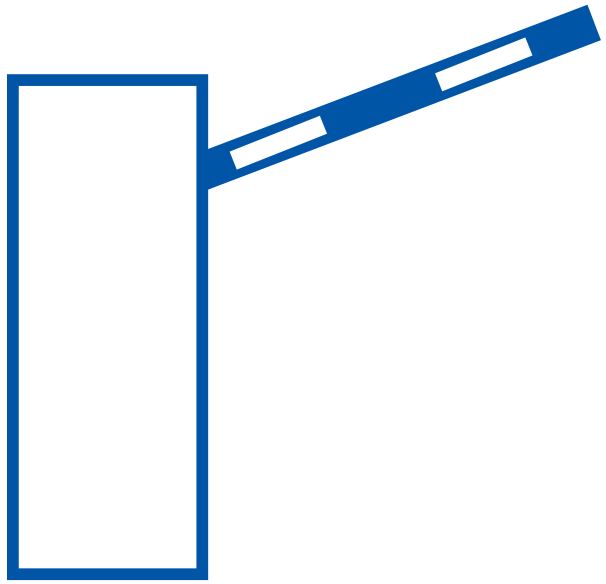
24VDC Barrier Gate
User Manual



Brief Description

Dear User:

Thanks for your trust.

Please read this user manual carefully before using barrier gates.

The manual includes: main functions (our own advantages), dimensions, parameters, main board wiring diagram, installation instructions, testing, and packing list.

The user manual can help you to know more details about barrier gate, such as mechanical working theory, using guide, matters need attention. We should use the barrier in right way to ensure the working life.

The user manual also analyzes some problems which maybe appear during using. And you can find out the way to solve each problem in the manual.

At the same time, we sincerely hope that you can give us some suggestions to make our barrier gates better and better.

Thanks!

Table of Contents

1. Mechanical features

●Nice designed cabinet: strong, waterproof, can be used outside.
●Integrative machine core: all part is made by mold, so all parts can be more accurate. And so, the barrier gate can be much more stable.
●The adoption of a precise four-bar linkage mechanism ensures the rapid and smooth operation of the boom, effectively mitigating its vibration, reducing the load on the motor, and prolonging the service life of the barrier gate.
●100W gear reduction motor: provides smooth transmission with low noise and a compact structure. It features stall protection with no impact shock, safeguarding the controller and extending its service life.
●Manual locking mechanism: in the event of a power outage, the barrier gate arm can be manually raised or lowered using the handwheel at the rear of the motor.

2. Electrical features

●High integrated level, powerful function.
●Shut down functions (motor will be shut down automatically after 6 seconds) and thermal protection functions can effectively protect our motor.
●Intelligent limited sensor to check open & close position automatically.
●Anti-smash function.
●Open and close speed are adjustable.
●With LED indicator, easier to use and maintenance.
●Imported high-power MOSFET, contactless control motor switch.
●Using imported photoelectric isolated protection circuit to ensure signals' stability.
●Support standard remote control and 250 groups can be added.
●Using imported Magnetic core transformer to ensure working performance in damping situation.

3.Safety features

●Auto bounce back function, make sure car and facilities' safety.
●Pressure sensor - Anti-crash functions: If the boom meets something during closing process, the boom will be opened automatically.
●Loop detector - Anti-crash functions: If car stands under the boom, the barrier gates cannot be close. And the barrier gates will be closed automatically when the car passes the boom.
●Open first functions: no matter the boom locates any position, it will be opened if barrier gate gets open signal.
●Plastic strips: we can install plastic strip into our boom, it can decrease accident damages.

