Down deceleration position | 40 | 10-60 | The angle at which the boom down starts to decelerate, unit: degree |
| F-04 | Low-speed working angle of boom up | 90 | 45-100 | The angle of the last section of low-speed zone during boom up |
| F-05 | Low-speed working angle of boom down | 30 | 0-45 | The angle of the last section of low-speed zone during boom down |
| F-06 | Boom up limit position speed | 5 | 1-100 | Boom up limit position speed |
| F-07 | Boom down limit position speed | 3 | 1-100 | Boom down limit position speed |
| F-08 | Horizontal position adjustment | 15 | 1-255 | Adjustment horizontal position of the barrier gate |
| F-09 | Vertical position adjustment | 6 | 1-255 | Adjustment the vertical position of the barrier gate |
| F-10 | Delay auto-close time | 0 | 0-255 | Auto drop off time when no car passes, unit: second |
| F-11 | Open in place lock time | 0 | 0-255 | Lock the gate for a period of time after opening in place, unit: second |
| F-12 | Close in place Lock time | 0 | 0-255 | Lock the gate for a period of time after closing in place, unit: second |
| F-13 | Power-on self-learning speed | 20 | 8-80 | Find up and down limit at this speed |
| F-14 | Remote control learning | 0 | 0-60 | Learning remote control |
| F-15 | Auto-reversing on obstruction | 10 | 1-40 | Obstruction response time, unit: 0.05 second |

**5.2.2. "Regular Menu" Command Explanation:**

**F-02 Boom up deceleration position**

It is used to set the starting position of deceleration in the process of boom lifting up.



The unit of angle is 0 degrees when the barrier gate is in the horizontal position and 90 degrees when it is in the vertical position. This parameter indicates that the barrier will start to decelerate when the boom lifts up to this angle. If the boom shakes when lifting to up limit position, this parameter can be reduced.

**F-03 Boom down deceleration position**

It is used to set the starting position of deceleration in the process of boom falling down. The unit of angle is 0 degrees when the barrier gate is in the horizontal position and 90 degrees when it is in the vertical position. This parameter indicates that the barrier gate will start to decelerate when the boom falls down to this angle. If the boom shakes when falling to down limit position, this parameter can be increased.

**F-04 Low-speed running angle of boom up**

Range: 45-100, default: 90.

This parameter is invalid if it is greater than or equal to 90 degrees or less than or equal to the F-02 boom up deceleration angle. A low speed area is set during the process of boom up. When the boom up angle reaches the angle set by F-04, it will run at the end speed of F-06 boom up until the boom is lifted in place.

**F-05 Low-speed running angle of boom down**

Range: 0-45, default: 30, unit: degree.

This parameter sets a low-speed uniform speed zone during the closing process. During the gate-off process, after reaching this angle, it will run at the F-07 gate-off end speed until it is completely closed. If this parameter is set to 0 or is set to a value greater than the value set by F-03 brake deceleration angle, this function is invalid.

**F-06 End speed of boom up**

The speed for boom moves to up limit. The boom will end moving at this speed when boom lifts up. If the parameter is set too large, the gate lever will shake when it is opened. If F-04 is set to be less than 90 degrees and greater than the angle set by F-02, after lifting the brake to the angle set by F-04, it will run at the speed set by F-06 until it is fully opened.

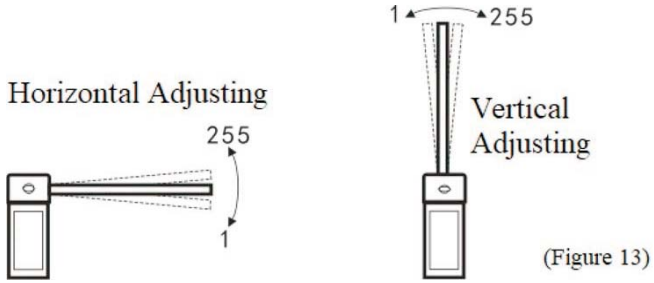
**F-07 End speed of boom down**

The speed for boom moves to down limit. The boom will end moving at this speed when boom falls down. If this parameter is set too large, the gate lever will shake when it is closed. If the parameter setting of F-05 is greater than 0, the low-speed angle of gate release is set, and F-05 is within the effective range (F-05 is greater than 0, less than F-03), then it runs at this speed in the low-speed uniform speed zone until Closed in place.

