



Barrier Gate

User Manual

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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.

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Chapter 1 Introduction

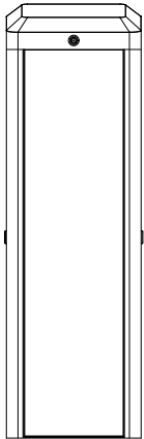
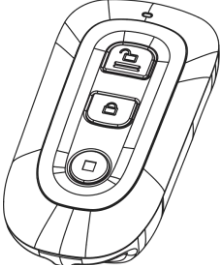
1.1 Product Introduction

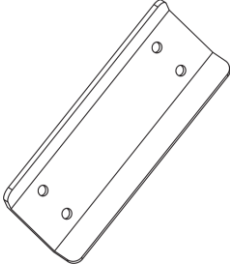
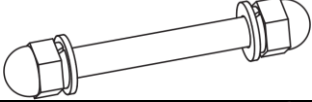
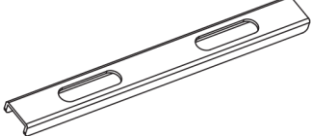
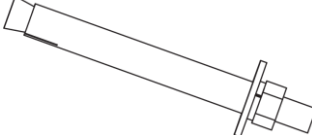
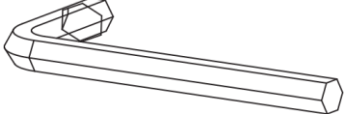
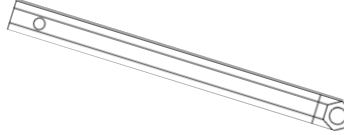
Barrier gate (hereinafter referred to as “device”) is the entrance and exit management device to limit motor vehicle passing. It can control the boom pole automatically via parking lot management system. Or you can control the boom pole via buttons on remote controller. Barrier gate is widely applicable to toll station, parking lot, the entrance and exit of community and unit, etc.

1.2 Packing List

Please check if there is any damage of the package first. Refer to the table below for the packing list of the barrier gate. According to the packing list, make sure no item is lost. After checking all the items are included, you can continue to install the device.

Table 1-1 Packing List

No.	Diagram	Name	Quantity
1		Barrier gate host	1
2		Remote controller	2

No.	Diagram	Name	Quantity
3		Chuck	1
4		Spindle rod screw set	4
5		Layer	2
6		Expansion screw	4
7		L-type wrench	1
8		Key	1

1.3 Barrier Gate Overview

 **Note**

The appearances of the devices vary with different models. The figure below just takes an example. Refer to the actual device for details.

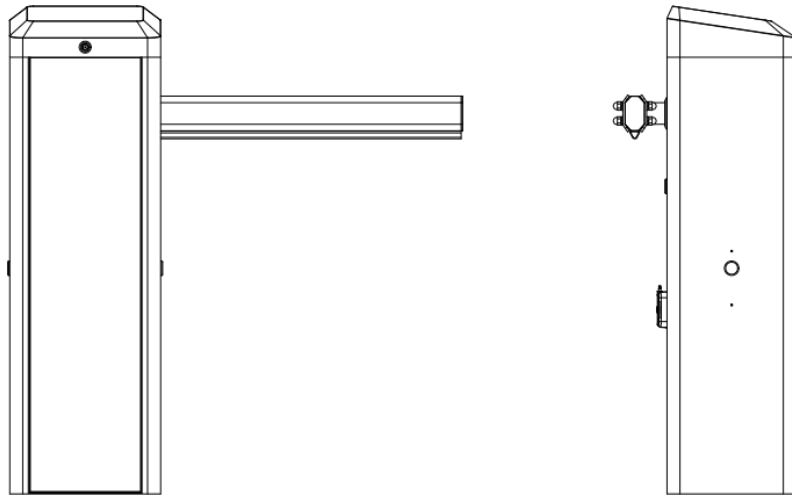


Figure 1-1 Barrier Gate Overview

1.4 Barrier Gate Structure

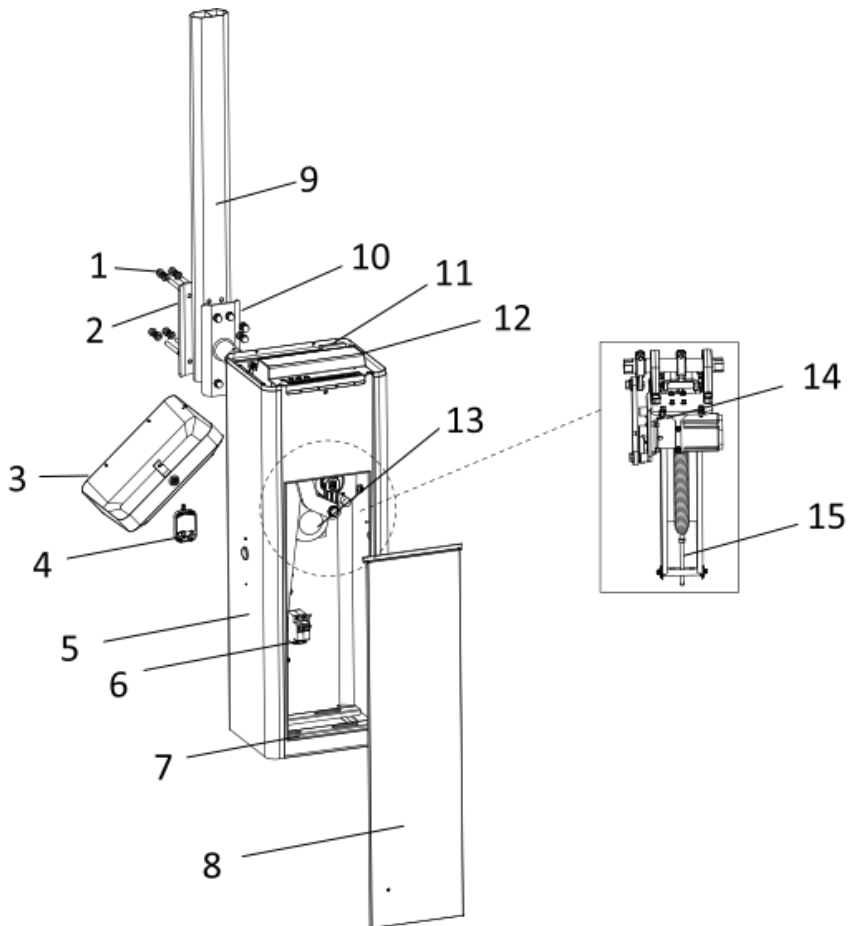


Figure 1-2 Barrier Gate Structure

Table 1-2 Barrier Gate Structure

No.	Description	No.	Description
1	Boom pole fixing screw	9	Boom pole
2	Chuck	10	Spindle rod
3	Top cover	11	Aluminum Resistance
4	Antenna	12	Control box
5	Host	13	Transformer
6	Air switch	14	Machine core
7	Strip	15	Spring
8	Front cover		

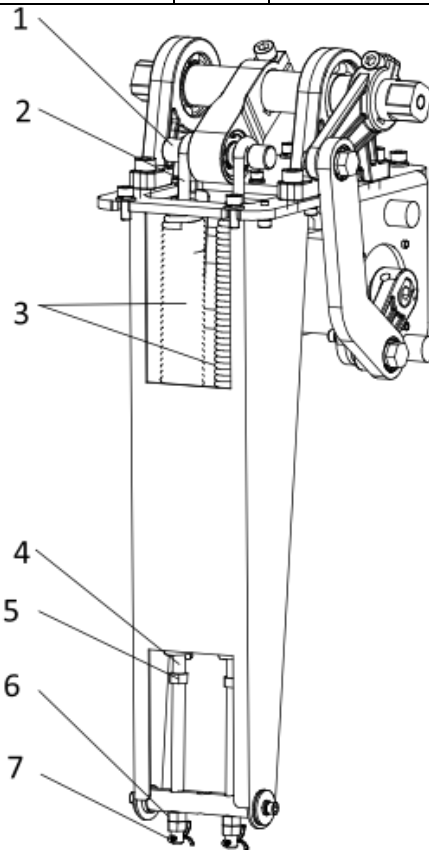


Figure 1-3 Machine Core Structure

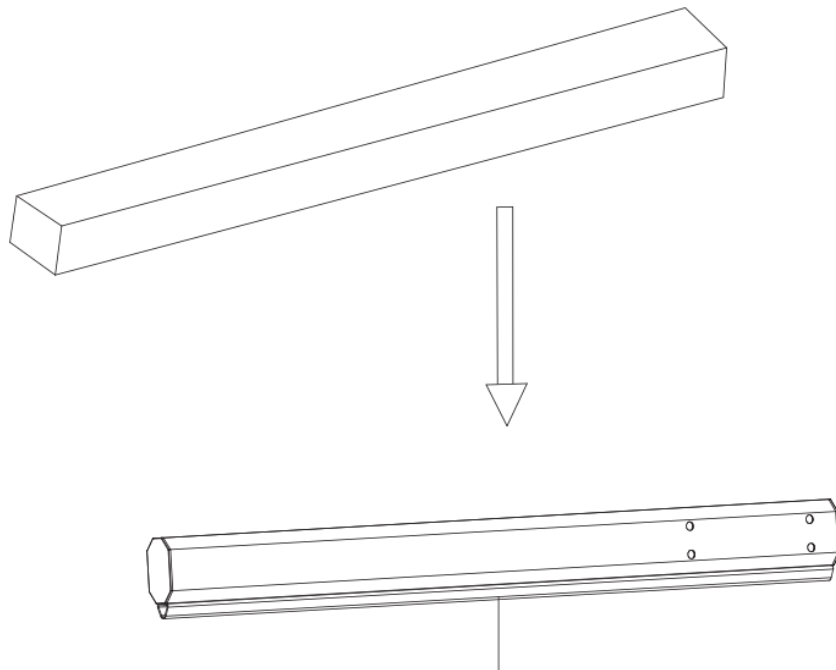
Table 1-3 Machine Core Structure

No.	Description	No.	Description
1	Spring shaft	5	Screw weld nut
2	Spring hook	6	Bottom lock nut

No.	Description	No.	Description
3	Spring	7	Cotter pin
4	Spring lower screw		

1.5 Boom Pole Overview

1.5.1 Octagonal Straight Boom Pole



Octagonal straight boom pole

Figure 1-4 Octagonal Straight Boom Pole

Table 1-4 Octagonal Straight Boom Pole Packing List

Item	Quantity
Octagonal Straight boom pole	1

1.5.2 Boom Pole with Strip Light

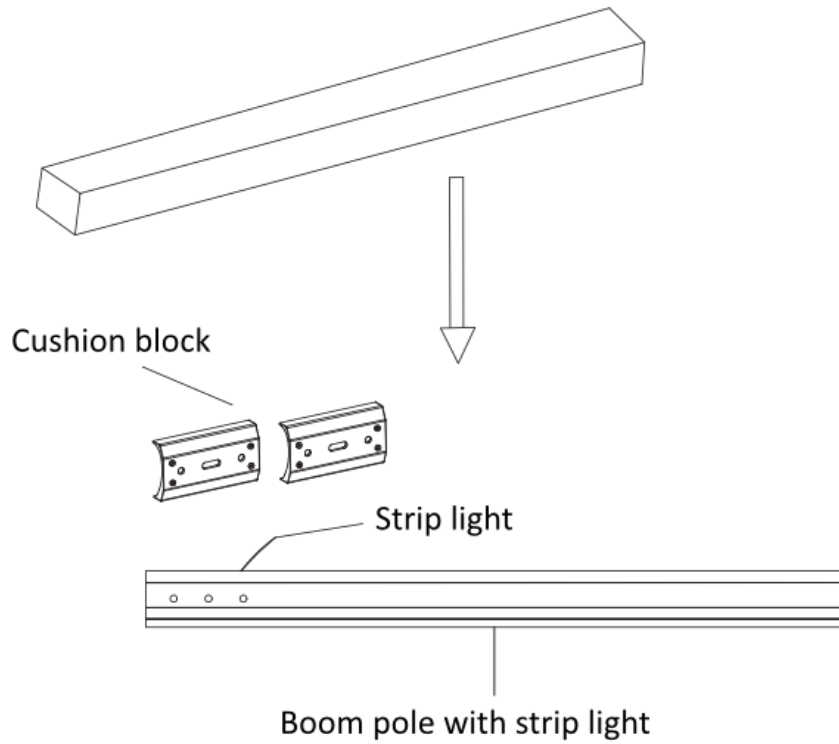


Figure 1-5 Boom Pole with Strip Light

Table 1-5 Boom Pole with Strip Light Packing List

Item	Quantity
Boom pole with strip light	1
Cushion block	2

1.5.3 Anti-collision Cylinder Boom Pole

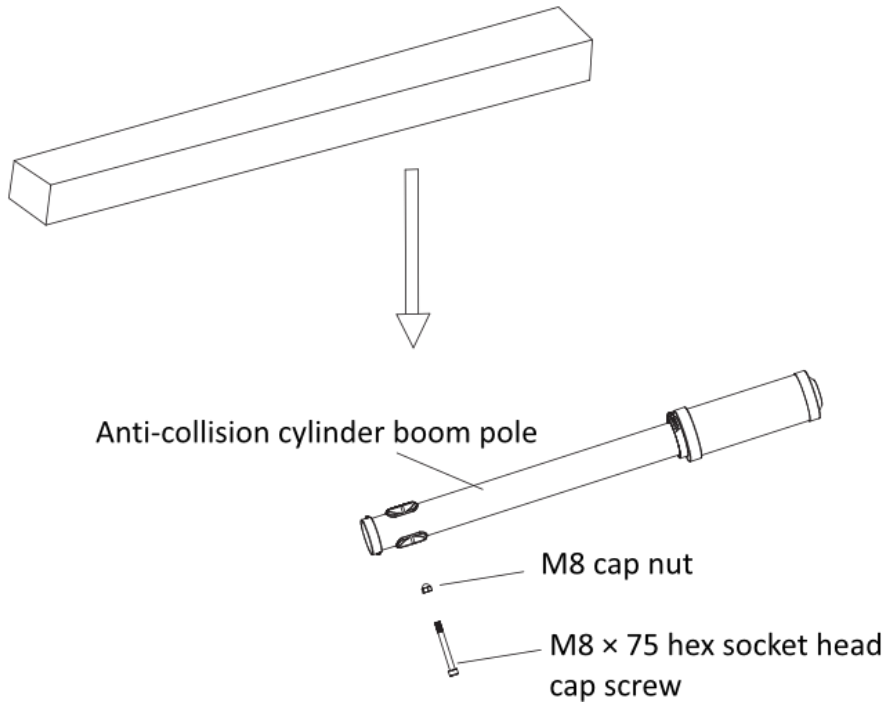


Figure 1-6 Anti-collision Cylinder Boom Pole

Table 1-6 Anti-collision Cylinder Boom Pole Packing List

Item	Quantity
Anti-collision cylinder boom pole	1
M8 cap nut	1
M8 × 75 hex socket head cap screw	1