1.Specifications

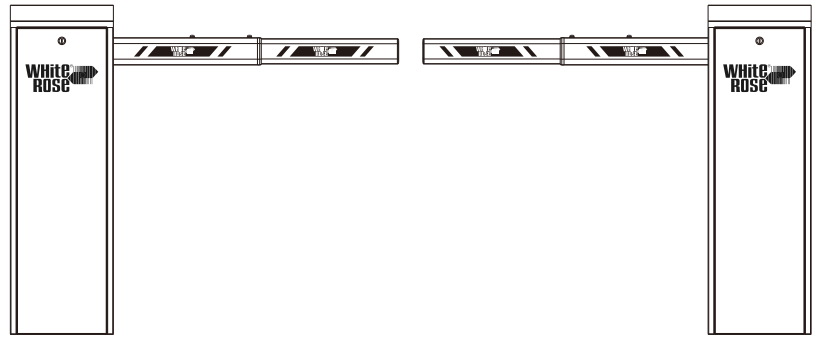
Boom type	Boom Length(M)	Open time(S)	Close time(S)	The height of boom support
Telescopic boom	≤3	1.8	2	880mm
	≤4.5	3	3.5	
	≤6	5	6	
Fence boom	≤3	3	4	
	≤5	6	6.5	

Performance Features:
1. Equipped with a 100W DC brushless motor, featuring low noise operation and capable of 24-hour continuous running.
2. Includes built-in vehicle anti-crushing protection to ensure safe passage.
3. Adopts a dual-spring design, providing a wide range of force adjustment for different barrier arm lengths and reducing the risk of spring breakage.
4. Supports convoy mode, manual button control, delayed lowering function, remote control operation, and card access activation.

2.Parameters

Voltage	DC24V
Motor power consumption	100W
Working temperature	-30℃~80℃
Humidity	≤95%
Boom length	≤6M
Open/close time	1.8S~3S/3S~6S
The height of boom support	880mm
Remote control distance	≤30M
IP	IP54
Input interface	Switch signal
Remote control frequency	430.5MHz