**F-08 Horizontal adjusting**

If the horizontal position of the barrier boom is uneven, this parameter can be used to

fine-tune. The larger the value, the upturn of the boom, the smaller the value, the sag of the boom. The set value is only valid when H-33 is 0 (that is, it is set to find the limit mode in the upper and lower directions), otherwise it will only be saved, and it will take effect after H-33 is set to 0 again.



(Figure 13)

**F-09 vertical adjusting**

If the barrier gate is not straight, you can fine-tune this parameter. The larger the value, the boom will lean forward, and the smaller the value, the boom will lean back. The set value is valid only when H-33 is 0 (that is, it is set to find the limit mode in the upper and lower directions), otherwise it is only saved, and H-33 is set to 0 again to take effect.

**F-10 automatic delay closing time**

Range: 0-255, default: 0, unit: seconds.

After the barrier gate is opened, if the time set by this parameter passes and the ground sensor does not detect the passing of the vehicle, it will automatically close the barrier gate. If set to 0, the barrier gate will remain open until a car passes by or the close button is pressed.

**F-11 open in place and locking time**

Range: 0-255, default: 0, unit: seconds.

0 means no lock, 255 means always lock, 1-254 is the number of seconds to lock the brake, after opening it in place, it will lock the brake for a period of time according to the set value. Release the lock when the time is up. The power of the lock is set by the H-06 parameter. The use of this parameter needs to be cautious, because there is a large current flowing through the motor and the controller when the brake is locked, too long will cause the motor and the controller to heat up, and extreme conditions may cause the motor or the controller to burn. So try to avoid the situation where F-11 is set to 255 while H-06 is set to maximum

**F-12 Closing in place and locking time**

Range: 0-255, default: 0, unit: seconds.

0 means not lock the gate, 255 means always lock the gate, 1-254 is the number of



seconds to lock the gate, after it is closed, the gate will be locked for a period of time according to the set value. Release the lock when the time is up. The power of the lock is set by the H-06 parameter. The use of this parameter needs to be cautious, because there is a large current flowing through the motor and the controller when the brake is locked, too long will cause the motor and the controller to heat up, and extreme conditions may cause the motor or the controller to burn. So try to avoid the situation where F-12 is set to 255 while H-06 is set to maximum. For barrier gates without springs, you can set F-12 to 255, which can prevent the barrier gate booms from sagging after closing in place.

**F-13 Power-on self-learning speed**

Range: 0-80, default: 40.

This command can set different speeds for finding the upper limit and finding the lower limit. After entering the menu, the first setting is the speed for finding the upper limit. The LED displays "1-XX". XX means the speed for finding the upper limit. You can press " The speed is adjusted by the two buttons of “opening/+” and “opening/-”. After the upper limit speed setting is completed, press the "menu/confirm" key, the LED displays "2-XX", and XX indicates the speed of finding the lower limit. The speed can also be adjusted by pressing the two buttons "Lift brake/+" and "Open brake/-". Finally, after the upper and lower limit speeds are set, press the "menu/confirm" key to save the parameters. If you press the "Stop/Cancel" key during the setting process, the set parameters are invalid.

**F-14 Remote control learning**

After entering the remote control learning menu item, the number of remote controls currently learned is displayed. Follow the order of on -> off -> stop. In order to ensure the reliability of learning, each button needs to be pressed for one second. After learning a button, the buzzer will beep once. After the three keys have been learned, the buzzer will beep for a long time, indicating that a remote control has learned correctly. At the same time, the LED displays the number of learned remote controls plus one. After learning a remote control, you can continue to learn the next one. If it is a learned remote control, the buzzer will beep three times in rapid succession, indicating that the remote control has been learned. The remote controller that has learned successfully will beep with a buzzer when pressing the key under normal working conditions.

