



Barrier Gate

User Manual

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FCC Information

Please take attention that changes or modification not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

FCC Compliance


This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.


FCC Conditions


This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

EU Conformity Statement

 This product and - if applicable - the supplied accessories too are marked with CE and comply therefore with the applicable harmonized European standards listed under the EMC Directive 2014/30/EU, the LVD Directive 2014/35/EU, the RoHS Directive 2011/65/EU.

 2012/19/EU (WEEE directive): Products marked with this symbol cannot be disposed of as unsorted municipal waste in the European Union. For proper recycling, return this product to your local supplier upon the purchase of equivalent new equipment, or dispose of it at designated collection points. For more information see: www.recyclethis.info




 2006/66/EC (battery directive): This product contains a battery that cannot be disposed of as unsorted municipal waste in the European Union. See the product documentation for specific battery information. The battery is marked with this symbol, which may include lettering to indicate cadmium (Cd), lead (Pb), or mercury (Hg). For proper recycling, return the battery to your supplier or to a designated collection point. For more information see: www.recyclethis.info

Industry Canada ICES-003 Compliance

This device meets the CAN ICES-3 (A)/NMB-3(A) standards requirements.

Symbol Conventions

The symbols that may be found in this document are defined as follows.

Symbol	Description
 Danger	Indicates a hazardous situation which, if not avoided, will or could result in death or serious injury.
 Caution	Indicates a potentially hazardous situation which, if not avoided, could result in equipment damage, data loss, performance degradation, or unexpected results.
 Note	Provides additional information to emphasize or supplement important points of the main text.

Safety Instructions

Regulation

Use of the product must be in strict compliance with the local laws and regulations. Please shut down the device in prohibited area.

Power

- Use of the product must be in strict compliance with the local electrical safety regulations.
- Use the power adapter provided by qualified manufacturer. Refer to the product specification for detailed power requirements. It is recommended to provide independent power adapter for each device as adapter overload may cause over-heating or a fire hazard.
- Make sure that the power has been disconnected before you wire, install, or disassemble the device in the authorized way according to the description in the manual. To avoid electric shock, DO NOT directly touch exposed contacts and components once the device is powered up.
- DO NOT use damaged power supply devices (e.g., cable, power adapter, etc.) to avoid electric shock, fire hazard, and explosion.
- DO NOT directly cut the power supply to shut down the device. Please shut down the device normally and then unplug the power cord to avoid data loss.
- The socket-outlet shall be installed near the equipment and shall be easily accessible.
- Make sure the power supply has been disconnected if the power adapter is idle. Connect to earth before connecting to the power supply.
- DO NOT touch the bare metal contacts of the inlets after the circuit breaker is turned off. Electricity still exists.
- Ensure correct wiring of the terminals for connection to an AC mains supply.
- An overcurrent protective device conforming to the power supply specification shall be incorporated external to the equipment, not exceeding the specification of the building. Refer to the specification for the detailed power supply requirement.

Transport, Use, and Archive

- To avoid heat accumulation, good ventilation is required for a proper operating environment. Store the device in dry, well-ventilated, corrosive-gas-free, no direct sunlight, and no heating source environment.
- Avoid fire, water, and explosive environment when using the device. Install the device in such a way that lightning strikes can be avoided. Provide a surge suppressor at the inlet opening of the equipment under special conditions such as the mountain top, iron tower, and forest.
- Keep the device away from magnetic interference.
- Avoid device installation on vibratory surfaces or places. Failure to comply with this may cause device damage.
- DO NOT touch the heat dissipation component to avoid burns. DO NOT expose the device to extremely hot, cold, or humidity environments. For temperature and humidity requirements, see device specification.
- No naked flame sources, such as lighted candles, should be placed on the equipment.
- DO NOT touch the sharp edges or corners.
- To prevent possible hearing damage, DO NOT listen at high volume levels for long periods.
- The device can only be safely used in the region below 2,000 meters above the sea level.
- The equipment shall not be exposed to dripping or splashing and that no objects filled with liquids, such as vases, shall be placed on the equipment.
- The ventilation should not be impeded by covering the ventilation openings with items, such as newspapers, table-cloths, curtains, etc. The openings shall never be blocked by placing the equipment on a bed, sofa, rug or other similar surface.
- This equipment is suitable for mounting on concrete or other non-combustible surface only.
- Keep body parts away from motors. Disconnect the power source during servicing.

Maintenance

- If smoke, odor, or noise arises from the device, immediately turn off the power, unplug the power cable, and contact the service center.
If the device cannot work properly, contact the store you purchased it or the nearest service center. DO NOT disassemble or modify the device in the unauthorized way (For the problems caused by unauthorized modification or maintenance, the company shall not take any responsibility).
- Keep all packaging after unpacking them for future use. In case of any failure occurred, you need to return the device to the factory with the original packaging. Transportation without the original packaging may result in damage to the device and the company shall not take any responsibility.