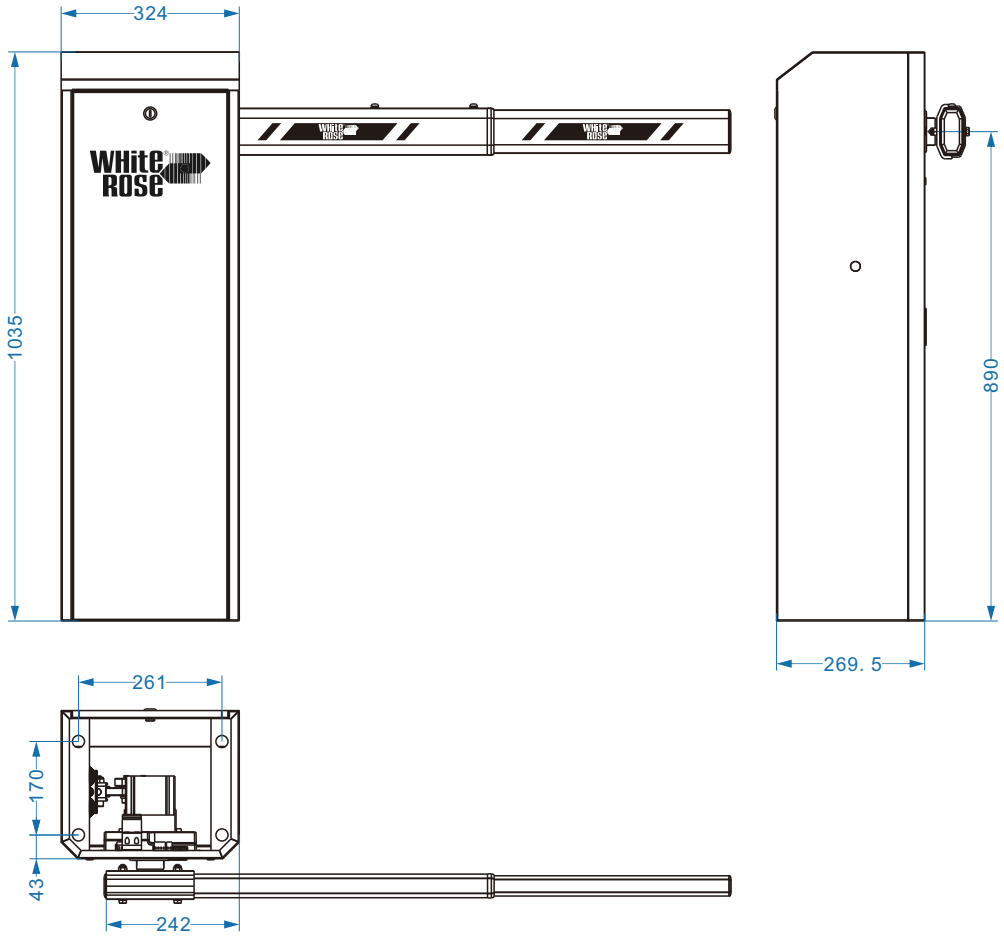
3.Direction



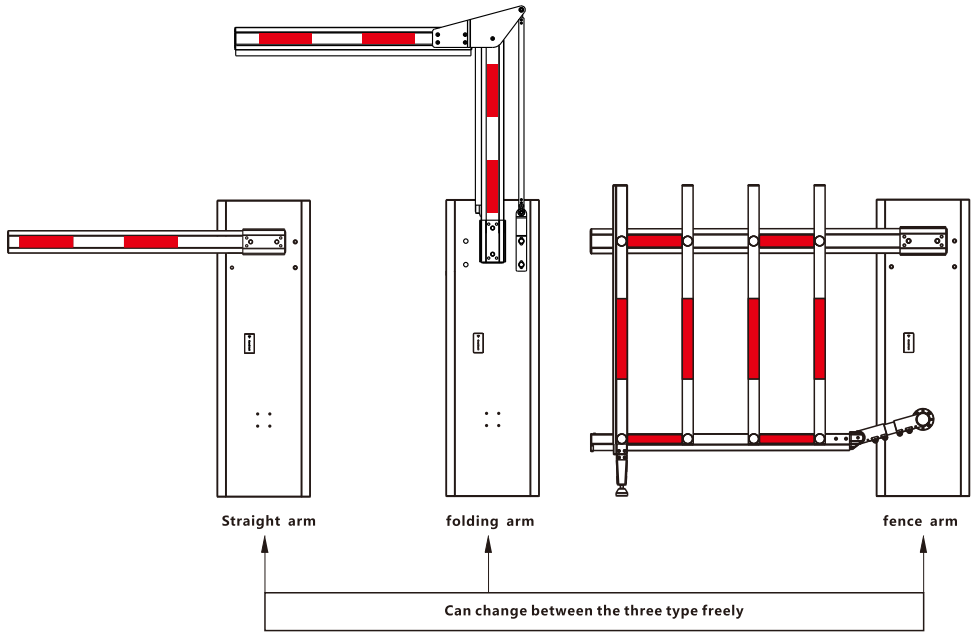
Left-hand version

Right-hand version

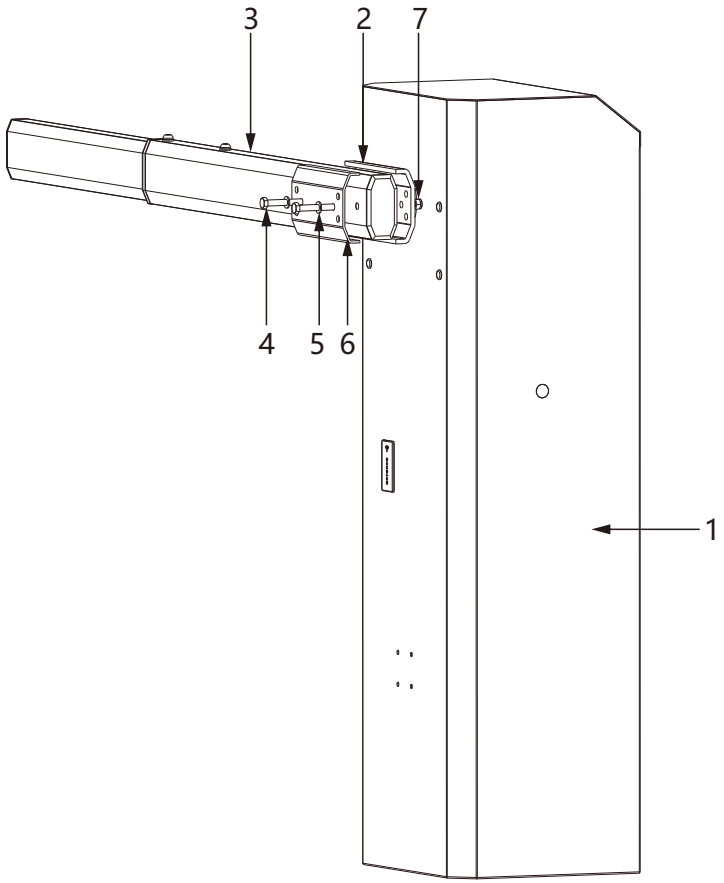
4.Housing structure



5. Boom type



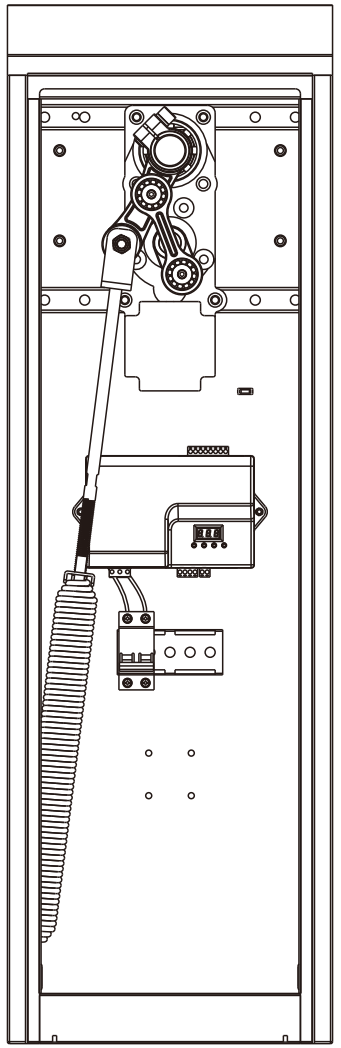
1. Barrier structure



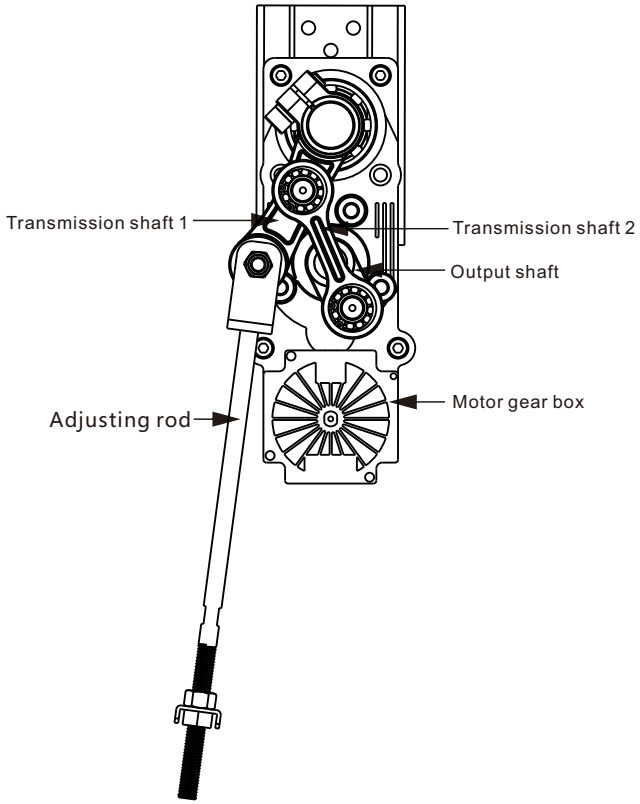
NO	Name	Quantity
1	Cabinet	1
2	Boom holder	1
3	Boom	1
4	Hexagon bolt M8*65	2
5	Flat gasket φ8(SUS304)	1
6	Arm cover	1
7	Hexagon check nut M8	2

2. Inner structure

Its internal structure is operated by the output shaft of the all-gear reducer, and the movement is transmitted to the main shaft through the plane four-bar linkage mechanism, and the high-precision control system is used to accurately locate the position of the boom during operation, so as to realize the control of the boom. (Please refer to the illustration for details)



3. Machine core structure



4.Spring hanging hole illustration

Barrier can use different length boom. Should change hole to meet different length.

Boom type	Boom length	Spring quantity&type
Straight boom	L≤4.5M	2*φ4.0
	4.5M＜L≤6M	2*φ5.5
Fence boom	3M≤L＜4M	2*φ5.5
	4M≤L≤5M	2*φ6.0

Notes: we must change spring type and hole, adjust the corresponding parameters if we change boom length.