Learning the remote control can be simply summarized into the following steps:

1. Enter the F-14 menu, and the LED displays the number of remote controls currently learned;
2. Press the "on" -> "off" -> "stop" sequence to press and hold the buttons of the

remote control for 1 second, press each key for 1 second, and press the buzzer to buzz;

3. Repeat step 2 to continuously learn multiple remote controllers.

4. After the learning is completed, press the "Menu/Confirm" or "Stop/Cancel" key to exit the learning.

Note: Clear the remote control in the H-09 item of the advanced menu.

**F-15 resistance rebound sensitivity**

Range 1-40, default: 10, unit: 0.05 seconds. When the resistance strength exceeds the set value of the F-16 resistance rebound strength, the timer starts, and the barrier gate rebounds after the set time.

**5.2.3. "Advanced Menu" Command List**

"Advanced menu" access method: Simultaneously long press the " Menu Confirm " and " ■ /QUIT" button for 3 seconds to enter the general menu setting status, the LED will display "H-XX".

ATTENTION The advanced menu is used by professional technicians, and general use it with caution! Do not change the menu of the serial number not listed in the table at will, it may cause abnormal operation of the barrier gate.

| Menu | Function | Defaults | Range | Remark |
|---|---|---|---|---|
| H-07 | Counting function | 1 | 0-10 | One car one count by default |
| H-08 | Automatic test | 0 | 0-5 | Automatic test interval, 0 is work normally |
| H-09 | Reset | 0 | 0-255 | 5: clear remote control<br>10: reset |
| H-16 | Relay output mode | 6 | 0-6 | For different relay applications |
| H-31 | Enter into motorcade passing mode by remote opening | 0 | 0-1 | Enter into motorcade passing mode directly by remote opening |
| H-33 | Find up or down limit mode | 0 | 0-2 | 0: Find both up and down limit<br>1: Find up limit only<br>2: Find down limit only |
| H-34 | Manually learn up or down limit | no | no | Manually learn both up and down limit |
| H-35 | Manually learn up limit | no | no | Manually learn up limit only |
| H-36 | Manually learn down limit | no | no | Manually learn down limit only |

**5.2.4. "Advanced Menu" Command Explanation:**

**H-07 Counting function**



Range: 0-10, default: 1.

In some application scenarios, the gates need to be closed with the same number of opening times as the closing times of the ground sensing relay. This function can be enabled at this time. 0 is not enabled, and the value indicates the maximum continuous memory opening times.

**H-08 Automatic test**

Range: 0-5, default: 0, unit: seconds.

The time interval of the automatic test, 0 means to close the automatic test, used for automatic test and aging test. After the test is completed, set this parameter to 0 to cancel the automatic test.

**H-09 Reset**

This option has two functions, clearing the remote control and restoring factory settings. In order to prevent misoperation, it needs to set a specific value before pressing " Menu Confirm " key to complete the operation.

5: Clear all learned remote controller

10: Restore factory settings, restore the set value to the default value, and clear all the learned remote controls at the same time.

After the operation is completed, the buzzer will beep once for success, if it fails, the buzzer will beep three times, and the LED will display "E-00" to indicate that the setting has failed. The reason is that the setting value is not 5 or 10. If there is improper setting during the setting process. You can use the factory reset function.

**H-16 Relay output mode**

Range: 0-6, default: 6.

The controller has two relays. The output of the relay can be set to meet different application requirements by setting the output mode.