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Chapter 1 Introduction

1.1 Product Introduction

Barrier gate is the entrance and exit management device to limit motor vehicle passing. It can control the boom pole automatically via parking lot management system. Or you can control the boom pole via buttons on remote controller.

Barrier gate is widely applicable to toll station, parking lot, the entrance and exit of community and unit, etc.

1.2 Key Feature

- Adopts direct current brushless motor which can run steadily, applicable to entrance and exit, ETC system, etc.
- The boom pole can rise rapidly and fall slowly. The barrier gate can learn the rising and falling limit positions automatically after it is powered on.
- Over-voltage and over-current protection to prevent the motor from being burnt caused by locked rotor during running.
- Supports anti-fall function via ground sensor, infrared sensor, etc., and protection functions including pressure wave, resistance rebound, etc.
- The barrier gate is divided into left and right direction. Please select the model according to the scene.

Chapter 2 Installation

2.1 Installation Environment

The installation position of the barrier gate should meet the customer's requirements and the following requirements.

- The installation space should be large enough to guarantee the boom pole can rise or fall normally.
- Install the barrier gate on horizontal ground.
- Installation surface requirements:
 - If no base is installed, the installation surface must be firm enough to fix the host to guarantee the barrier gate can run stably.
 - If base is needed, it is recommended to install the base with quick setting cement. The base should be horizontal. The height should be larger than 200 mm. The length and width of base should be larger than those of the actual barrier gate installation surface.
- If the barrier gate is anti-collision, the boom pole will flick 90° in reverse direction if it is impacted. Make sure there is no obstacle in the range.
- Bury the cables before installation. The conduit should be 50 mm higher than the ground to avoid the gathered water on the ground to enter into the cable and cause short circuit.

2.2 Install Barrier Gate

2.2.1 Fix Barrier Gate Host

Follow the steps below to fix the host of barrier gate.

Steps

1. Mark the positions of holes on the refuge island as shown below. The hole depth is approx. 120 mm.

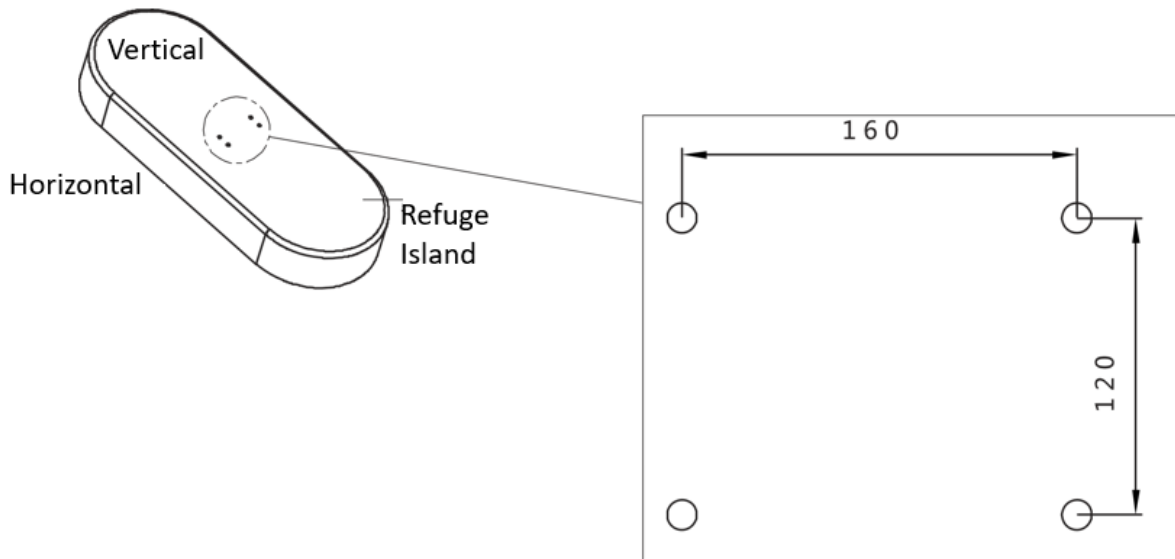


Figure 2-1 Mark the Position

Note

The suggestions for positions of holes:

- The holes in vertical direction should be near to the switch.
- If the entrance/exit is unidirectional, the holes should be in the horizontal center of the refuge island. If the entrance/exit is bi-directional, the holes in the horizontal direction should be far away from the entrance/exit.