1.5.4 Octagonal Telescopic Boom Pole

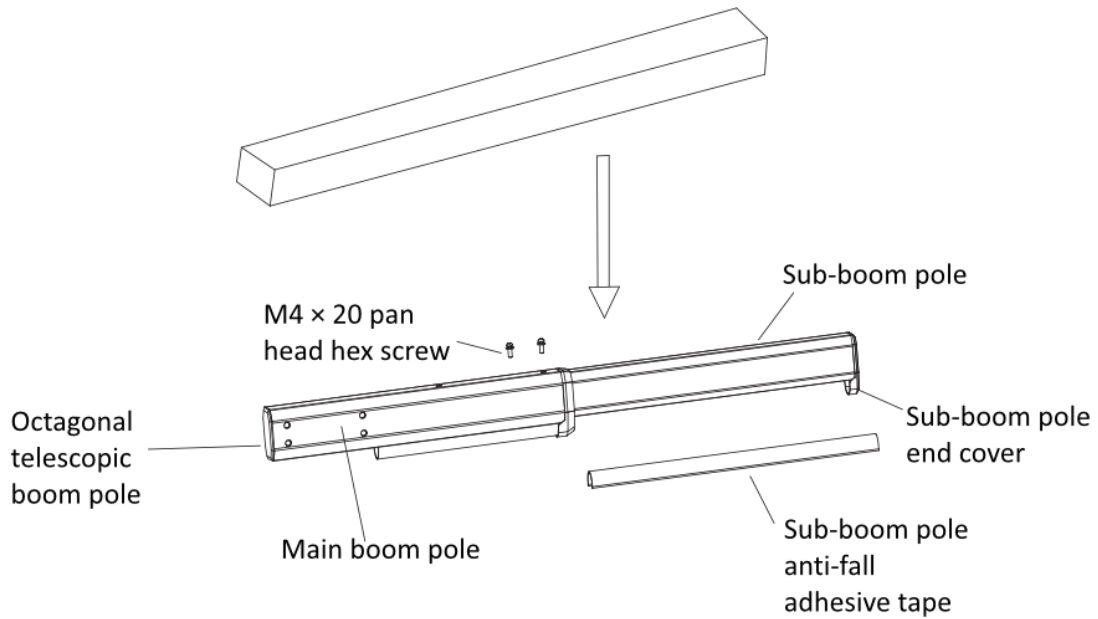


Figure 1-7 Octagonal Telescopic Boom Pole

Table 1-7 Octagonal Telescopic Boom Pole Packing List

Item	Quantity
Octagonal telescopic boom pole	1
Sub-boom pole anti-fall adhesive tape	1
M4 x 20 pan head hex screw	2

1.5.5 Fence Boom Pole

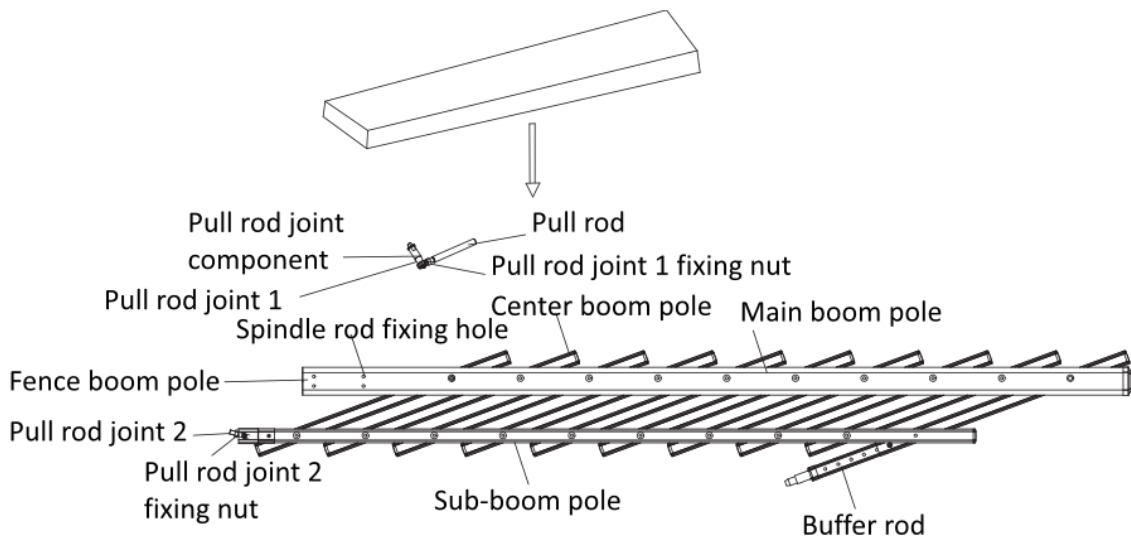


Figure 1-8 Fence Boom Pole

Table 1-8 Fence Boom Pole Packing List

Item	Quantity
Fence boom pole	1
Pull rod joint component	1

1.5.6 Folding Boom Pole

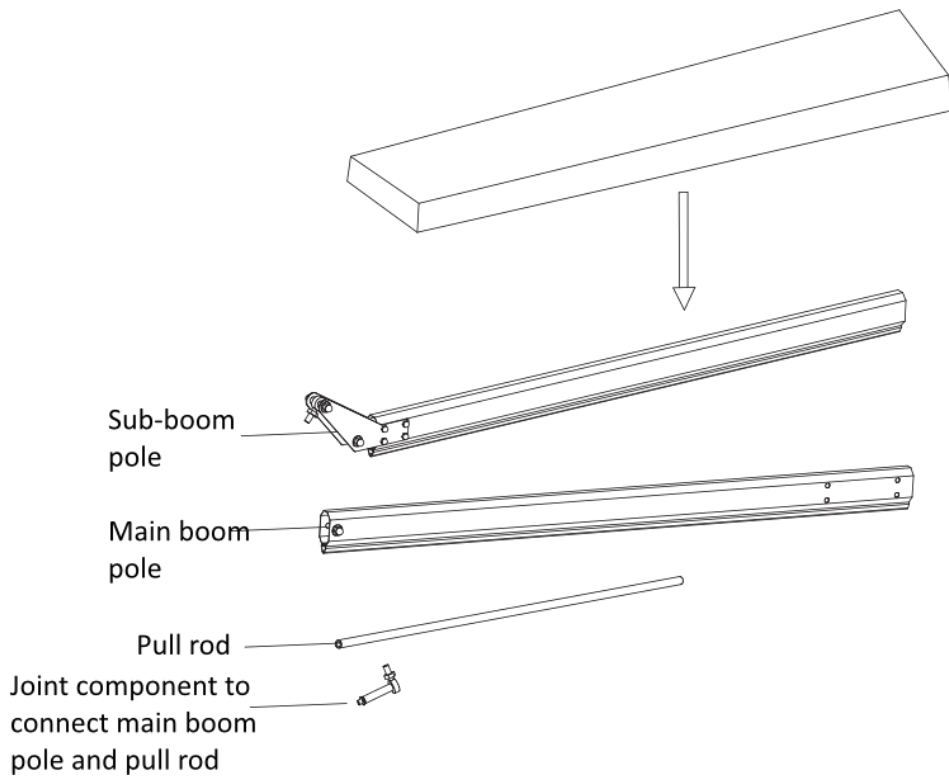


Figure 1-9 Folding Boom Pole

Table 1-9 Folding Boom Pole Packing List

Item	Quantity
Sub-boom pole	1
Main boom pole	1
Pull rod	1
Joint component to connect main boom pole and pull rod	1

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 no more than 300 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 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.

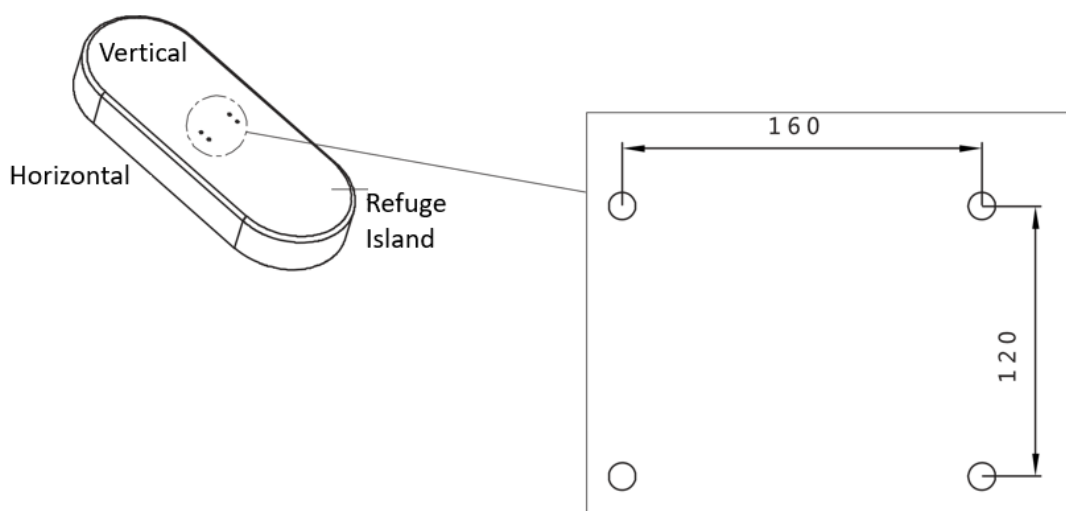


Figure 2-1 Mark Position

 **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.

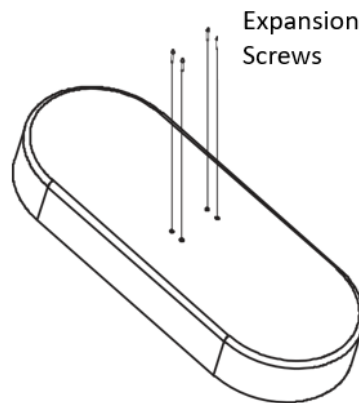


Figure 2-2 Install Expansion Screws

3. Uninstall the top and front covers.
 - 1) Use the L-type key to unlock the top cover.
 - 2) Lift the top cover gently and push it to take it down.
 - 3) Lift the front cover gently to take it down.

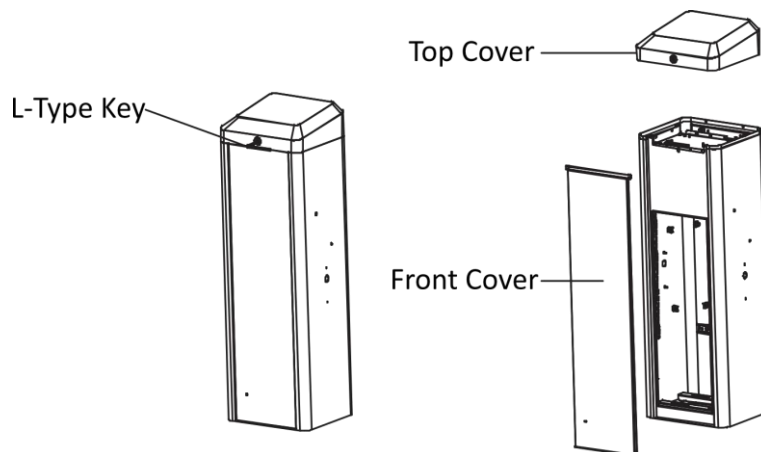


Figure 2-3 Uninstall Top and Front Covers

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.

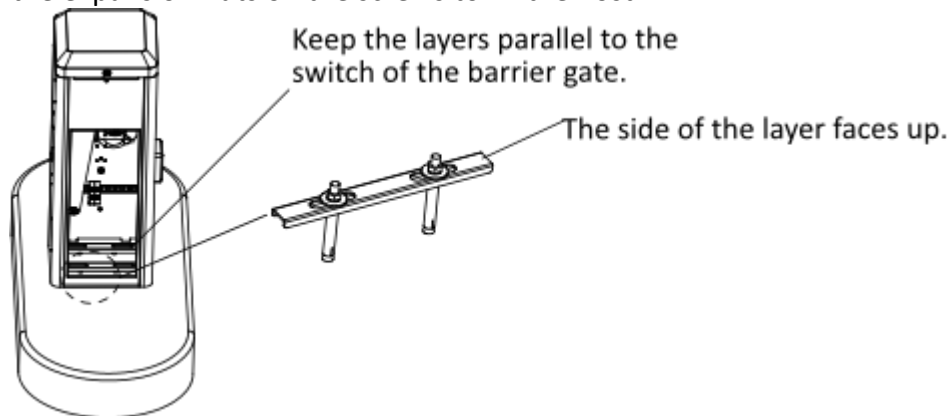


Figure 2-4 Fix Host

! Danger

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

2.3 Install Boom Pole

2.3.1 Install Octagonal Straight Boom Pole

Steps

1. Unscrew the cap nuts, spring washers, and flat washers on the other sides of the four assembling bolts. Save the components and parts for the following installations.

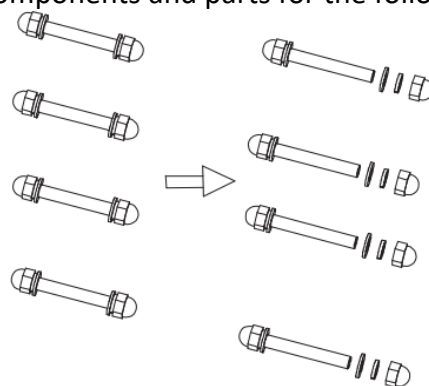


Figure 2-5 Unscrew Assembling Bolts

2. Install the chuck to the boom pole with the bolts as shown in the figure below.

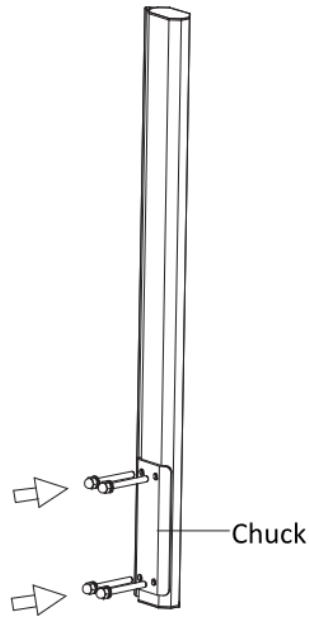


Figure 2-6 Install Chuck

3. Install the boom pole to the spindle rod and fasten the other ends of the bolts with the disassembled spring washers, flat washers, and cap nuts.

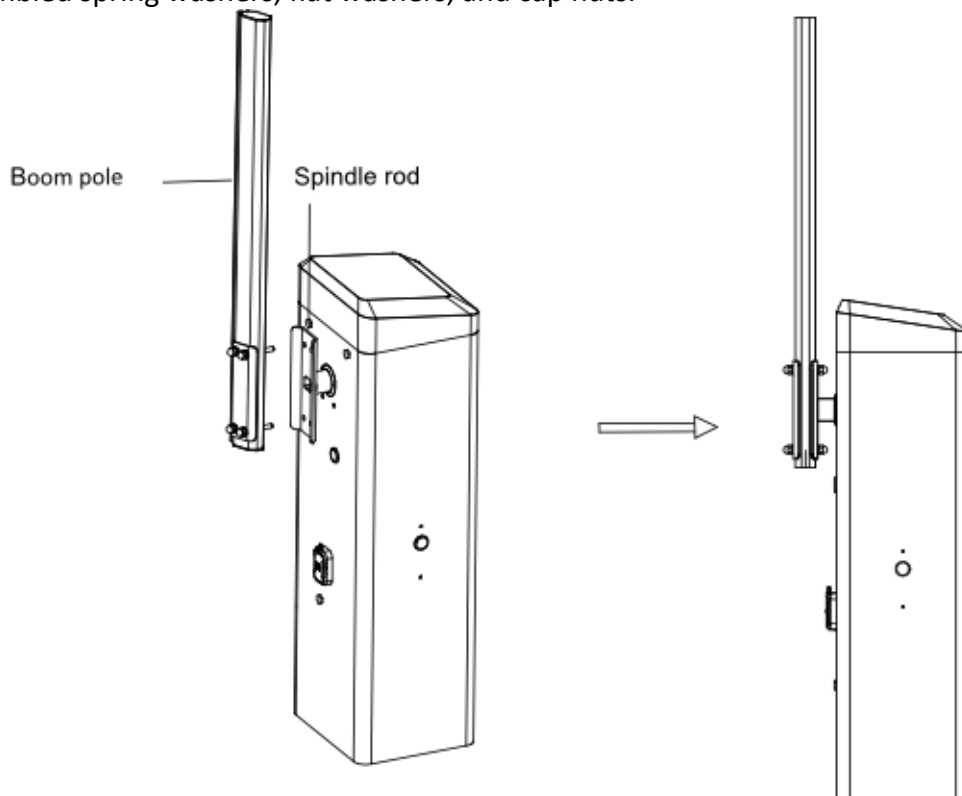


Figure 2-7 Fix Octagonal Straight Boom Pole

2.3.2 Install Boom Pole with Strip Light

Steps

1. Unscrew the cap nuts, spring washers, and flat washers on the other sides of the four assembling bolts. Save the components and parts for the following installations.