1.Installation

- Check packing list to make sure all in right way
- According to barrier arm direction and actual situation to confirm fix place. If ground isn't concrete foundation or it is a slop, suggest to build a horizontal concrete foundation; After installation, barrier box should be perpendicular to ground
- According control center or security room position, reference (GB 232 electrical device installation and check before acceptance standard)'s relative rules to set power wires and signal wires (the two type wires should be set in different pipes)
- Use expansion screw (follow packing list part to confirm install number) to fix barrier gate cabinet then start to use
- Adjust boom arm to horizontal position by hand switch to confirm boom holder fix position (this step is optional)
- Connect and check all wires to barrier main board according to wiring diagram

Notes: Should cut off power during installations.

2.Instruction details

1)Line pre-buried

build concrete basement if it is needed (basement size should be bigger about 100-150mm than barrier base size). Bury power wires and signal wires between barrier and control center.

2) Fix barrier box

Choose the right place and fix barrier box by expansion screw.

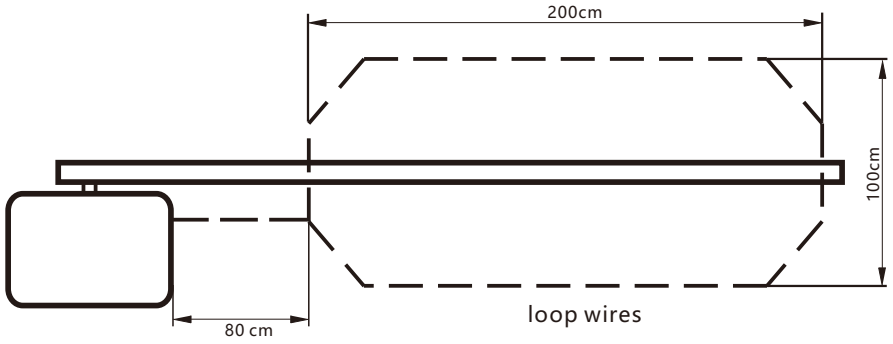
3) Install boom

After fix barrier cabinet, install boom arm onto arm holder. Confirm boom arm in right place then fix screws. If we need to install barrier arm holder, adjust arm to horizontal position by hand switch to check holder fixing position, then fix arm holder.

4) Install other devices

You can connect and debugging other devices according to wiring diagram.

5)Install loop detector



5.1. Draw loop coil shape: width is 1000mm, length depend on arm length, two sides is narrower than the arm 700mm to 1000mm, make a chamfer at 4 corners to prevent wires damages.
5.2. Use cutting machine to cut a groove according to the draw. Groove dimension: width 3-5mm, depth: 30mm, and cut a groove to barrier gate cabinet.
5.3. Put one end of the coil with enough length into cabinet, then circle it along the groove 5 times, then twist wires and connect them to loop detector ports 7 & 8.
5.4. Test the loop sensor to sure all right. Then use cement to bury the groove.