-
2. Punch the four M12 × 150 expansion screws in the package into the marked positions on the refuge island, and fasten the nuts to make the screws expand to grip the ground. Then unfasten the nuts.

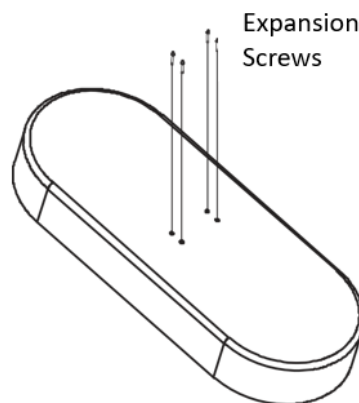


Figure 2-2 Install Expansion Screws

3. Turn the L-shaped key clockwise to open the front cover.

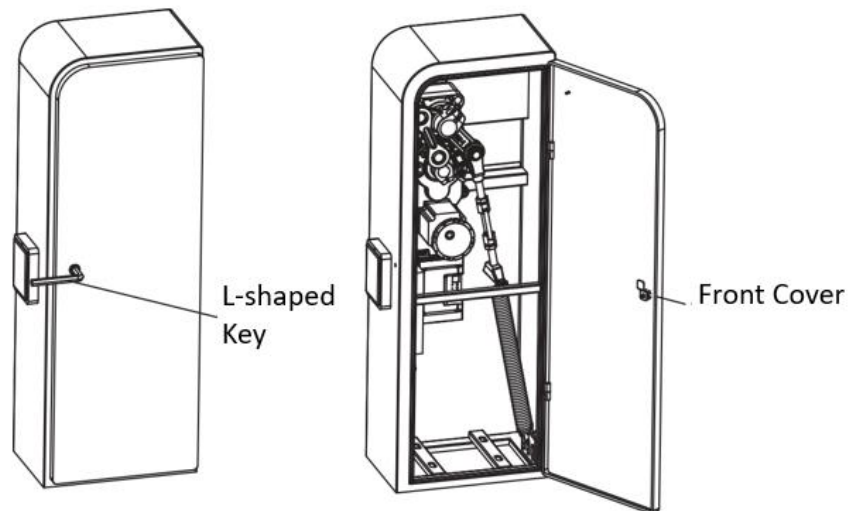


Figure 2-3 Open the Front Cover

4. Fix the host.

- 1) Put the layers on the host bottom and keep them perpendicular to the barrier gate's switch.
- 2) Put the host on the positions of expansion screws on the refuge island to make the screws pass through the layers. Keep the layers perpendicular to the barrier gate's switch.
- 3) Fasten the expansion nuts on the screws to fix the host.

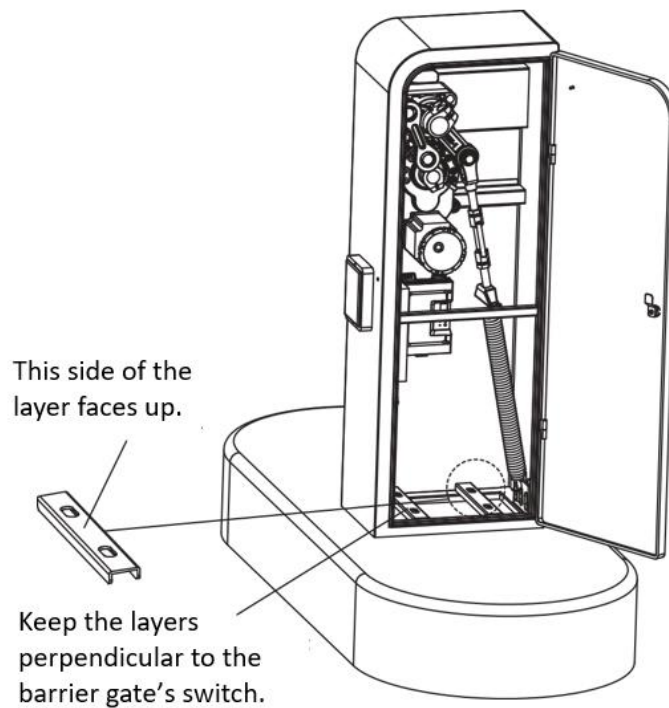


Figure 2-4 Fix the Host

! Danger

Keep the supporting bracket of the boom pole vertically upward to avoid accident caused by accidental rotation.

2.2.2 Install Boom Pole

Follow the steps to install boom pole.