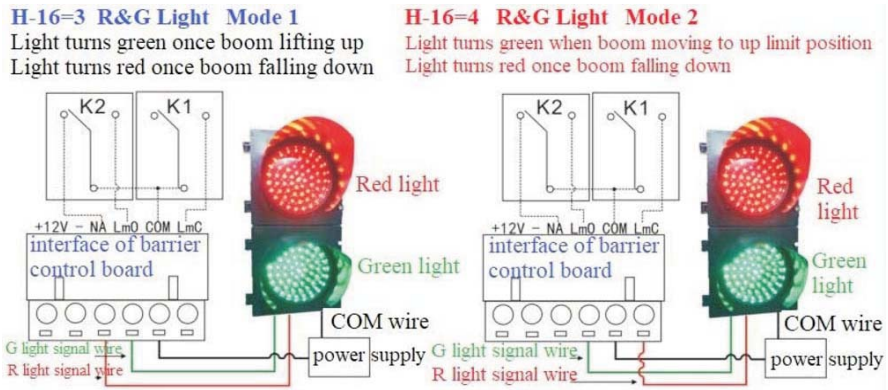
0: Boom lifting alarm mode, the open-to-position relay K2 will be output as an alarm signal. When the barrier is closed in place, if the lever is artificially lifted beyond a certain angle, the in-position relay K2 will be closed for 15 seconds as an alarm output. At this time, an external alarm can be used to alarm. After the alarm is over, the barrier will automatically start to close. The brake is restored to the closed state.

2: Loop detector mode. In this mode, the closed relay K1 is used as a signal output, which can be used as a radar or loop detector signal that needs to detect the switch state of the barrier. When the switch is opened, the switch-in-position relay K1 is closed, and when the switch is in place, the switch-in-position relay K1 is off.

3: R&G light mode 1. In this mode, the open end relay K2 is used as a R&G light control. When the boom moves to up limit position, the common COM and NA are closed, and when boom moves to down limit position, the common COM and the

open end LmO are closed. (That is, light turns green once boom lifting up, and light turns red once boom falling down.)

4: R&G light mode 2. When the boom moves to up limit position, the common COM will be connected to the open end relay K2, and the closed end relay K1 will be disconnected. When the barrier just starts to close, the common and open end relay K2 is disconnected, and the common and closed end relay K1 is closed. (That is, the light will turn green once boom moves to up limit position, and light will turn red during boom falling down and when boom falls down to down limit position)




5: Pulse mode. After the boom falling down to down limit position, the closing in position relay outputs a closing signal for 1 second. It can be used for anti-following, and can be used as an opening signal for another barrier.

6: Limit signal output mode. When the boom lifting up to up limit position, the public and open in-position relays are closed. When the boom falling down to down limit position, the public and closed in-position relays are closed, and both relays are disconnected during the lifting and falling process and when it stops. Can be used for the system to monitor the state of barriers.

**H-31 Enter into motorcade mode by remote opening**

Range: 1-1, default: 0.

If this parameter is 1, it means entering into motorcade mode by remote opening directly. At this time, the loop detector is invalid. Until the barrier is closed, the wire control or remote control can all exit the motorcade mode. Opening the gate by wire control does not enter the motorcade mode.

**H-33 Find up or down limit mode**

Range: 1-2, default: 0. After the barrier is powered on, the initial operation needs to find the limit of the barrier before it can enter the normal working mode. The



controller supports three search limit modes:

0: Both up and down limit need to be found. Press the open button and the boom will lift up. When the up limit is found, the motor will stop. Press the close button and the boom will fall down. When the down limit is found, the motor will stop. After both up and down limit are found, the controller of barrier gate enters the normal working mode.

1: Only need to find up limit to enter the normal working mode. Press open button for the first time after the controller is powered on, the boom will lift up. After the up limit is found, the controller of barrier gate will enter the normal working mode and the motor will stop. If you press close button for the first time after powering on, the boom will lift up, and the controller of barrier gate will enter the normal operating mode after the up limit is found. And then the boom will fall down in the normal operating mode.

2: Only need to find down limit to enter the normal working mode. Press close button for the first time after the controller is powered on, the boom will fall down. After the down limit is found, the controller of barrier gate will enter the normal working mode. If you press open button for the first time after powering on, the boom will fall down. After the down limit is found, the boom will lift up in the normal operating mode.

ATTENTION

1. If the mode is set to 1, you need to use H-35 for learning before using it for the first time. Or when changing the controller to other barriers, you also need to use F-35 for learning first.