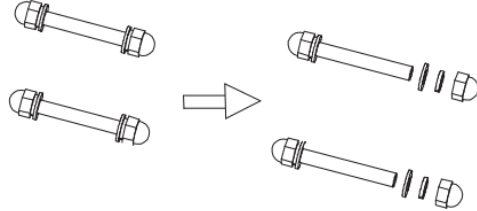


Figure 2-8 Unscrew Assembling Bolts

4. Install the chuck and two cushion blocks to the boom pole with the bolts as shown in the figure below.

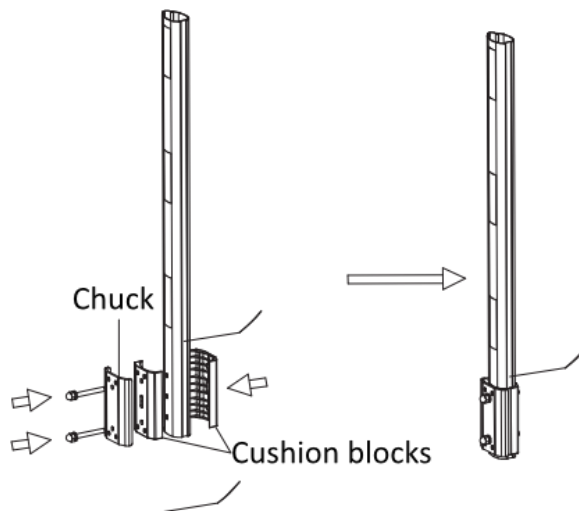


Figure 2-9 Install Chuck and Cushion Blocks

5. Install the boom pole to the spindle rod and fasten the other ends of the bolts with the disassembled spring washers, flat washers, and cap nuts.

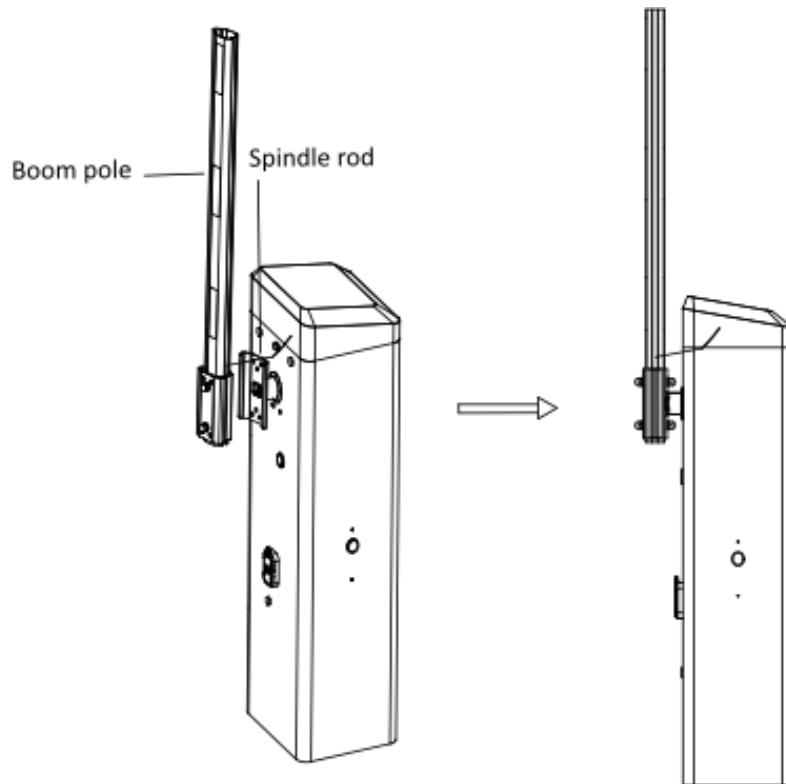


Figure 2-10 Fix Boom Pole with Strip Light

6. Remove the rubber plug of the cable hole on the host.

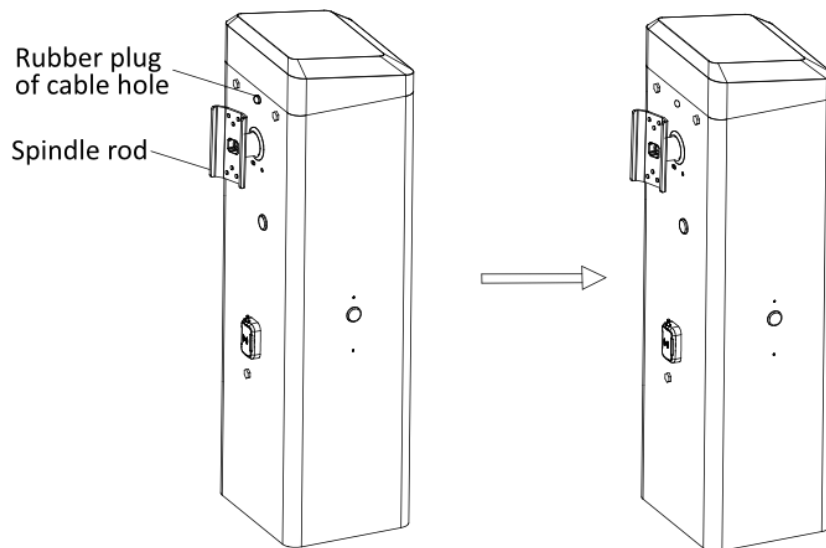


Figure 2-11 Remove Rubber Plug

7. Wire the strip light cable.

- 1) Take the M12 white waterproof joint out from the accessory package.
- 2) Fix the waterproof joint to the cable hole on the host with the fixing nut.
- 3) Remove the waterproof cover from the joint, and thread the strip light cable through the

waterproof cover, waterproof joint, and fixing nut.

- 4) Pull the strip light cable in the internal host until the white rolling strip limit block on the strip light cable nears to the waterproof cover.
- 5) Power off the device. Rotate the boom pole to check if the strip light cable length is appropriate. Fasten the waterproof cover to the joint after the length is appropriate.

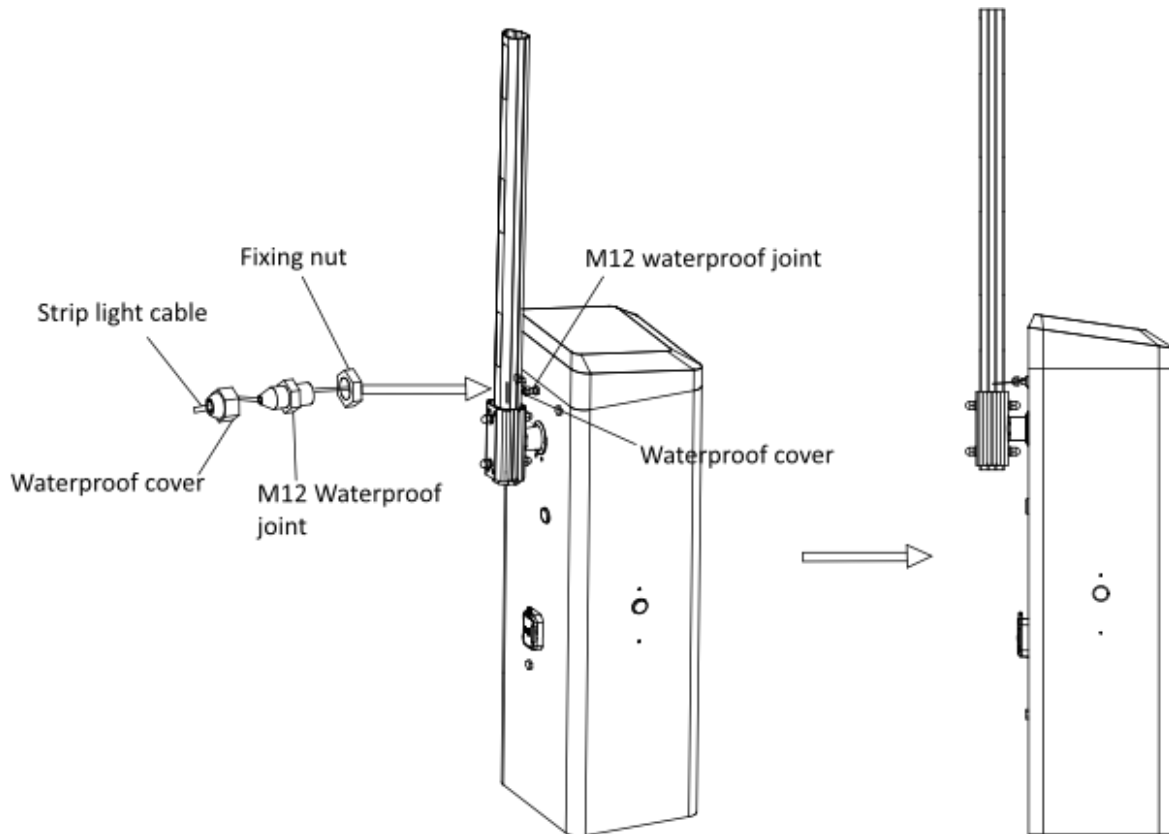


Figure 2-12 Wire Strip Light Cable

2.3.3 Install Anti-collision Cylinder Boom Pole

Steps

1. Stuff the boom pole in the spindle rod aslant as shown in the figure below. Align the installation hole on the boom pole with that on the spindle rod.

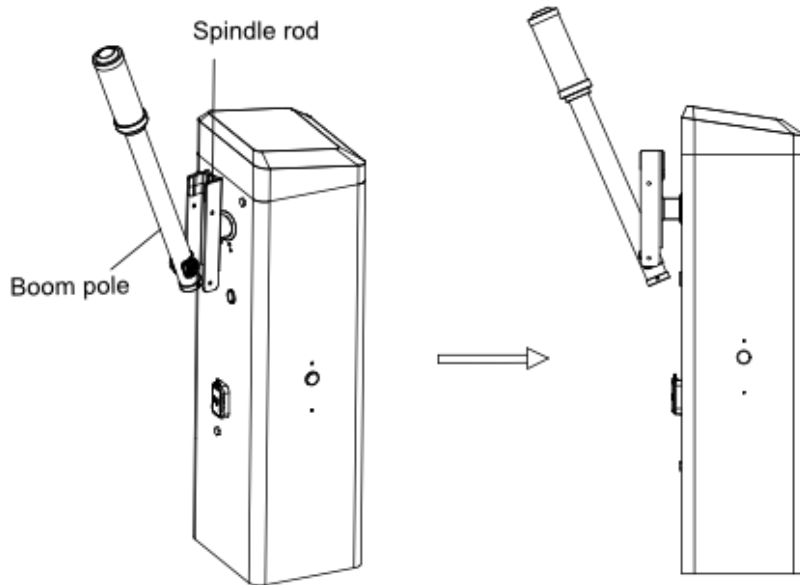


Figure 2-13 Stuff Boom Pole Aslant

2. Insert the M8 × 75 hex socket head cap screw into the installation hole, and push the boom pole into the spindle rod quickly according to the directions as shown in the figure below.

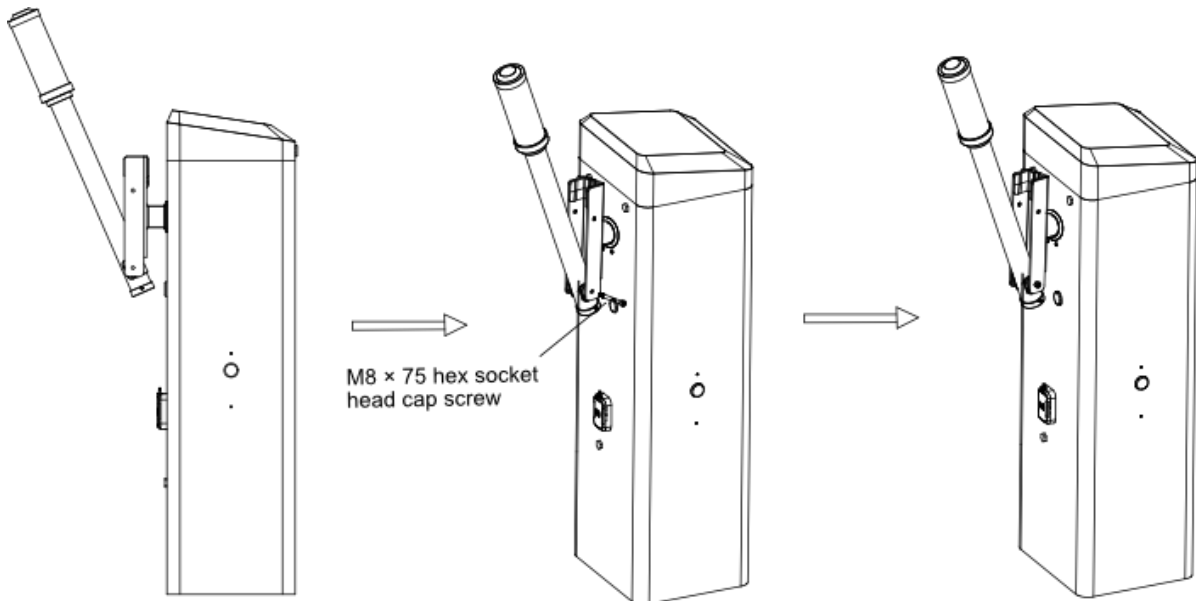


Figure 2-14 Install Anti-collision Cylinder Boom Pole

3. Fix the M8 cap nut to the screw to fix the boom pole.

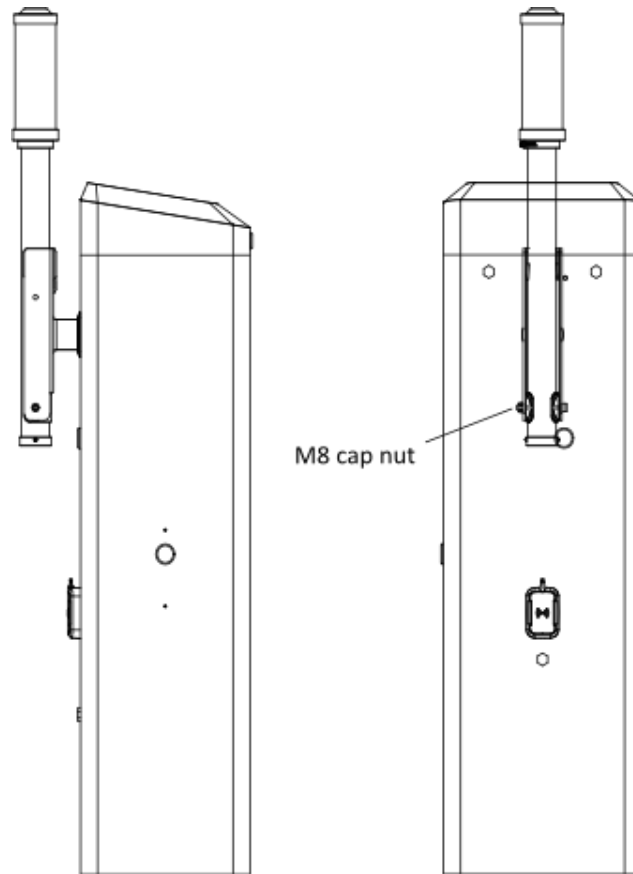
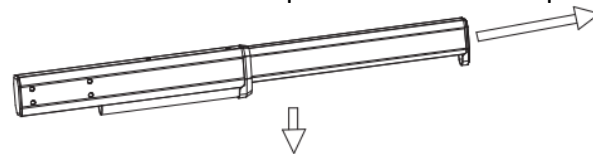


Figure 2-15 Fix Boom Pole

2.3.4 Install Octagonal Telescopic Boom Pole

Steps

1. Install the octagonal telescopic boom pole.
 - 1) Pull the sub-boom pole out according to the direction shown in the figure below. Align the installation holes on the main boom pole and sub-boom pole.