Steps

1. Align the holes on the supporting bracket with those on the boom pole.
2. Insert four M10 screws into the holes.

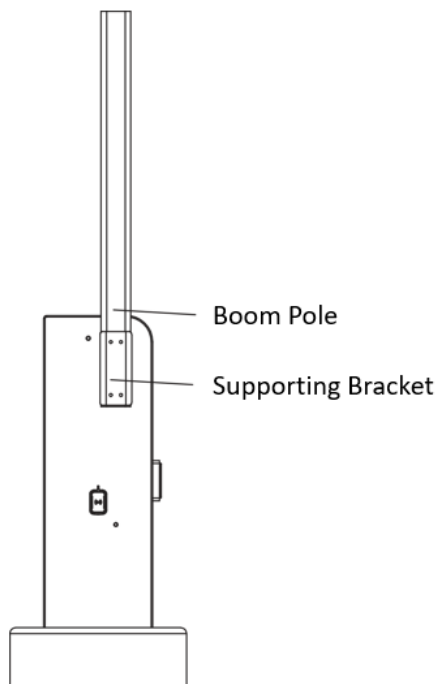


Figure 2-5 Fix Boom Pole

3. Install flat washers, spring washers, and nuts on both sides of the screws.
4. Fasten the nuts to fix the boom pole.

! Caution

Contact the professional technical personnel to change the boom pole. You may damage the barrier gate if you change it by yourself.

What to do next:

Test the balance of the boom pole. When the barrier gate is not powered on, press the boom pole down to form an angle of about 20 ° with the ground. If the boom pole can rebound to form an

angle of about 60 °~70 ° with the ground after loosening, it means the boom pole is balanced.

2.3 Wiring

2.3.1 Connect to Peripheral Devices

The barrier gate can connect to peripheral devices such as entrance/exit capture unit.

Steps

1. Open the front cover of the host, and you can see the interfaces to connect peripheral devices.

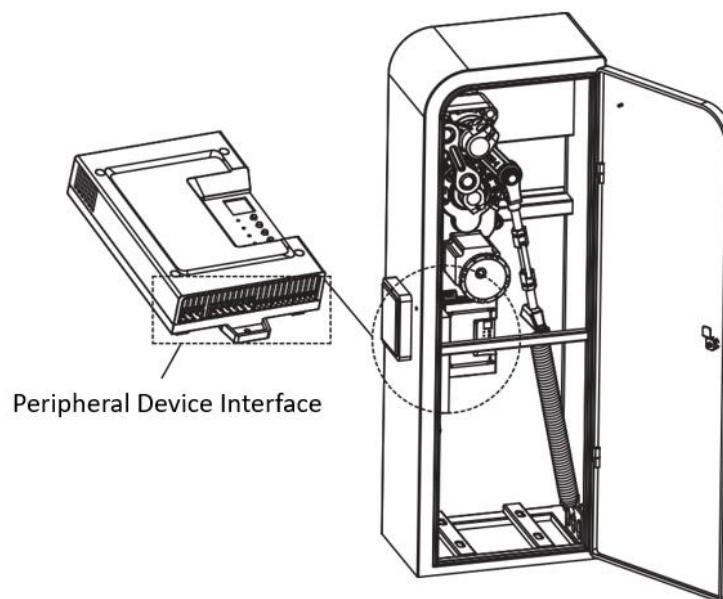


Figure 2-6 Peripheral Device Interfaces

2. Connect peripheral devices to the interfaces as shown below.

Note

Refer to "Peripheral Device Interfaces Introduction" for the detailed definition of the peripheral devices interfaces.