2. If the mode is set to 2, you need to use the H-36 command to learn before the first use, or to change the barrier gate controller to another barrier, you also need to use H-36 for learning first.

**H-34 Manually learn up or down limit**

In order to make the adjustment of the up and down positions of the barriers more intuitive and simple. You can use this command to manually set the up and down positions of the barrier boom.

After entering the H-34 command, the LED will display L-00, and the controller will start the barrier to close. After the barrier finds the down limit position, the buzzer will beep once and the LED will change to L-01, indicating that the down limit has been found. Bit. Then the controller will automatically lift the gate. When the up limit is found, the buzzer will beep once, and the LED will change to L-02, indicating that the up limit has been found, and the barrier will enter the stop state. At this time, you need to manually learn the vertical and horizontal positions of the barriers. First press

and hold the "▼/-" button without releasing it, and the barrier boom will move towards the direction of the gate until the barrier boom is in the required vertical position. Press the "Menu Confirm" key to confirm the vertical position, and the LED displays L-03 at this time, indicating that the vertical position learning of the barrier is completed. Continue to press the "▼/-" button without releasing it until the barrier boom is at the required horizontal position. Press the "Menu Confirm" button to confirm the horizontal position, and the buzzer will beep once to indicate the completion of learning. The barrier gate controller returns to its normal working state.

If you do not reach the required position when learning the up and down position of the barrier, you can use "▲/+" and "▼/-" to adjust. If you continue to press the button after reaching the up and down limit during the adjustment process, the controller will stop the motor and make the buzzer emit a continuous "didi" sound to alarm.

If H-33 is set to 0, it can be used normally after manual learning is completed. If H-33 is set to 1, the parameters after manual learning will only be saved. And only H-33 is set to 0, the position parameters obtained by manual learning will take effect.

The parameters learned using the H-34 command will affect F-08 and F-09. After the learning is completed, the adjustment values of the horizontal position and vertical position can be observed through F-08 and F-09.

Using the H-34 command to learn the vertical and horizontal positions of the barrier is the same effect as setting the F-08 and F-09 parameters, but using the H-34 command is more intuitive.

**H-35 Manually learn up limit**

After entering the H-35 command, the LED will display L-00. At this time, the controller activates the barrier boom to lift up. After the barrier finds the up limit position, the buzzer will “di” one time and the LED will change to L-01, indicating that up limit has been found, and the barrier will stop. At this time, you need to manually learn the vertical and horizontal positions of the boom.

Firstly press and hold the "▼/-" button without releasing it, and the barrier boom will move towards the direction of the gate until the barrier boom is in the required vertical position. Press the "Menu Confirm" key to confirm the vertical position. At this time, the LED displays L-02, indicating that the vertical position learning of the barrier boom is completed. Continue to press the "▼/-" button without releasing it until the barrier boom is at the required horizontal position. Press the "Menu Confirm" button to confirm the horizontal position, a long buzzer will indicate the completion of learning, and the barrier controller will return to normal working status.

If the barrier boom didn’t reach the required position during learning, you can use "▲/+" and "▼/-" to adjust. If you continue to press the button after reaching the up and down limit during the adjustment process, the controller will stop the motor and make the buzzer emit a continuous "didi" sound to alarm.

If H-33 is set to 1, it can be used normally after manual learning is completed. If H-33 is set to 0, the parameters after manual learning will only be saved, and will take effect only when H-33 is set to 1.

**H-36 Manually learn down limit**

After entering the H-36 command, the LED will display L-00. At this time, the controller activates the barrier boom to fall down. After the barrier finds the down limit position, the buzzer will “di” one time and the LED will change to L-01, indicating that the down limit has been found, and the barrier will stop. At this time, you need to manually learn the vertical and horizontal positions of the boom.