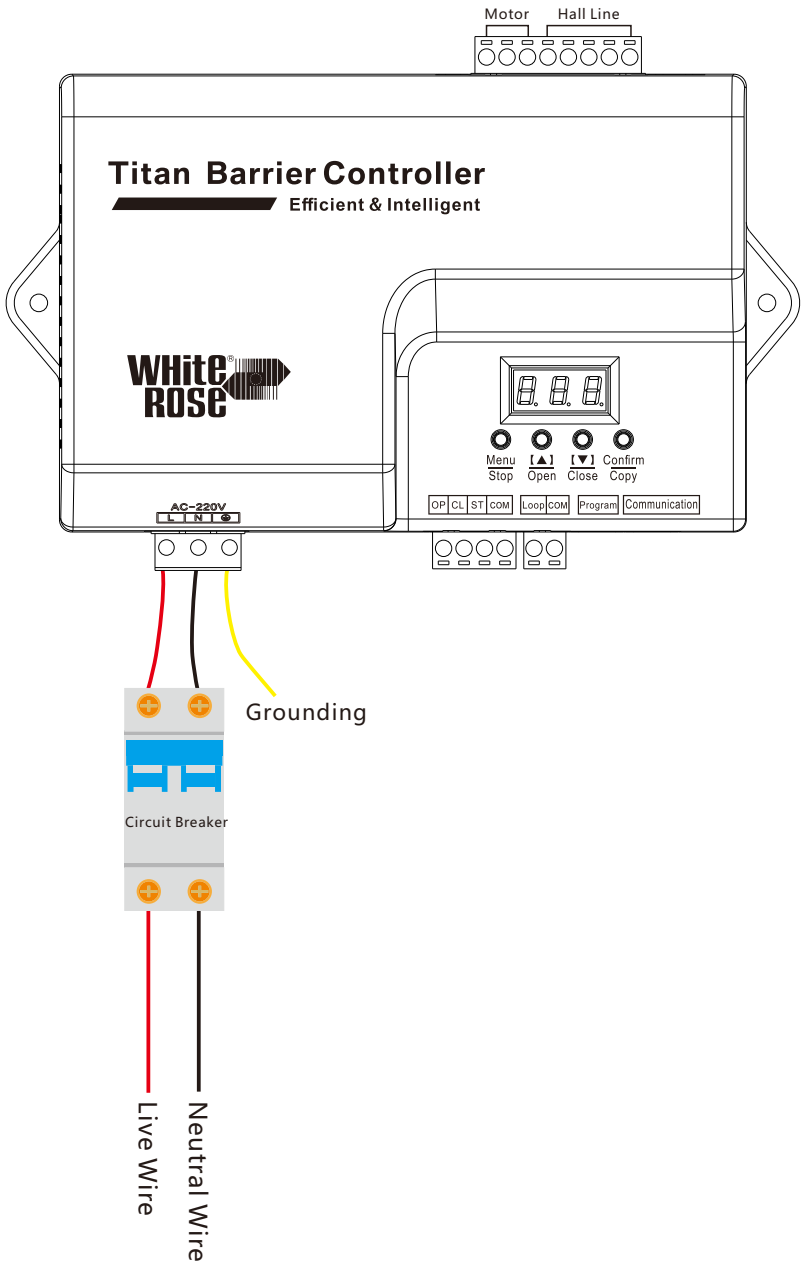
1.Debugging instructions

Item	Test way
Boom arm is not on closing/opening position	Loosen the two locking screws of the spindle arm, rotate the boom\ to the closing position, use F-3 to adjust the output shaft connecting arm to the closing position, tighten the screws again, and then use F-2 to learn the opening position.
Arm shake during open	1. If the spring force is too strong, loosen the adjustment rod to adjust the spring force. 2. The opening speed is too fast. Adjust the parameter of F0.
Arm shake during close	1. If the spring force is too weak, tighten the adjustment rod to adjust the spring force. 2. The speed of the closing is too fast. Adjust the parameters of F1.

2.Problem & solving way

No	Problem	Reason	Solving way
1	Power indicator light is off, press button, no response	1. Don't connect power	1. Connect power
2	Power indicator light is on, but remote controller doesn' t work	1. Remote control code doesn' t match 2. Receiver module doesn' t work 3. Same frequency interference 4. Didn't learn the remote	1. Recode 2. Change receiver module 3. Change other frequency 4. Learn the remofe
3	Limited sensor doesn't work	1.Limit sensor learning is wrong	1. Relearn limited position
4	Remote control can' t work	1.Battery is power off 2.The control is broken	1. Change battery 2. Change remote control
5	Controller displays E1	1. Check whether the motor UVW phases are short-circuited. 2. Mainboard damaged. 3. Power supply damaged.	1. Replace the motor. 2. Replace the mainboard. 3. Replace the power supply.
6	Controller displays E2	1. Motor wiring incorrect. 2. Motor wires not connected. 3. Motor interface on mainboard damaged.	1. Check motor wiring and Hall sensor cables. 2. Reconnect motor cables securely. 3. Replace the mainboard.
7	Controller displays E5	1. Boom closing not responding — ground loop protection triggered.	1. Check the ground loop signal. 2. Replace the vehicle detector or radar. 3. Replace the mainboard.
8	Controller displays E7	1. Low voltage protection activated.	1. Check the input voltage of the power supply. 2. Replace the power supply.