Align the installation holes on the main boom pole and sub-boom pole.

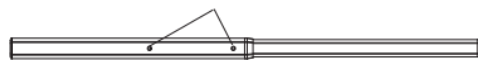


Figure 2-16 Pull Sub-Boom Pole

- 2) Fix two M4 × 20 pan head hex screws into the installation holes.

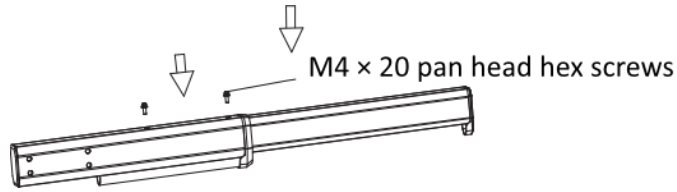


Figure 2-17 Fix Screws

- 3) Remove the end cover of the sub-boom pole. Insert the anti-fall adhesive tape into the sub-boom pole. After the anti-fall adhesive tape is inserted to the limit position, cut the projecting adhesive tape.

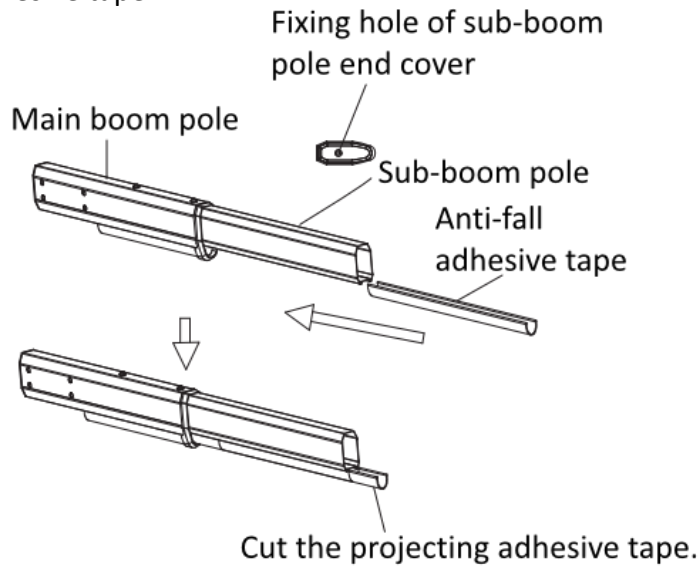


Figure 2-18 Insert Anti-Fall Adhesive Tape

- 4) Install the end cover to the sub-boom pole.

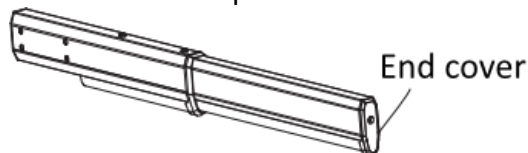


Figure 2-19 Install End Cover

2. Install the octagonal telescopic boom pole to the host.
 - 1) Unscrew the cap nuts, spring washers, and flat washers on the other sides of the four assembling bolts. Save the components and parts for the following installations.

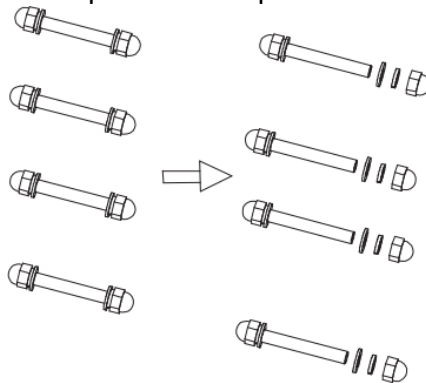


Figure 2-20 Unscrew Assembling Bolts

- 2) Install the chuck to the boom pole with the bolts as shown in the figure below.

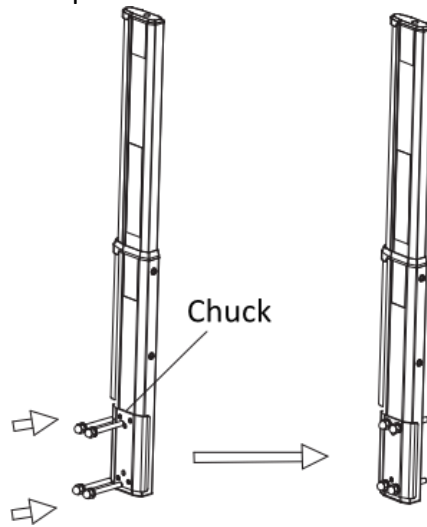


Figure 2-21 Install Chuck

- 3) Install the boom pole to the spindle rod and fasten the other ends of the bolts with the disassembled spring washers, flat washers, and cap nuts.

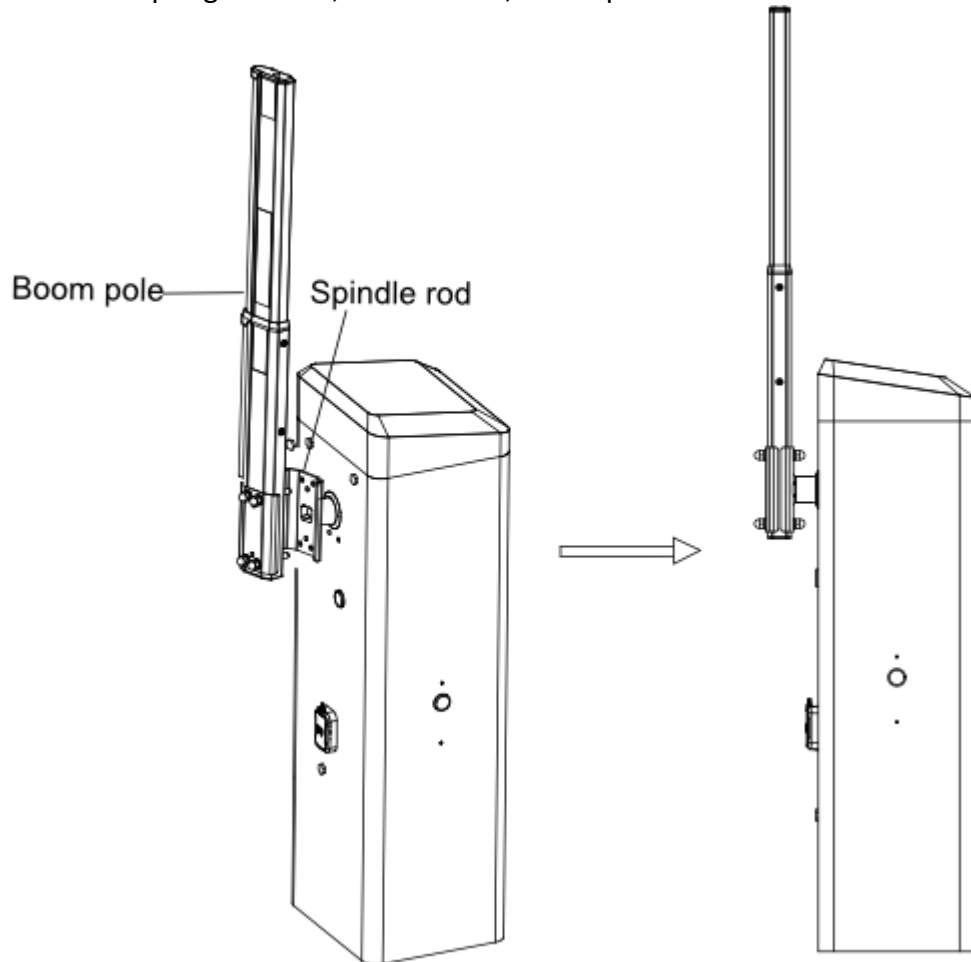


Figure 2-22 Fix Octagonal Telescopic Boom Pole

2.3.5 Install Fence Boom Pole

Installation Procedure

Steps

1. Install the pull rod joint component to the installation position of the host. Unfasten the joint component pull rod.

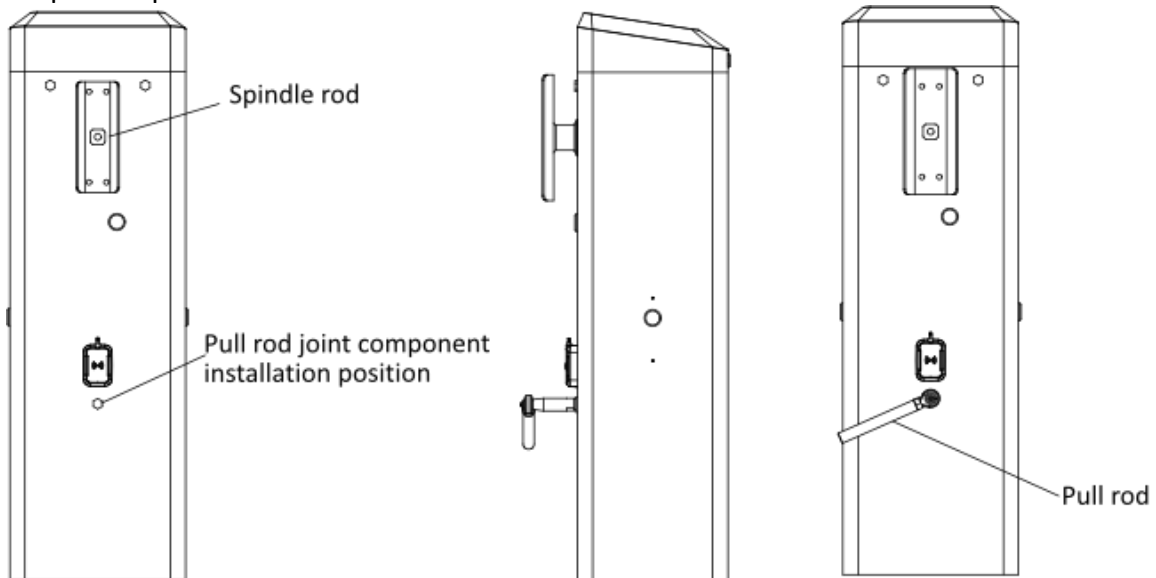


Figure 2-23 Install Pull Rod Joint Component

2. Install the fence boom pole.
 - 1) Unscrew the cap nuts, spring washers, and flat washers on the other sides of the four assembling bolts. Save the components and parts for the following installations.

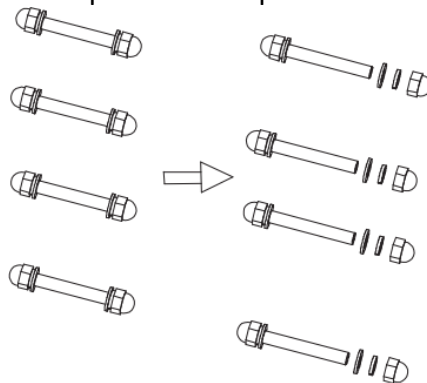


Figure 2-24 Unscrew Assembling Bolts

- 2) Install the chuck to the boom pole with the bolts as shown in the figure below.

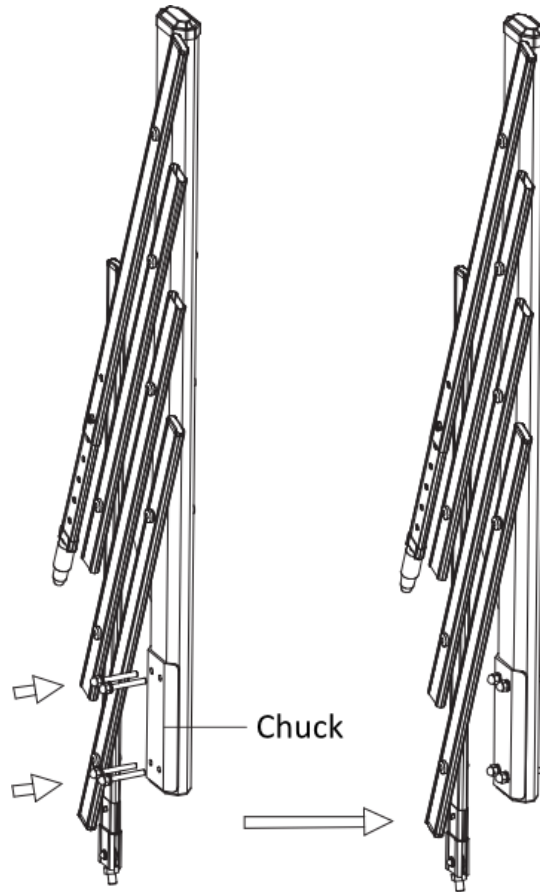


Figure 2-25 Install Chuck

- 3) Install the boom pole to the spindle rod and fasten the other ends of the bolts with the disassembled spring washers, flat washers, and cap nuts.