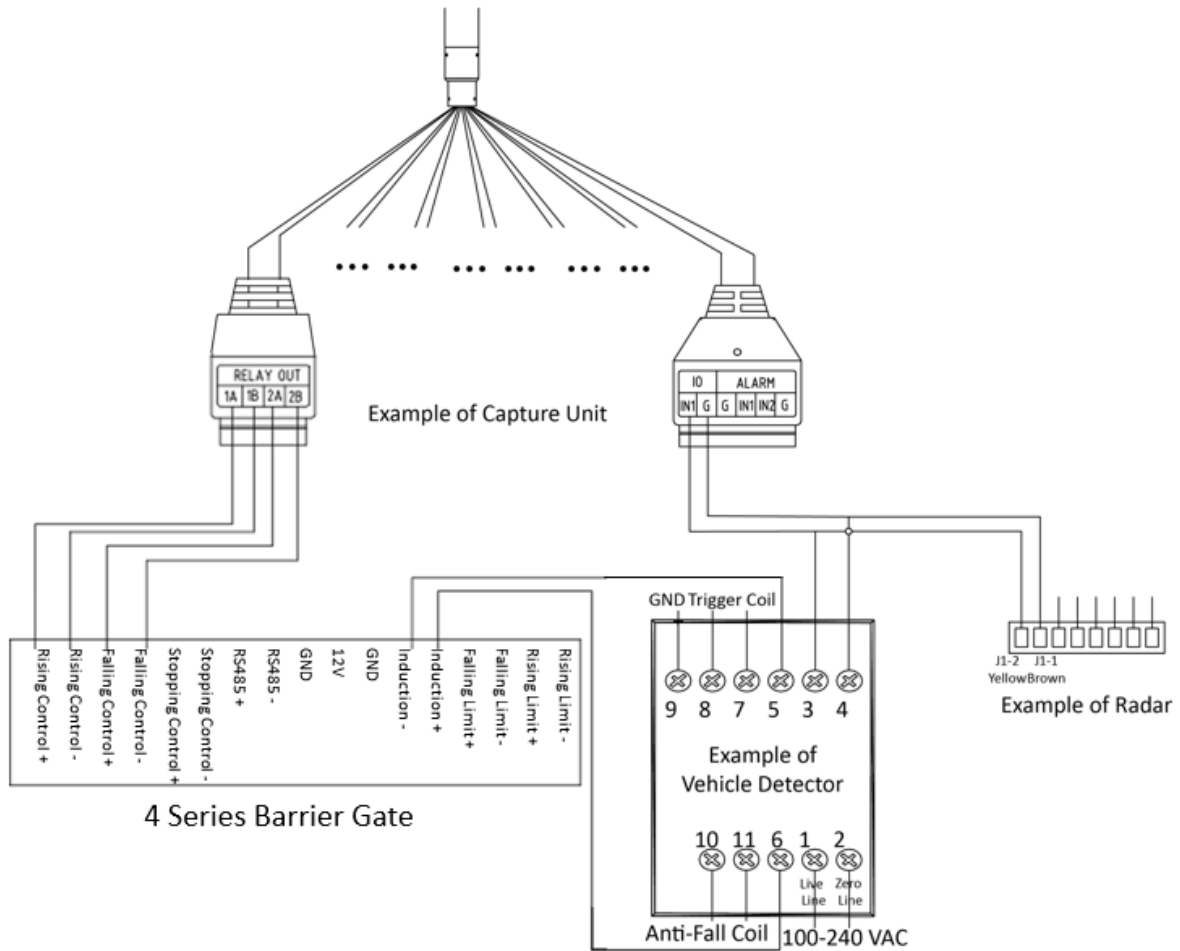


Figure 2-7 Connect to Peripheral Devices

2.3.2 Connect to Power Supply

Connect the laid power cord (RVV3 × 1.5 mm² or above) to the power input of barrier gate. Lock the front cover with the L-type key.

⚠ Danger

- Cut off the power before wiring.
- The power voltage of barrier gate is 220 VAC ± 10%. If the voltage exceeds the range, voltage stabilizer is needed.
- Make sure the barrier gate is connected to the ground firmly, or it may cause electric shock.

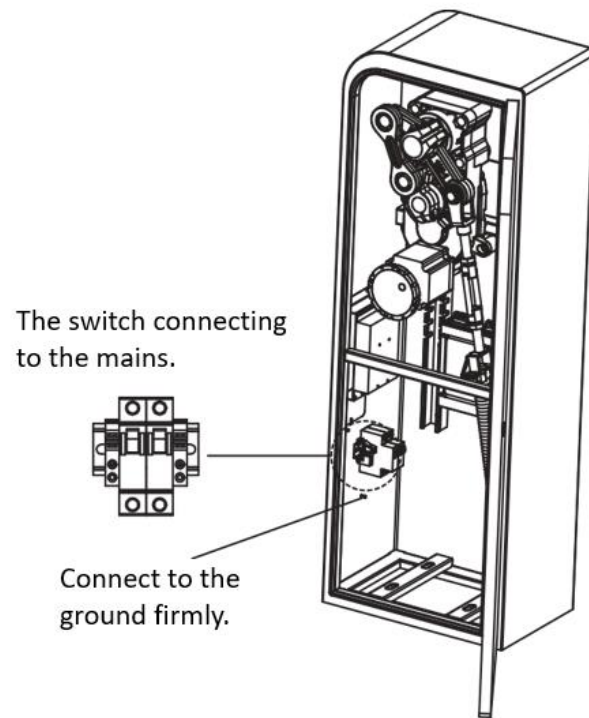


Figure 2-8 Power Supply Interface

Chapter 3 Debug

After the installation completes, power on the barrier gate, and it will operate self-check of rising to limit position. After the self-check completes, you can control the barrier gate via remote controller or buttons.

3.1 Remote Control

After the self-check completes, you can control the boom pole to rise, fall, and stop via the remote controller leaving factory with the barrier gate.