1.Wiring diagram



2.Parameter Settings — Quick Reference

F-A: Motor direction
F-C: Boom type
F-0: Opening speed
F-1: Closing speed
F-2:Manual learning opening position
F-3:Manual learning closing position
F-10:Opening deceleration speed
F-11:Closing deceleration speed
F-12:Obstruction rebound strength
F-15:Auto-close delay without loop
F-16:Auto-close delay with loop
F-31:Power-off and auto finding boom's position
F-50:Opening deceleration angle
F-51:Closing deceleration angle

Parameter Debugging

Note: The unit is factory-configured and ready for field installation. Do not modify factory parameters arbitrarily.

1. Select boom type: First verify wiring is correct. With power applied, press and hold the "MENU" for 2s until the LED shows F-A. Press "▲" or "▼"; when the LED shows F-C, press "MENU" once to enter. Use "▲" or "▼" to select the code corresponding to the boom type. After selection press "Confirm" to save (LED returns to F-C), then press "Confirm" again to exit the "MENU". (Boom type codes table on page 16.)
2. Select motor direction: With power on, press "▲" , the barrier will move. If the unit is right direction but the barrier moves toward the closed direction, change the direction. Press and hold "MENU" until LED shows F-A , press "MENU" again to enter, then press "▲" to set the value to 0. Press "Confirm" to save (LED shows F-A) and press "Confirm" again to exit. (A power cycle is required for changes to take effect. Default = left-hand direction.)
3. Manual learning opening position: With power applied, press "▲", the barrier moves toward opening, hits the mechanical limit and backs off a small angle (LED shows 00). To adjust the opening position, press and hold "MENU" to enter the "MENU", use "▲" or "▼" until the LED shows F-2, press "MENU" to enter F-2, then use "▲" or "▼" to move the barrier to the desired open position. Release and press "Confirm" to save (LED returns to F-2), then press "Confirm" to exit. (If required, set F-31 = 1 to enable automatic search for the closing position.)
4. Manual learning closing position: When the LED shows F-3 press "MENU" to enter, then use "▲" or "▼" to move the barrier to the required closed position. Release and press "Confirm" to save (LED returns to F-3), then press "Confirm"

to exit.
5. Opening speed: When the LED shows F-0 press "MENU" to enter opening speed adjustment. Use "▲" or "▼" to change the opening speed—higher value = faster opening. Adjust for smooth opening. Press "Confirm" to save (LED F-0), then press "Confirm" to exit.
6. Closing speed: When the LED shows F-1 press "MENU" to enter closing speed adjustment. Use "▲" or "▼" to change the closing speed—higher value = faster closing. Adjust for smooth closing. Press "Confirm" to save (LED shows F-1), then press "Confirm" to exit.
7. Opening deceleration speed: When the LED shows F-10 press "MENU" to enter opening deceleration speed adjustment. Use "▲" or "▼" to change the deceleration speed during opening—higher value = faster deceleration rate. Adjust for smooth deceleration. Press "Confirm" to save (LED shows F-10), then press "Confirm" to exit.
8. Closing deceleration speed: When the digital display shows F-11, press the "MENU" button to enter the adjustment mode. Then press the "▲" or "▼" button to adjust the deceleration speed. A higher value results in faster deceleration. Adjust for smooth closing, then press “Confirm” to save. The display will again show F-11; press ‘Confirm” once more to exit the menu.
9. Obstruction rebound strength: When the digital display shows F-12, press the "MENU" button to enter the setting. Use the "▲" or "▼" button to adjust the sensitivity. A higher value makes the barrier less sensitive to obstacles; a lower value makes it more sensitive. After adjustment, press “Confirm” to save. The display will show F-11; press “Confirm” again to exit the menu.
(It is not recommended to modify this parameter arbitrarily, as it may cause mainboard errors.)
10. Auto-close delay without loop: When the digital display shows F-15, press the "MENU" button to confirm the setting.
00: Disables the delay closing function.
01-300: Sets the delay closing time (in seconds) when no vehicle is detected on the ground loop.Adjust the value using the "▲" or "▼" button as needed. Once set, press “Confirm” to save. The display will show F-15 again; press “Confirm” once more to exit the menu.
11. Auto-close delay with loop: When the digital display shows F-16, press the "MENU" button to confirm the setting.
00: Disables the delay closing function.
01-200: Sets the delay closing time (in seconds) after a vehicle is detected on the ground loop.Adjust the value using the "▲" or "▼" button as needed. Once set, press “Confirm” to save. The display will show F-16 again; press “Confirm” once more to exit the menu.
12. Power-off and auto finding boom’s position: When the digital display shows F-31, press the "MENU" button to Confirm the calibration mode.
0: Automatic opening position search.
1: Automatic closing position search.
2: Automatic opening and closing position search.