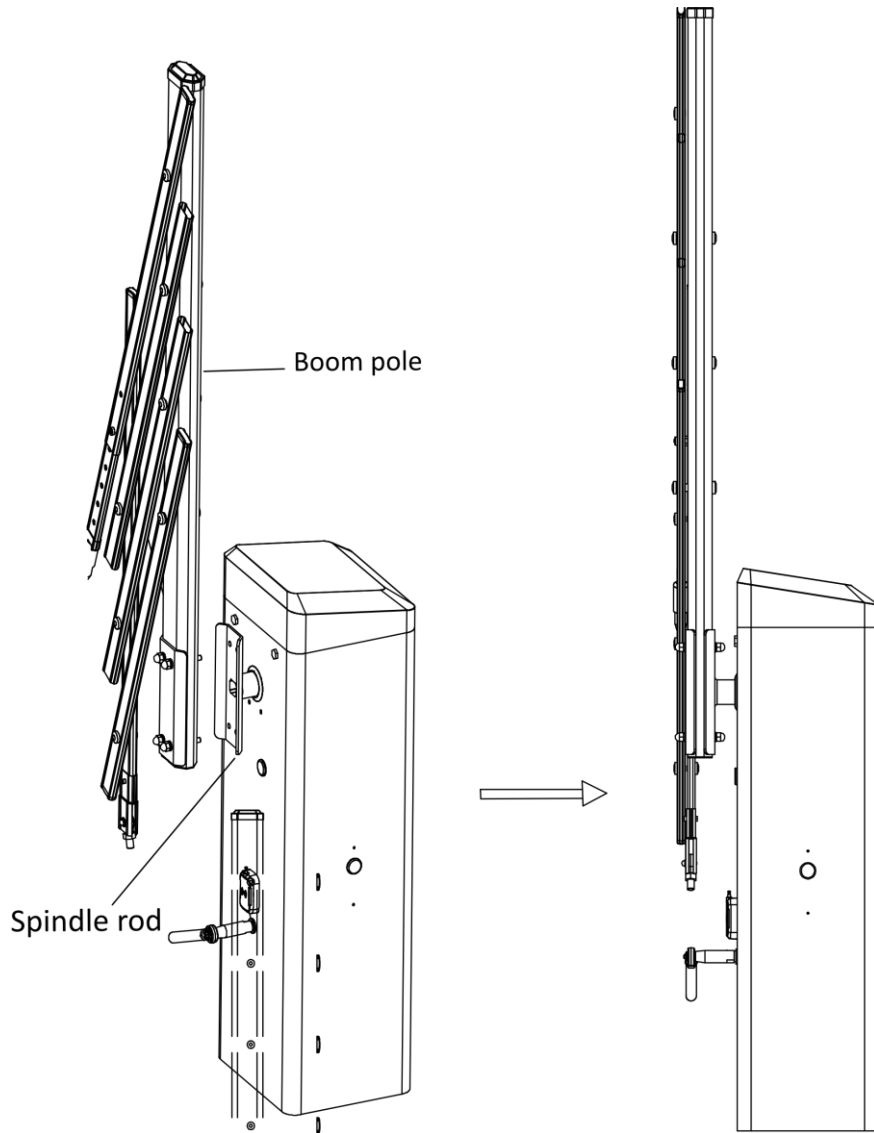


Figure 2-26 Fix Fence Boom Pole to Spindle Rod

- 4) Power off the device. Pull the fence boom pole to the horizontal position. Connect the pull rod of the joint component to the joint 2 of the fence boom pole pull rod. Wrest the pull rod of the joint component until the center boom poles are in the vertical position. Fasten the fixing nuts of the joint 1 of the joint component pull rod and joint 2 of the fence boom pole pull rod respectively.
- 5) Adjust the buffer rod height adjustment holes on the fence boom pole until the end of the buffer rod is on the same horizontal surface with that of the refuge island.

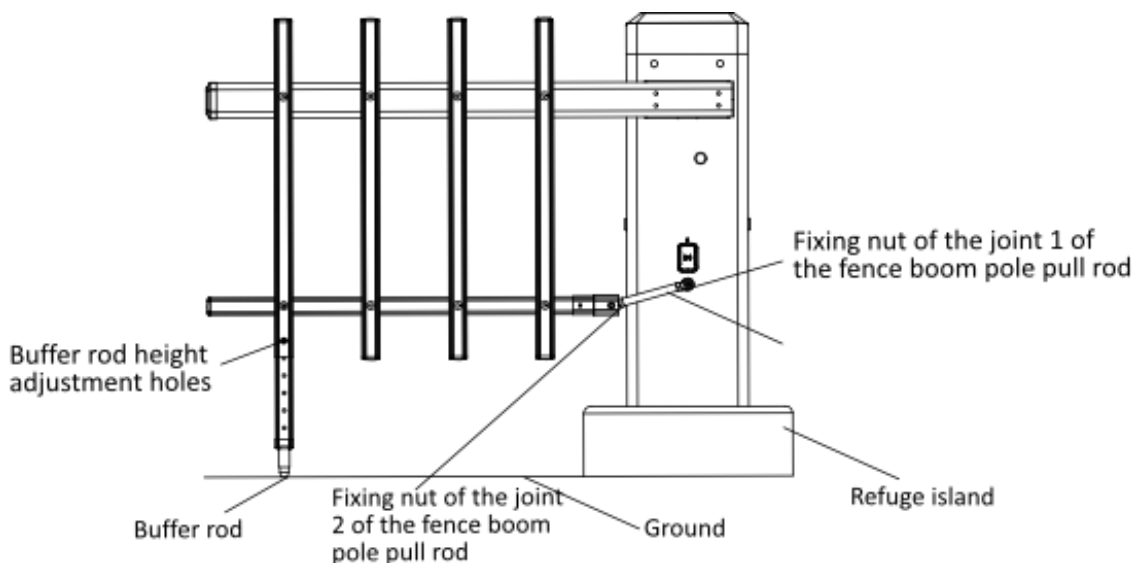


Figure 2-27 Adjust Fence Boom Pole

Note

For the refuge island with a special height, drill holes by yourself to adjust the buffer rod height.

Left and Right Directions of Fence Boom Pole

When you look from the arrow direction as shown below, the right fence boom pole is the one that the center boom poles are on the left of the main boom pole, and the left fence boom pole is the one that the center boom poles are on the right of the main boom pole.

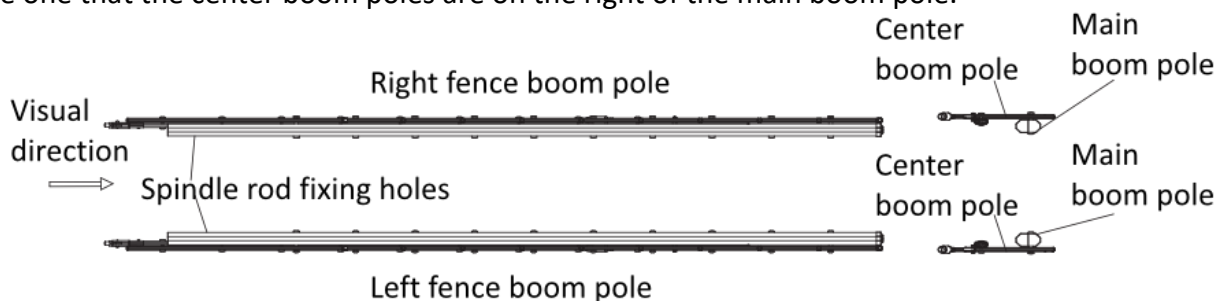


Figure 2-28 Left and Right Directions of Fence Boom Pole

2.3.6 Install Folding Boom Pole

Steps

1. Compose the main boom pole and sub-boom pole.
 - 1) Unfasten the cap nuts on the main boom pole and remove the screw and gaskets. Save the

components and parts for the following installations.

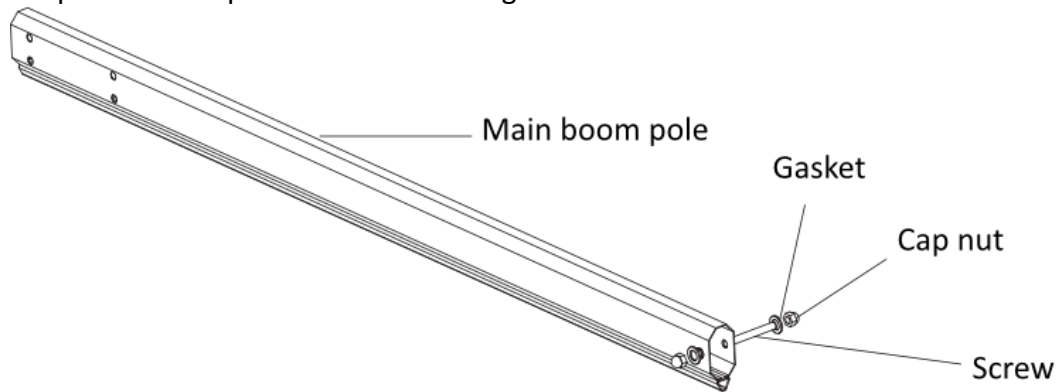


Figure 2-29 Unfasten Accessories of Main Boom Pole

- 2) Unfasten the cap nuts on the sub-boom pole and remove the screw, gaskets, and sub-boom pole pull rod joint. Save the components and parts for the following installations.

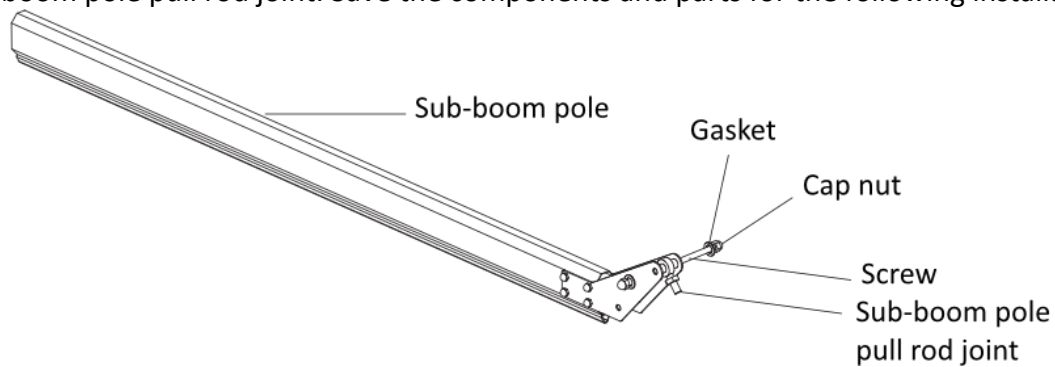
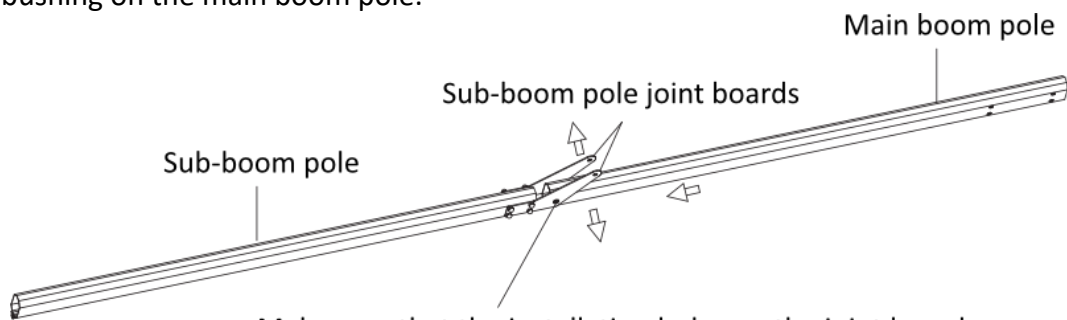


Figure 2-30 Unfasten Accessories of Sub- Boom Pole

- 3) Force apart the sub-boom pole joint boards, and install the main boom pole. Make sure that the installation holes on the joint boards of the sub-boom pole can clip into the black bushing on the main boom pole.



Make sure that the installation holes on the joint boards of the sub-boom pole can clip into the black bushing on the main boom pole.

Figure 2-31 Connect Main Boom Pole and Sub-Boom Pole

- 4) Put the sub-boom pole pull rod joint between the joint boards, and insert the screw through the pull rod joint and gaskets, and fasten the cap nuts. Insert the other screw through the other installation holes on the sub-boom pole joint boards and gaskets, and fasten the cap nuts. Make sure that the black bushing on the sub-boom pole pull rod joint

can clip into installation holes on the sub-boom pole joint boards.

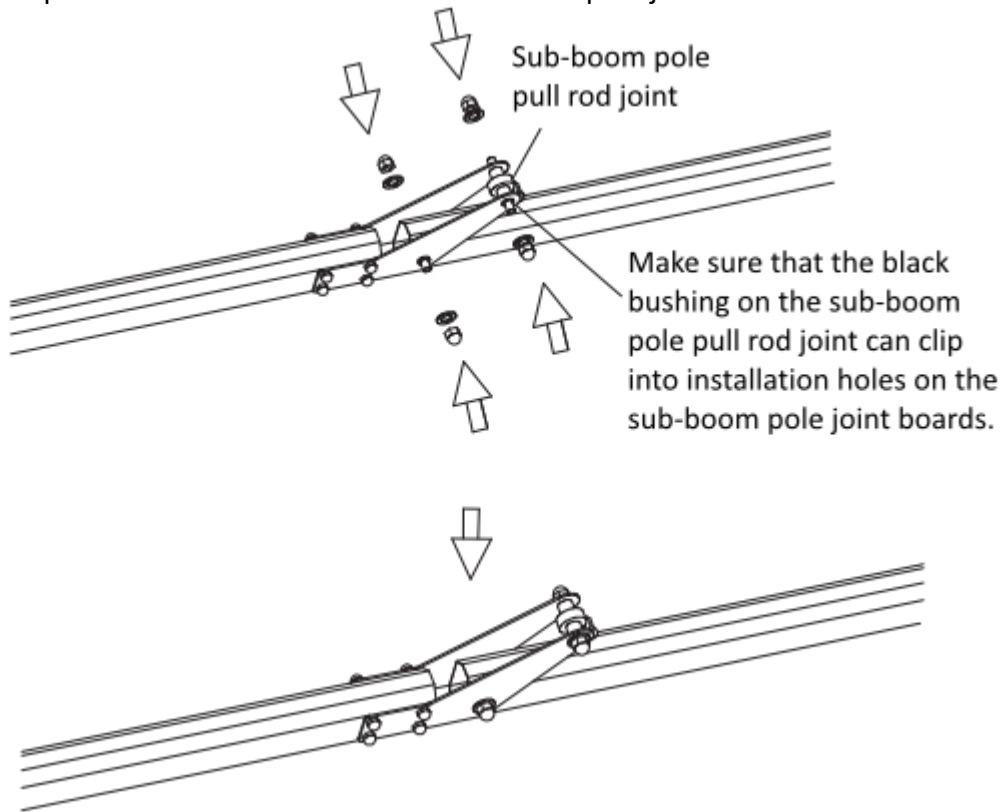


Figure 2-32 Install Sub-Boom Pole Pull Rod Joint

2. Install the folding boom pole to the host.

Note

Here we take example of the right direction barrier gate.

- 1) Remove the plastic nut on the installation position of the right direction main boom pole pull

rod joint.

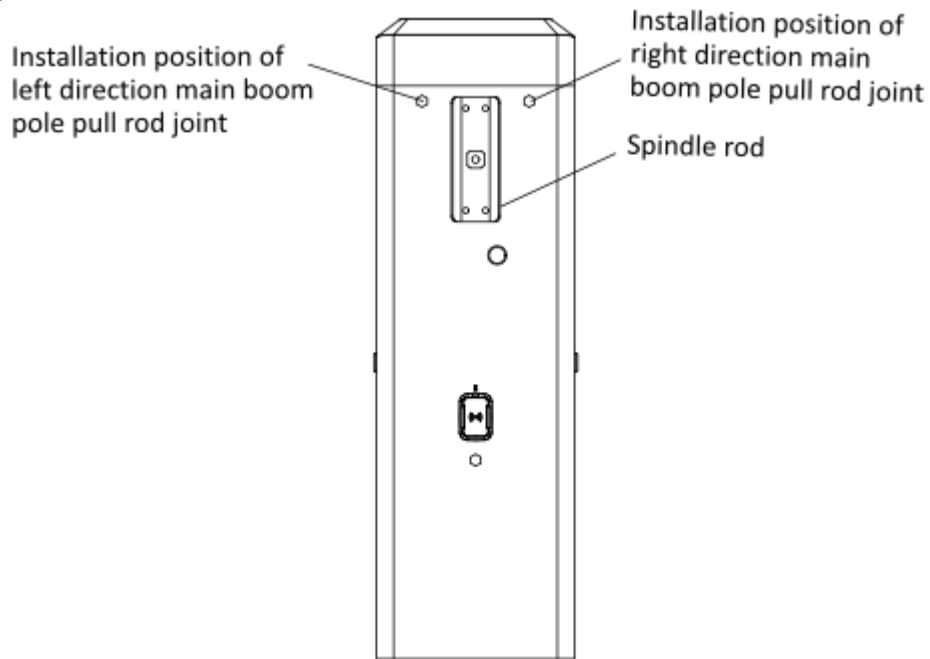


Figure 2-33 Remove Plastic Nut

- 2) Install the right direction main boom pole pull rod joint to the installation holes with the flat washer and spring washer.