3.2 Button Operation

Open the front cover of the host, and you can see the buttons and nixie tube. You can control the barrier gate via the buttons and judge the status via the nixie tube.

There is respective initial status for the rising limit position, falling limit position, and rising speed of the barrier gate. You can adjust them via buttons if the initial status cannot meet the requirements of the installation site.

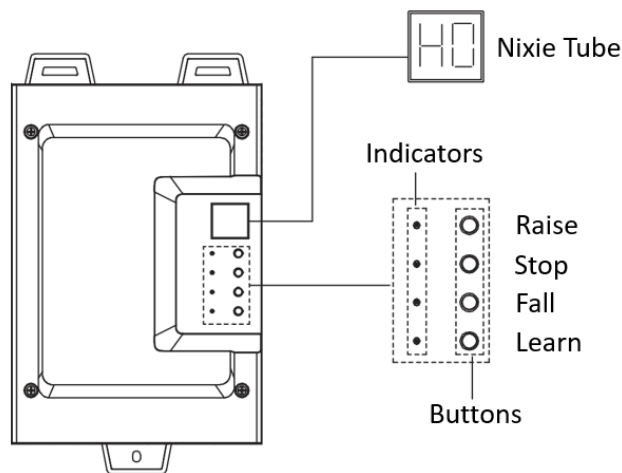





Figure 3-1 Control Buttons

Note

- If you need to hold the buttons to trigger operations, hold for 3 seconds or above.
 - The nixie tube shows the status (e.g., H0) and fault codes (hexadecimal characters, e.g., 1A). If the fault codes appear on the nixie tube, it means there is operation error. Contact the technical personnel of our company to solve the problems.
-

Table 3-1 Button Operation Description

No.	Function	Button Operation
1	Rise/Fall/Stop	To rise/fall/stop the boom pole.
2	Learn/Clear the code via the remote controller	<ol style="list-style-type: none"> 1. Press Rise to let the boom pole rise to the limit position. 2. Hold Learn until the nixie tube displays H0. Press Fall to adjust the boom pole to H4 status. 3. Hold Learn until the nixie tube displays PA. 4. Press the button on remote controller twice until the nixie tube displays 00 to complete the learning. Hold Stop until the nixie tube displays H4 to clear code. 5. Press Learn to exit from the settings. <p> Note The controller can learn no more than 48 operations.</p>
3	Set the vehicle queue mode	<ol style="list-style-type: none"> 1. Press Rise to let the boom pole rise to the limit position. 2. Hold Learn until the nixie tube displays H0. Press Fall to adjust the boom pole to H5 status. 3. Hold Learn until the nixie tube displays 0 (disabled mode). Press Rise/Fall until the nixie tube displays 1 (enabled mode). 4. Press Learn to exit and save the current settings. Press Learn again to exit from the settings.
4	Set the auto falling	<ol style="list-style-type: none"> 1. Press Rise to let the boom pole rise to the limit position. 2. Hold Learn until the nixie tube displays H0. Press Fall to adjust the boom pole to H6 status. 3. Hold Learn until the nixie tube displays 0 (disabled mode). Press Rise/Fall until the nixie tube displays 1 (enabled mode). 4. Press Learn to save the current settings and exit. Press Learn again to exit from the settings.
5	Set the auto falling duration	<ol style="list-style-type: none"> 1. Press Rise to let the boom pole rise to the limit position. 2. Hold Learn until the nixie tube displays H0. Press Fall to adjust the boom pole to H7 status. 3. Hold Learn until the nixie tube displays the current auto falling duration. Press Rise/Fall to adjust the duration.

No.	Function	Button Operation
		 Note Displayed falling duration × 10 = actual falling duration. The unit of the duration is second. E.g., the displayed falling duration is 3. Thus the actual falling duration is 30 s.
6	Lock the barrier gate via the remote controller	1. Press Rise to let the boom pole rise to the limit position. The nixie tube displays rL.  Note Apply control signal to let the boom pole rise to the limit position. The nixie tube displays Lc. 2. Hold Learn until the nixie tube displays H0. Press Fall to adjust the boom pole to H8 status. 3. Hold Learn until the nixie tube displays 0 (disabled mode). Press Rise/Fall until the nixie tube displays 1 (enabled mode). 4. Press Learn to save the current settings and exit. Press Learn again to exit from the settings.
7	Set the rising limit output mode	1. Press Rise to let the boom pole rise to the limit position. 2. Hold Learn until the nixie tube displays H0. Press Fall to adjust the boom pole to H9 status. 3. Hold Learn until the nixie tube displays 0 (disabled mode). Press Rise/Fall until the nixie tube displays 1 (enabled mode). 4. Press Learn to save the current settings and exit. Press Learn again to exit from the settings.