First press and hold the "▼/-" button without releasing it, and the barrier boom will move towards the direction of the gate until the barrier boom is in the required vertical position. Press the "Menu Confirm" key to confirm the vertical position. At this time, the LED displays L-02, indicating that the vertical position learning of the barrier boom is completed. Continue to press the "▼/-" button without releasing it until the barrier boom is at the required horizontal position. Press the "Menu Confirm" button to confirm the horizontal position, a long buzzer will indicate the completion of learning, and the barrier controller will return to normal working status.

If the barrier boom didn’t reach the required position during learning, you can use "▲/+" and "▼/-" to adjust. If you continue to press the button after reaching the up and down limit during the adjustment process, the controller will stop the motor and make the buzzer emit a continuous "didi" sound to alarm.

If H-33 is set to 2, it can be used normally after manual learning is completed. If H-33 is set to 0 or 1, the parameters after manual learning will only be saved, and will take effect only when H-33 is set to 2.

**5.3 Error Code List**

When the controller detects an abnormality, it will display the error code to indicate the type of error. details as follows:

| Error Code | Error reason |
|---|---|
| E-00 | When clearing the code of remote control and restoring factory settings, you need to set the correct confirmation value. If the confirmation value is not correct, it will prompt an E-00 error. |
| E-03 | Blocking during boom up, possible reasons:the spring of the gate is broken, the opening speed is too low, and the end speed of boom up is too low.<br>Please increase the opening speed and the end speed of boom up. |
| E-04 | Blocking during boom down, possible reasons:the spring is too tight, the barrier gate boom is not assembled, the closing speed or |

| | |
|---|---|
| | the end speed of boom down is too low.<br>Check whether the spring is too tight, or whether the boom is assembled, or increase the closing speed or the end speed of boom down. |
| E-08 | During boom up, the spring breaks or other reasons causing the motor to reverse. |

**5.4 Meaning of Information Displayed by Digital Tube**

| Content | Meaning |
|---|---|
| IDLE | The related plug of the motor is not connected, or the motor sensor is faulty, or the wiring is loose |
| STOP | The barrier boom moves to down limit position. |
| CLOS | The barrier gate is closing. |
| OPEN | The barrier gate is opening. |
| HOLD | The barrier boom moves to up limit position. |
| LOCK | The barrier gate is locked. |

## 6. Common Malfunctions and Solutions

| Malfunction Phenomenon | Possible Causes | Solution |
|---|---|---|
| Display E-03/E-04 | The speed of boom up/down is too low | Increase F-00/F-01 |
| | Mechanism lag | Check whether there is a foreign body stuck in the mechanism |
| | Spring is too tight | Adjust spring tightness |
| Display E-05/E-06 | Overtime when opening/closing the barrier gate | Increase F-00/F-01 |
| E-07 error code appears at the barrier gate | The motor phase wire is not plugged in or loose | Check motor wire |
| | The motor sensor wire is not plugged in or the wire is loose | Check motor sensor wire |
| Controller display IDLE | Loose motor wiring | Re-tighten the motor wire |
| | Motor sensor failure | Replace the motor |
| The controller resets when the barrier gate is running | Short circuit inside the motor | Measure the resistance of each two wires (white, yellow and red) of the motor phase line by a multimeter, to check if the resistance numbers are the same |
| | Barrier gate controller failure | Replace the controller |
| Automatically rebound during closing | The rebound strength and rebound sensitivity are set too small | Increase F-15 |
| | Loop detector or radar error signal | Check whether the loop detector or radar signal indicator flashes by mistake |
| Boom shakes a lot at up limit position | The opening speed is high | Reduce F-06 |
| | Angle of boom up deceleration is large | Reduce F-06 and F-02 at the same time |
| Boom shakes a lot at down limit position | The closing speed is high | Reduce F-07 |
| | Angle of boom down deceleration is large | Reduce F-07 and increase F-03 at the same time |
| Remote control distance is short | The battery voltage of remote controller is too low | Replace the batteries |
| | High-voltage wires or strong electromagnetic causing serious interference near the barrier gate | Replace the high-power remote controller |
| Remote control learning failed | The remote controller does not match the receiver | Contact the manufacturer |
| | The order of the remote controller is wrong | Relearn after clearing the code of remote controller |
| Boom is not vertical after boom moves to up limit | The vertical position value of barrier controller is set improperly | Adjust the value of F-08 on the barrier controller |
| Boom is not horizontal after boom moves to down limit | The horizontal position value on barrier controller is set improperly | Adjust the value of F-09 on the barrier controller |