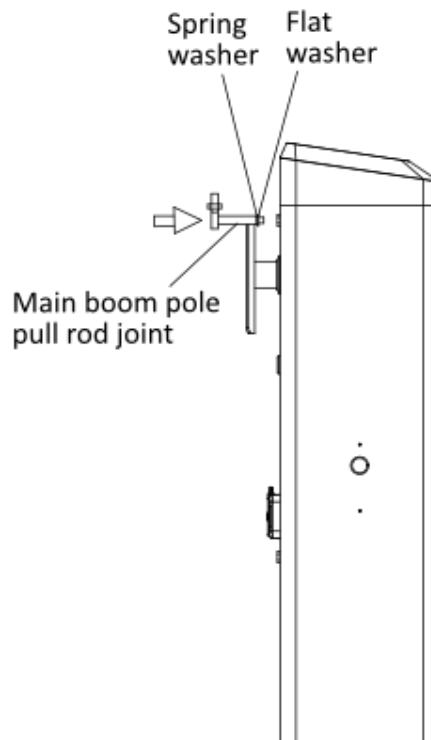


Figure 2-34 Install Main Boom Pole Pull Rod Joint

- 3) Unscrew the cap nuts, spring washers, and flat washers on the other sides of the four assembling bolts. Save the components and parts for the following installations.

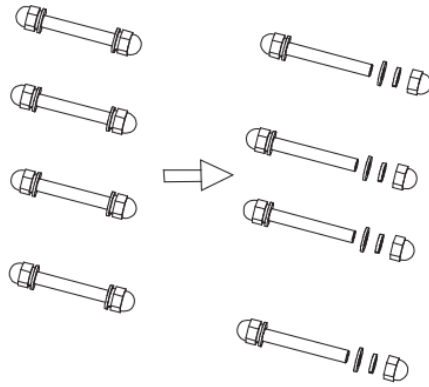


Figure 2-35 Unscrew Assembling Bolts

- 4) Install the chuck to the boom pole with the bolts as shown in the figure below.

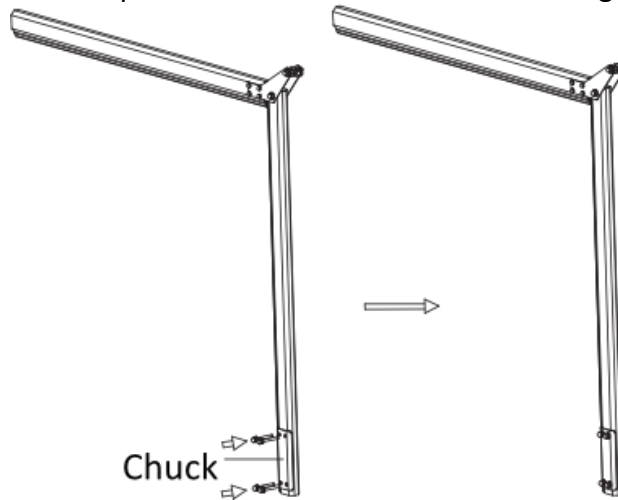


Figure 2-36 Install Chuck

- 5) Install the boom pole to the spindle rod and fasten the other ends of the bolts with the disassembled spring washers, flat washers, and cap nuts.

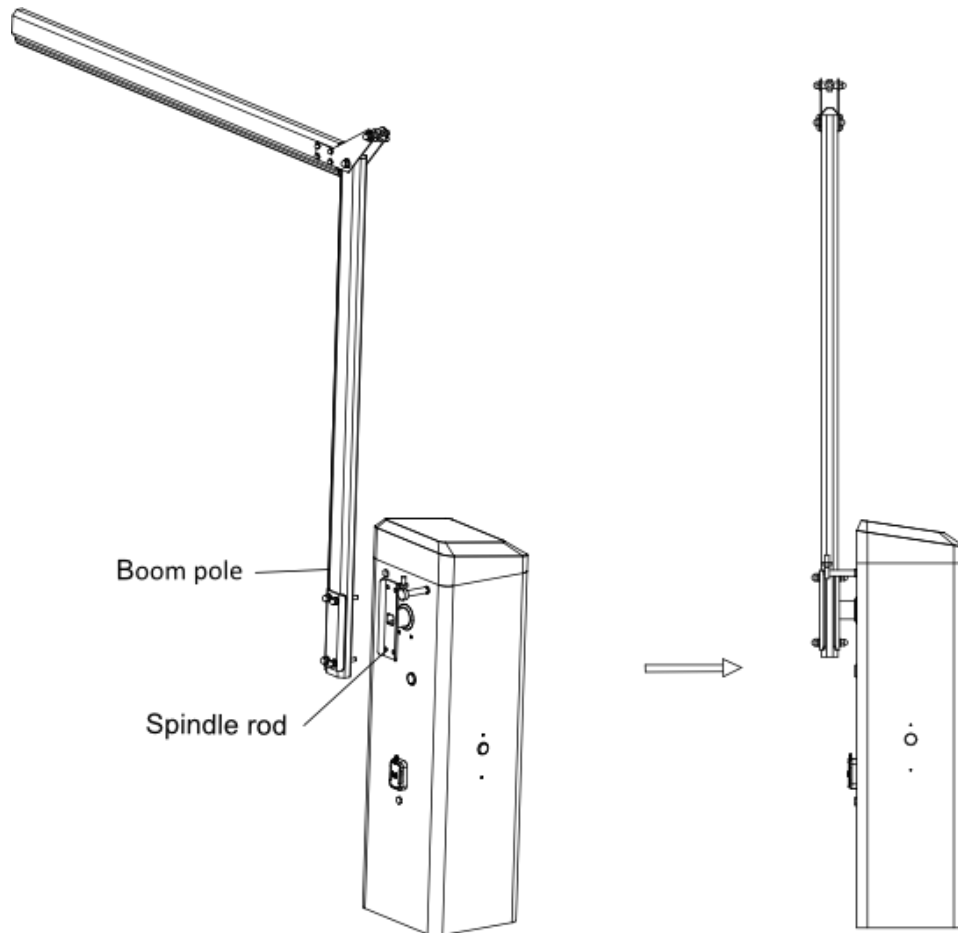


Figure 2-37 Fix Folding Boom Pole

- 6) Power off the device. Pull the main boom pole to the horizontal position, and place the sub-boom pole nearly to the horizontal position. Wrest the pull rod between the sub-boom pole pull rod joint and the main boom pole pull rod joint. Wrest the pull rod continuously to keep the main boom pole and sub-boom pole in the horizontal position, and fasten the nuts on

both ends.

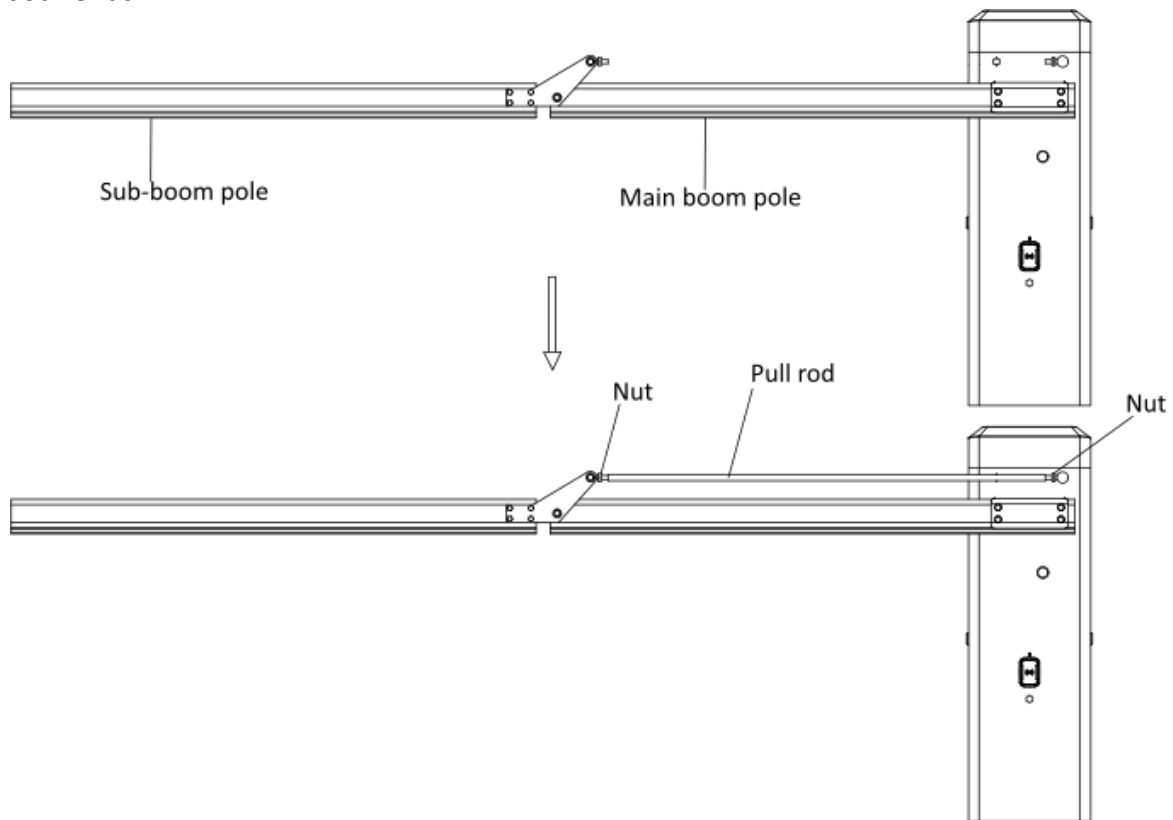


Figure 2-38 Connect Boom Pole to Host via Pull Rod

2.4 Wiring

2.4.1 Connect to Power Supply

Connect the laid power cord (RVV3 × 1.5 mm² or above) to the power input of barrier gate. Install the top and front covers. Use the L-type key to lock the top cover.

⚠ 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.
-

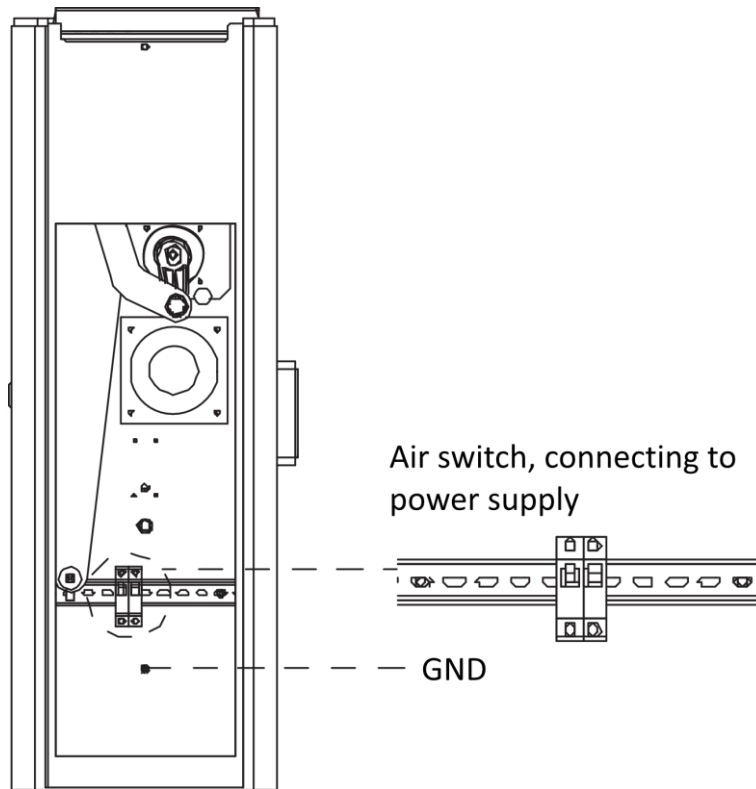


Figure 2-39 Connect to Power Supply

2.4.2 Connect to Access ANPR Camera

As the figure shown below, connect the rising control + and rising control – interfaces of the barrier gate to the rising control interfaces of the access ANPR camera, and connect the falling control + and falling control – interfaces of the barrier gate to the falling control interfaces of the access ANPR camera.

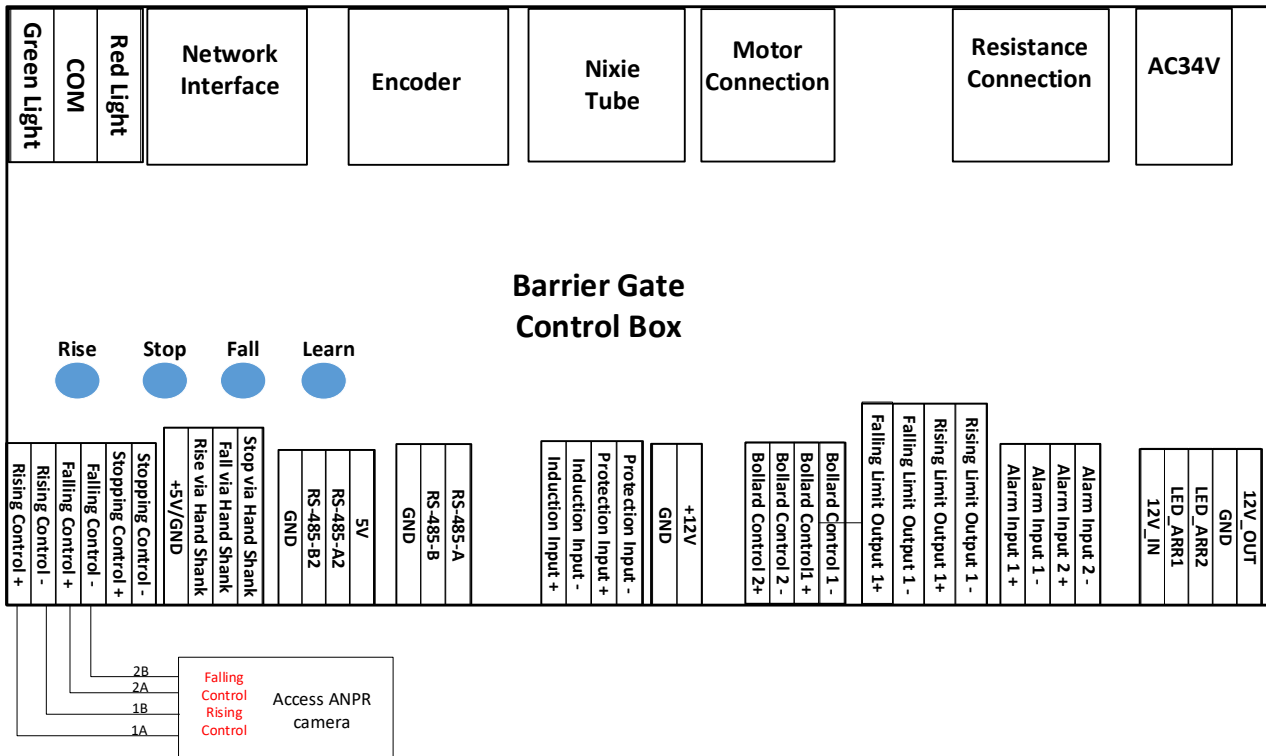


Figure 2-40 Connect to Access ANPR Camera

2.4.3 Connect to Traffic Signal Light

Connect the black line of the traffic signal light to the rising limit output 1- interface of the barrier gate, and connect the grey line of the traffic signal light to the rising limit output 1+ interface of the barrier gate. When the barrier gate is fallen, or is being raised or fallen, the red light is on and vehicles are prohibited.