Chapter 4 Maintenance

4.1 Check Regularly

The barrier gate should be maintained every three months. Check according to the following instructions.

- Check if the mechanical drive is stable.
- Check if the wiring, GND, and screws are firm.
- Check if the motor sounds abnormally.

4.2 Check After Collision

- Check if the slewer is damaged. Change it if it is damaged.
- Check if the boom pole is curved. Change it if it is curved.
- Check if the barrier gate sounds abnormally during running. Contact the qualified after-sales service agent in time.

4.3 Fault Code Description

When the barrier gate is abnormal, open the top cover, and observe the fault code on the nixie tube to troubleshoot.

Table 4-1 Fault Code Description

No.	Code	Description
1	00	No errors.
2	01	<ul style="list-style-type: none"> ● Motor or control board is short circuited. ● The load is too heavy.
3	03	<ul style="list-style-type: none"> ● The load is too heavy. ● The movement spring is not installed properly.
4	06	<ul style="list-style-type: none"> ● Bus voltage overvoltage. ● Power supply does not match. ● The motor reverses manually. ● The braking resistor was invalid.
5	07	<ul style="list-style-type: none"> ● Bus voltage overvoltage. ● Power supply does not match. ● The motor is short circuited. ● The braking resistor was invalid.
6	0d	<ul style="list-style-type: none"> ● The gear is disengaged. ● The switch limit is damaged
7	0E	Prevent smashing or protect signals during learning. After the interference is eliminated, eliminate the error and relearn.
8	10	The stopping control or stopping via hand shank terminal was short-circuited.
9	11	The falling control or falling via hand shank terminal was short-circuited.
10	17	The braking resistor was not inserted firmly.
11	18	The signal cable was not connected well.
12	64	<ul style="list-style-type: none"> ● The boom pole was out of balance. ● The barrier gate was not installed properly.
13	66	<ul style="list-style-type: none"> ● The gearbox was damaged. ● The switch limit is damaged.

4.4 Troubleshooting for Failed Auto Rising/Falling of Boom Pole After Power Cutoff

If the boom pole cannot rise or fall automatically after the power is cut off suddenly, follow the

steps to solve the problem.

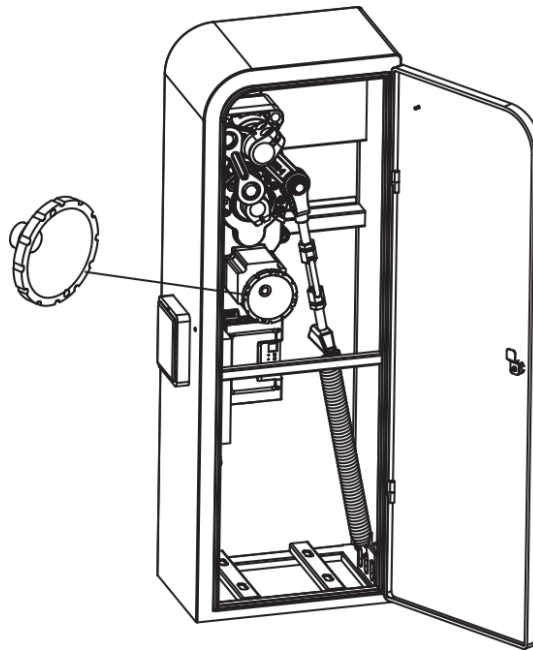


Figure 4-1 Adjust the Position

Steps

1. Uninstall the top and front covers.
2. Insert L-type wrench into the hexagonal hole on the host.
3. Rotate the wrench according to the barrier gate status.
 - Left direction barrier gate
 - If the barrier gate is in the falling limit status or in the middle, rotate the wrench anticlockwise to raise the boom pole slowly until it is in the rising limit status.
 - If the barrier gate is in the rising limit status or in the middle, rotate the wrench clockwise to make the boom pole fall slowly until it is in the falling limit status.
 - Right direction barrier gate
 - If the barrier gate is in the falling limit status or in the middle, rotate the wrench clockwise to raise the boom pole slowly until it is in the rising limit status.
 - If the barrier gate is in the rising limit status or in the middle, rotate the wrench anticlockwise to make the boom pole fall slowly until it is in the falling limit status.

A. Peripheral Device Interfaces Introduction

Open the top cover to view the barrier gate's interfaces as shown in the figure below.