After adjustment, press “Confirm” to save. The display will show F-31 again; press “Confirm” once more to exit the menu. (Default value is 0.)
13. Opening deceleration angle: When the digital display shows F-50, press the "MENU" button to Confirm the setting. Then use the "▲" or "▼" button to adjust the opening deceleration angle.A higher value increases the deceleration angle.A lower value decreases the deceleration angle.Adjust this parameter based on the actual opening performance. Once set, press “Confirm” to save. The display will show F-50 again; press “Confirm” once more to exit the menu.
14. Closing deceleration angle: When the digital display shows F-51, press the "MENU" button to Confirm the setting. Then use the "▲" or "▼" button to adjust the closing deceleration angle.A higher value increases the deceleration angle.A lower value decreases the deceleration angle.Adjust this parameter based on the actual closing performance. Once set, press “Confirm” to save. The display will show F-51 again; press “Confirm” once more to exit the menu.
15.Remote control learning and deletion:
To program a remote:
Press and hold the “Copy” button for 2 seconds. The display shows --X (X = number of stored remotes).Press and hold any button on the new remote. X will increase by one.Press “Confirm” to exit.
To delete all remotes:
Press and hold the “Copy” button for 2 seconds. The display shows --X.Press and hold either "▲" or "▼" for 2 seconds. The display changes to --0, indicating all remotes are deleted.Press “Confirm” to exit.
16. Boom barrier model specification table：

Code	Barrier Boom Type	Boom Length	Code	Barrier Boom Type	Boom Length
1	Telescopic Boom	3m	7	Telescopic Boom	6m
2	Telescopic Boom	3.5m	8	D152 Fence Boom	3m
3	Telescopic Boom	4m	9	D152 Fence Boom	3.5m
4	Telescopic Boom	4.5m	10	D152 Fence Boom	4m
5	Telescopic Boom	6m	11	D152 Fence Boom	4.5m
6	Telescopic Boom	5.5m	12	D152 Fence Boom	5m

1. Using instructions

● Before use, make sure all wires are ok.
● Press open button, the boom will open to right position and stop.
● Press close button, the boom will close to right position and stop.
● During closing, if car pass the barrier. Press open, barrier will stop and open. Press stop, barrier will stop.
● Power off, use handle to open the boom. Power on, press close button, then the barrier can be used.

Warning: This equipment must be safely grounded. Before connecting to this equipment, a 10A residual current device (RCD) must be installed for the 220V AC power supply!

2. Maintenance

●Clean the housing surface regularly;
●Check wiring diagram regularly, if some wires loose, fix them back;
● keep the barrier in aeration-drying atmosphere to ensure the stability and working life;
● Check transmission shafts regularly, if loose, fix them back;
● Check spring regularly; ensure spring is in good situations.
● Check the connection between housing and grand regularly, ensure housing is well fixed.

1. Services items

● The warranty is 1 year
● Provide maintenance all the life time

Not included free maintenance under the damage of following situation

● Damages caused by wrong installation (please follow instruction)
● Using unstable power supply which beyond product's working range or not compliance with national electricity use safety standard
● Irresistible factors, like natural disasters
● Incorrect usage

2. Packing list

NO.	Name	Unit	Qty	NO.	Name	Unit	Qty
1	Cabinet	set	1	2	Spare parts	set	1
3	User manual	pcs	1	4	Remote controller	pcs	2
5	Guarantee card	pcs	1	6	Key	pcs	2

Guarantee card

Customer		Tel	
Address			
Purchasing time		Model	

1. Please write your information carefully, only stamped guarantee card is valid;
2. Guarantee is 1 year;
3. Guarantee does not cover any problems caused by actions not following our user manual.