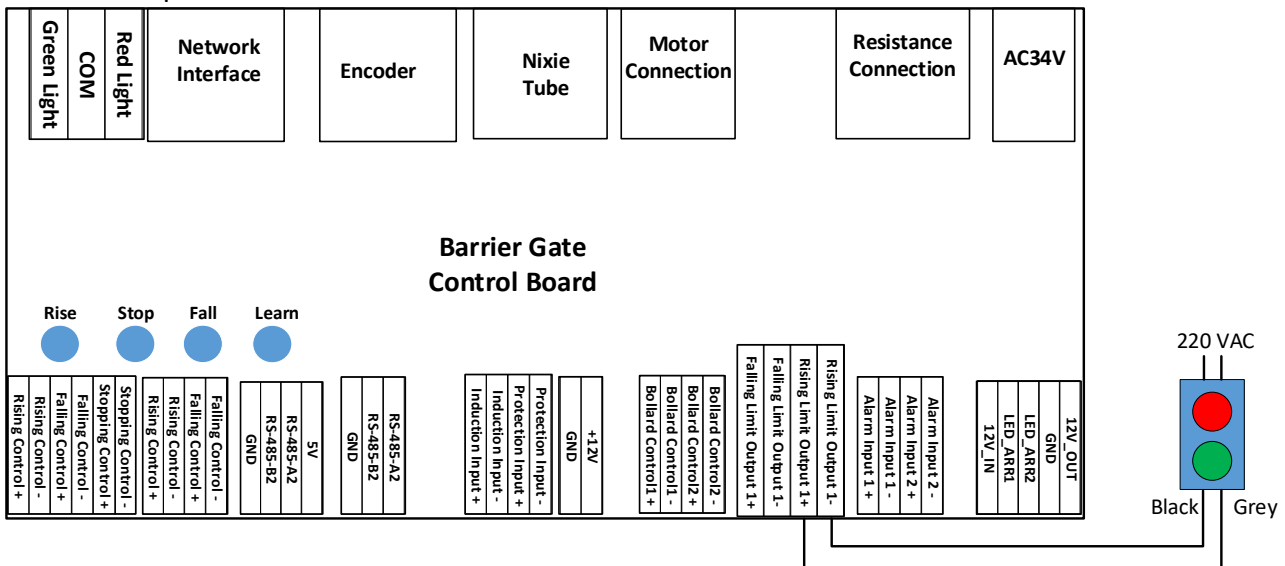


Figure 2-41 Connect to Traffic Signal Light

2.4.4 Connect to Anti-fall Radar

Anti-fall Radar Wiring

The anti-fall radar needs to be powered by 12 VDC power supply. Connect the induction+ and induction- interface of the barrier gate to the radar yellow line and brown line.

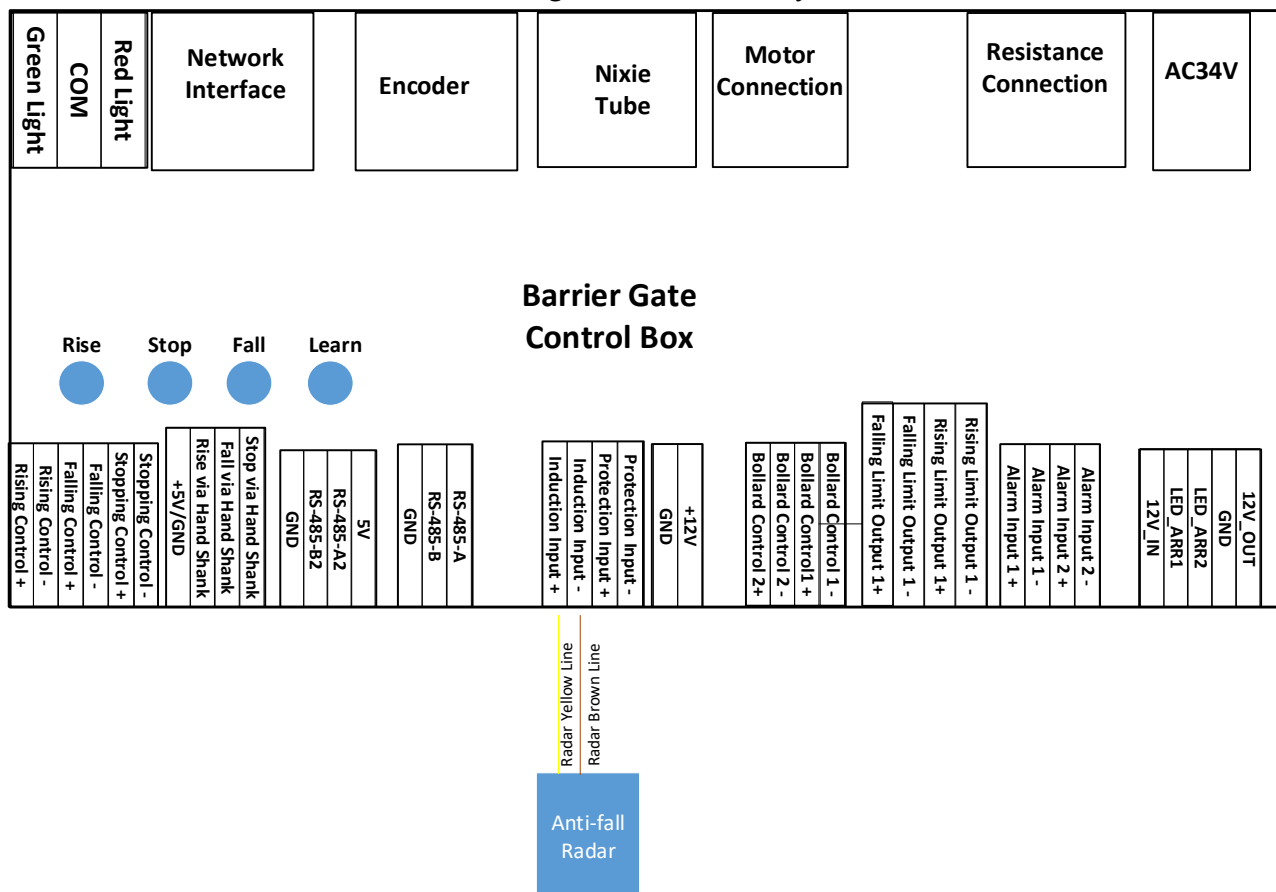


Figure 2-42 Connect to Anti-fall Radar

Note

- Radar 12 V power supply output: 0.5 AAV, max. 1 A.
- Induction/protection input withstanding voltage: max. 12 VDC.
- 12 V refers to internal power supply of the device. External power supply is not supported.

Radar Installation Instructions

The anti-fall radar should be installed beside the barrier gate. In different scenarios, follow the instructions below to get the best effect.

Scenario 1: Small-Sized Vehicles

For small-sized vehicles, such as the cars and SUVs, install the radar according to the figure shown below.

Small-sized vehicles scenario
Cars, SUVs

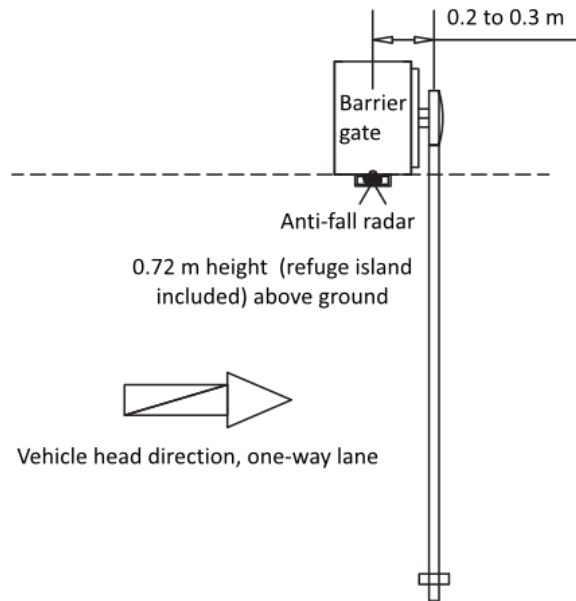


Figure 2-43 Small-Sized Vehicles Scenario

Scenario 2: Large-Sized Vehicles

For large-sized vehicles, such as the oil tank trucks, transport vehicles, trucks, and other vehicles with chassises of higher than 1 m, install the radar according to the figure shown below.

Large-sized vehicles scenario

Oil tank trucks, transport vehicles, trucks, or other vehicles
with chassis of higher than 1 m

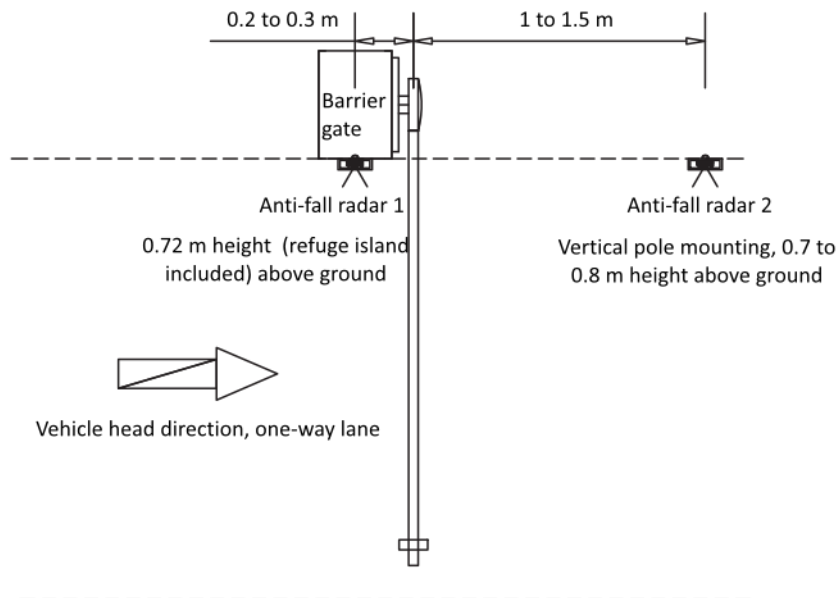


Figure 2-44 Large-Sized Vehicles Scenario

Scenario 3: Mixed Traffic

For mixed traffic scenario, such as the large-sized and small-sized vehicles are mixing, install the radar according to the figure shown below.

Mixed traffic scenario
Large-sized and small-sized vehicles are mixing.

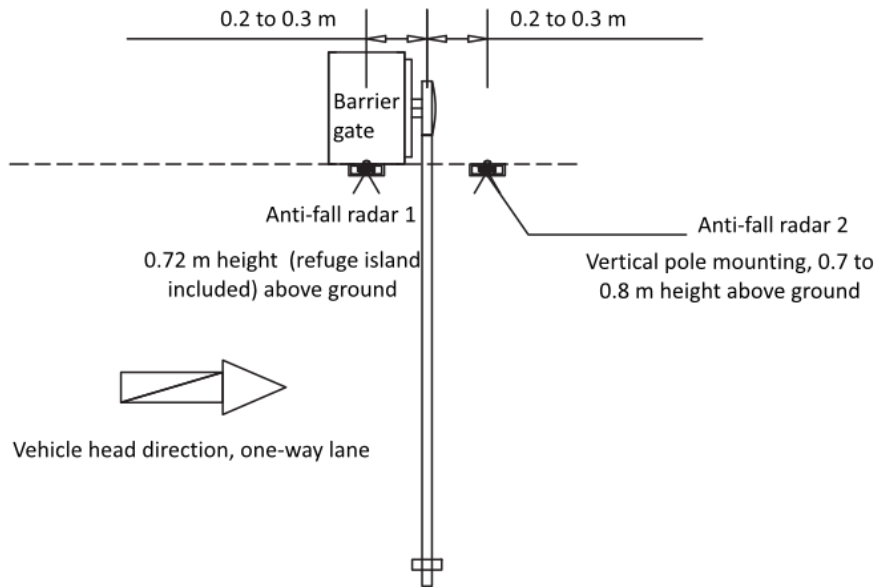


Figure 2-45 Mixed Traffic Scenario

2.4.5 Connect to Vehicle Detector

Vehicle Detector Wiring

Connect the Induction input + and Induction input - interfaces of the barrier gate to the vehicle detector.

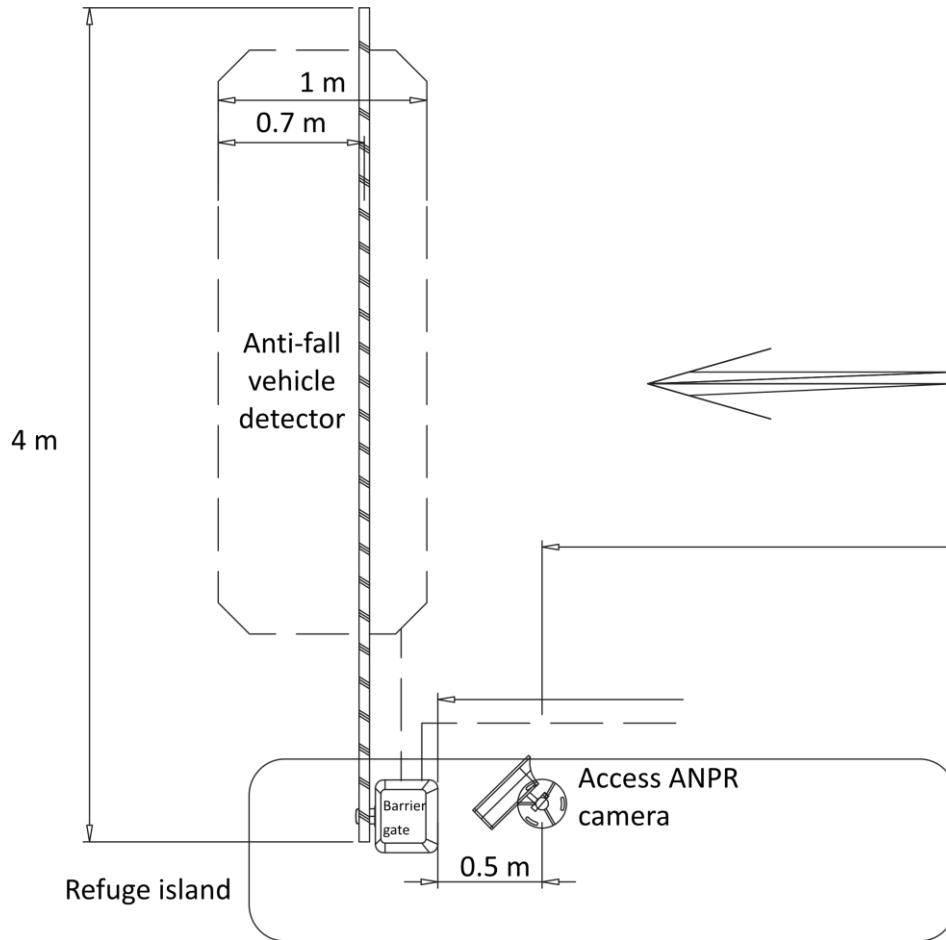


Figure 2-47 Vehicle Detector Installation

2.4.6 Connect to Active Infrared Intrusion Detector

Connect the induction input - interface of the barrier gate to the COM interface of the active infrared intrusion detector, and the induction input + interface of the barrier gate to the OUT interface of the active infrared intrusion detector.