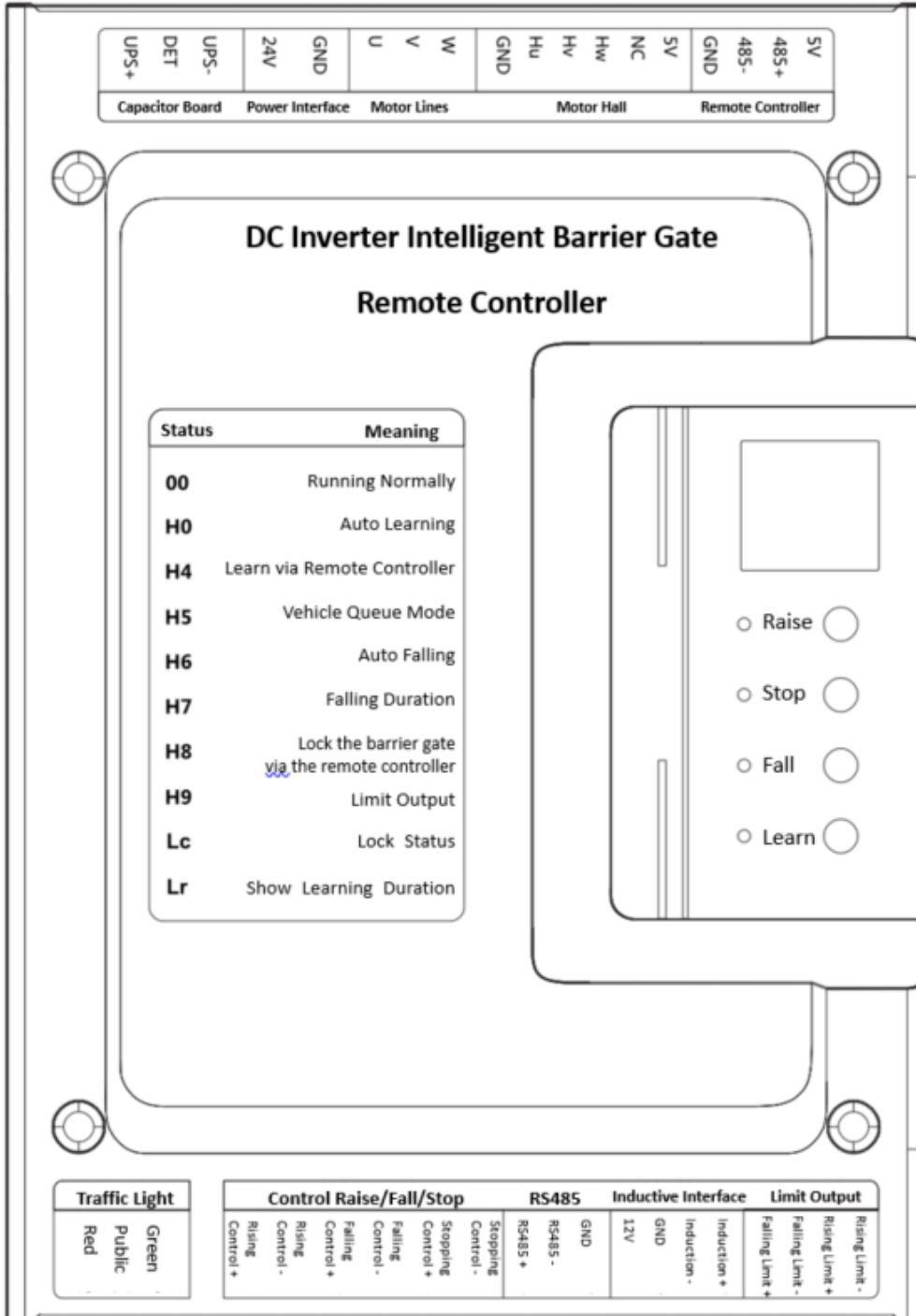


Figure A-1 Peripheral Device Interfaces

Table A-1 Peripheral Device Interfaces Introduction

Name	Description	Name	Description
GND	Motor power line interface.	Falling Control +	
U		Falling Control -	
V		Stopping Control +	
W		Stopping Control -	
GND	Hall interface of motor.	RS485+	Used to input 485 control signal.
Hu		RS485-	
Hv		GND	
Hw		12V	Used to connect the relay output of the vehicle detector and detect the vehicle status.
NC		GND	
5V		Induction +	
GND	Used to connect the interface of remote control receiving module.	Induction -	The signal of rising/falling value, outputting the falling state of the barrier gate to the detection unit.
485-		Falling Limit +	
485+		Falling Limit -	
5V		Raising Limit +	<ul style="list-style-type: none"> ● Abnormal raising alarm output ● The signal of rising/falling value, outputting the raising state of the barrier gate to the detection unit.
Red Light	Red light power output.	Raising Limit -	



See Far, Go Further