## 7. Warranty and Service Items

7.1. Free service is offered for component parts in one year warranty time. (not includes the barrier boom or remote)
7.2. Lifetime service with charge accordingly.
7.3. Technical questions are supported.
7.4. The below items and situations are not included in the range of free service:
7.4.1. The user does not follow the instruction and cause any damage of the product.
7.4.2. The power supply is not stable, over the range of permitted voltage or not accordant to safety electric using standard.
7.4.3. The user installs or uses the product in wrong methods, cause damage to the appearance of product.
7.4.4. Natural disaster causes damage to the product.
7.4.5. Warranty time is over.
7.4.6. Service items are out of our promises.

## 8. Maintenance

8.1. Keep the barrier gate clean.
8.2. Check the joints every month in case of any loose parts.
8.3. Check the balance status of spring after the barrier gate running 300,000 times, and readjust the balance. And change new springs after running 500,000 times (or 12 months), to avoid spring breaking due to excessive fatigue.
8.4. Check the easily worn-out parts every half year and renew it.
8.5. Remote control distance will be shortened or not work in cases like big object screening, battery exhausting, extreme weathers.

## 9. Packing List

| Name | Specification | Quantity | Unit | Application |
|---|---|---|---|---|
| Screws, Nuts, Flat Pad | M12*70 | 2 | sets | Fixing the boom |
| Boom Fixing Bar | | 1 | pcs | Fixing the boom |
| Boom Holder Plastic Cover | | 1 | sets | Optional |
| Cabinet Fixing Bar | | 2 | pcs | Fixing the cabinet |
| Expansion Screws | M16*150 | 4 | sets | Fixing the cabinet |
| Support Post | | 1 | pc | Optional |
| Radio Emitter | | 1 | pcs | Optional |
| Keys | | 2 | pcs | For cabinet door |
| Remote Controller | | 2 | pcs | |
| Manual | | 1 | pcs | |



## Appendix I. Spring Selection Table

| Boom Type | Boom Length (Meter: M) | Spring Diameter Φ (mm) | Note |
|---|---|---|---|
| Straight Boom without Rubber | 6≥L≥4.8 | Φ5.5+Φ4.5 | |
| | 4.8>L≥3.5 | Φ5.5 | |
| | 3.5>L≥2.5 | Φ4.5 | |
| Straight Boom with Rubber | 6≥L>5.3 | Φ6.8+Φ4.5 | |
| | 5.3≥L≥4.3 | Φ5.5+Φ4.5 | |
| | 4.3>L≥3.5 | Φ4.5+Φ4.5 | |
| | 3.5>L≥3 | Φ5.5 | |
| | 3>L | Φ4.5 | |
| Articulated Boom | 5≥L≥4.3 | Φ5.5+Φ4.5 | |
| | 4.3>L≥3 | Φ4.5+Φ4.5 | |
| | 3>L | Φ4.5 | |
| Fence Boom, Two-levels | 4.5≥L≥4.3 | Φ6.8+Φ5.5 | |
| | 4.3>L≥3.8 | Φ6.0+Φ5.5 | |
| | 3.8>L≥3 | Φ5.5+Φ4.5 | |
| | 3>L | Φ4.5+Φ4.5 | |
| Fence Boom, Three-levels | 4≥L≥3.8 | Φ6.8+Φ5.5 | |
| | 3.8>L≥3.3 | Φ6.0+Φ5.5 | |
| | 3.3>L≥2.5 | Φ5.5+Φ4.5 | |

| Spring Color Distinction | | | |
|---|---|---|---|
| 4.5 | 5.5 | 6.0 | 6.8 |
| Red | Blue | Green | Yellow |