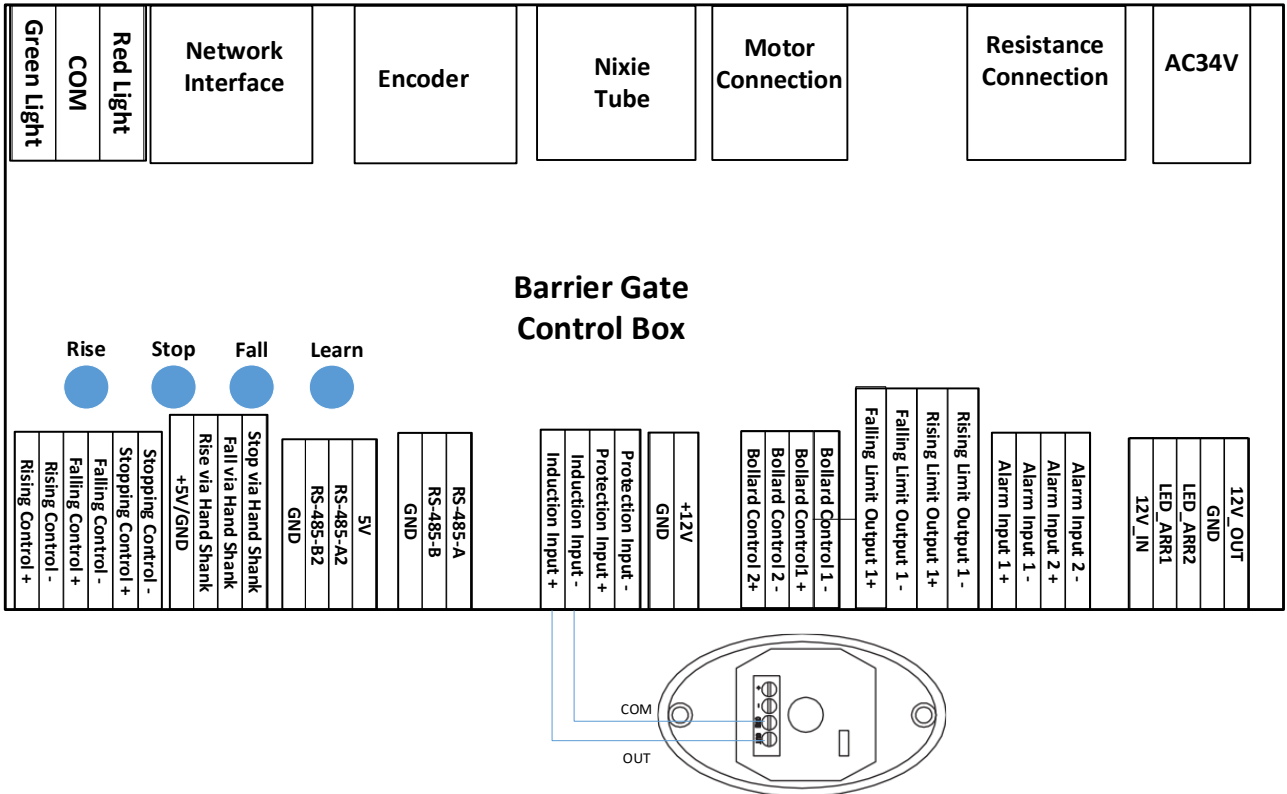


Figure 2-48 Connect to Active Infrared Intrusion Detector

2.4.7 Connect to Arrow Indicator

Connect the arrow indicator to the barrier gate as shown below.

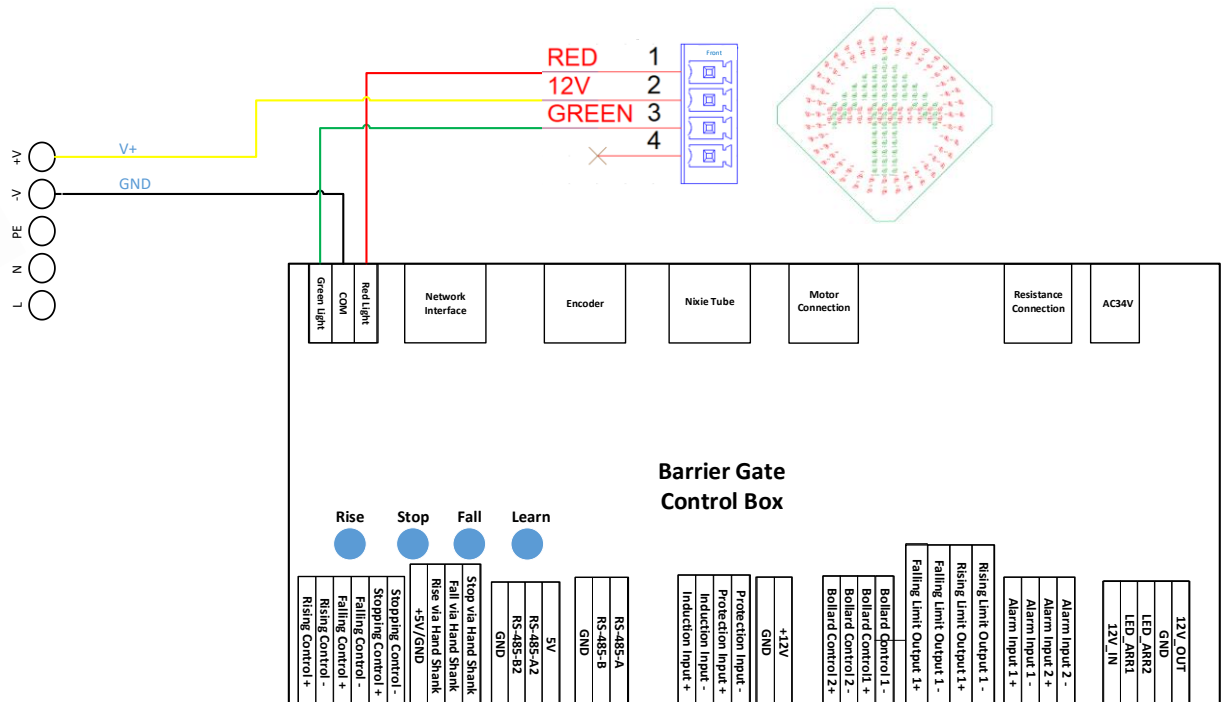


Figure 2-49 Connect to Arrow Indicator

2.4.8 Connect to Strip Light

For the boom pole with strip light, connect the strip light to the barrier gate as shown below.

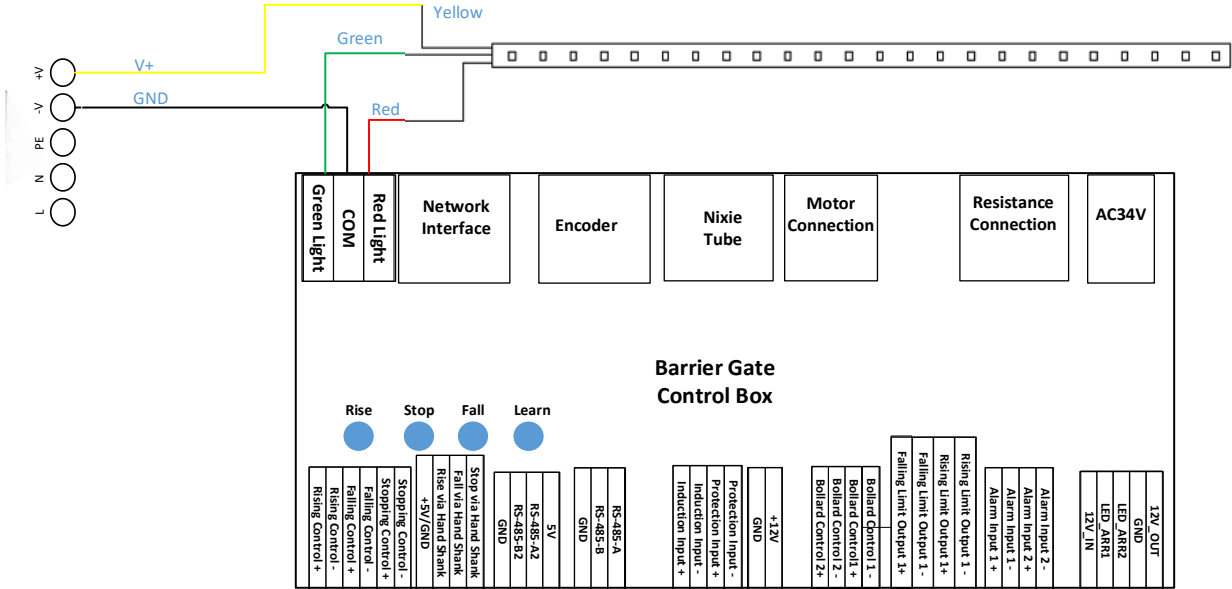


Figure 2-50 Connect to Strip Light

2.4.9 Connect to Warning Light

For the barrier gate with a warning light on the top of host, connect the warning light to the barrier gate as shown below.

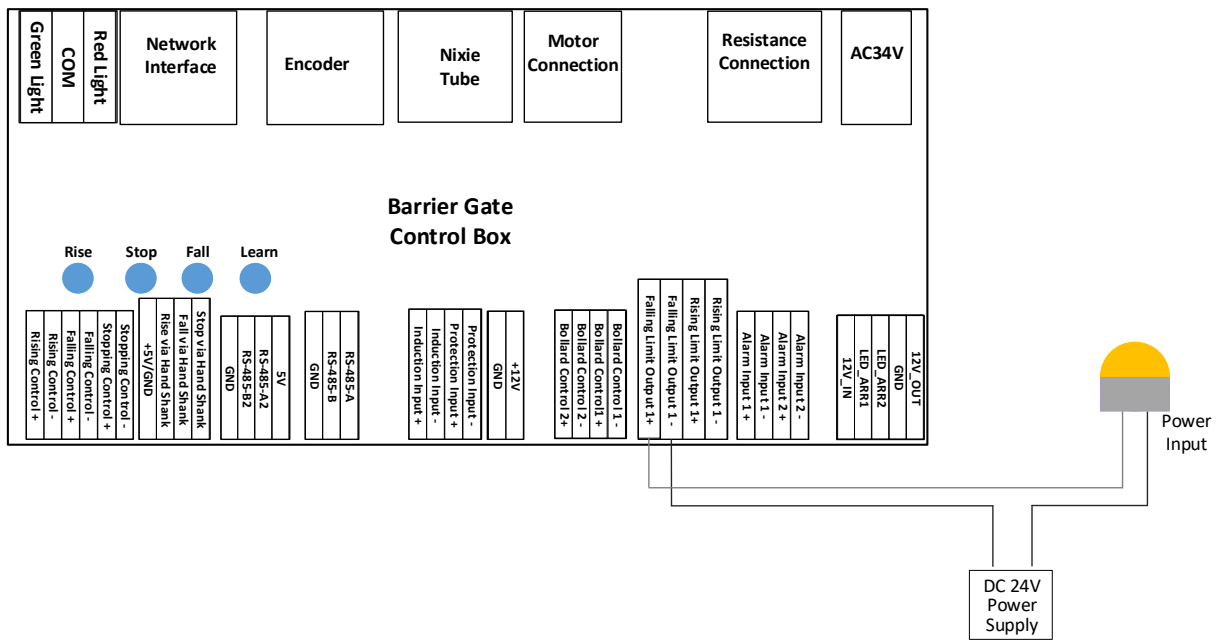


Figure 2-51 Connect to Warning Light

Chapter 3 Parameters Configuration

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 Set Parameters via Control Board Buttons

3.2.1 Button Description

Rise the top 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.

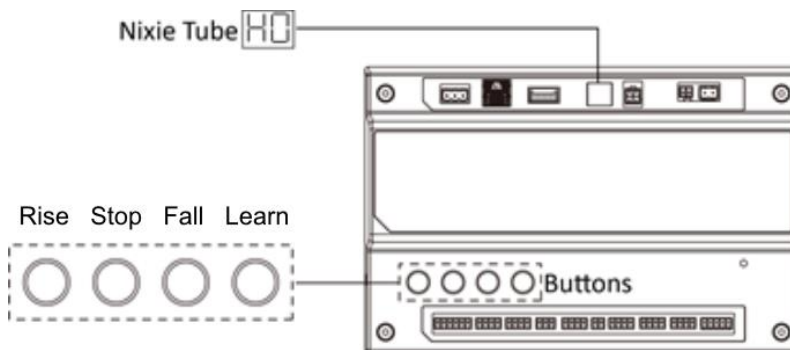


Figure 3-1 Control Buttons

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.
-

3.2.2 Operation Procedure

Refer to the table below for the description of the value on the nixie tube.

Table 3-1 Nixie Tube Value Description

Value	Description
H0	To enable manual learning. Refer to <i>Set Manual Learning</i> for details.
H1	To adjust the rising/falling limit position of the boom pole. Refer to <i>Adjust Rising Limit Position of Boom Pole/Adjust Falling Limit Position of Boom Pole</i> for details.
H2	To adjust the rising speed of the boom pole. Refer to <i>Adjust Rising Speed of Boom Pole</i> for details.
H3	To adjust the falling speed of the boom pole. Refer to <i>Adjust Falling Speed of Boom Pole</i> for details.
H4	To set the remote controller learning. Refer to <i>Set Remote Controller Learning</i> for details.
H5	To set the vehicle queue mode. Refer to <i>Set Vehicle Queue Mode</i> for details.
H6	To enable the auto falling function of boom pole. Refer to <i>Enable Auto Falling of Boom Pole</i> for details.
H7	To set the auto falling time of boom pole. Refer to <i>Set Auto Falling Time of Boom Pole</i> for details.
H8	To enable the function of locking barrier gate via the remote controller. Refer to <i>Enable Locking Barrier Gate via Remote Controller</i> for details.
H9	To set the rising limit output mode. Refer to <i>Set Rising Limit Output Mode</i> for details.
HA	To set boom pole running direction after power shutdown.
HB	To set boom pole type.

Set Manual Learning

Steps

1. Press the **Rise** button on the remote controller, press the **Rise** button on the control board, or power on the device to adjust the boom pole to the rising limit position.
2. Hold the **Learn** button on the control board until "H0" appears on the nixie tube.
3. Hold the **Learn** button again on the control board until "Lr" appears on the nixie tube. The device enters into the limit position learning mode.
4. After the learning process completes, "00" will appear on the nixie tube to switch to the normal running status.

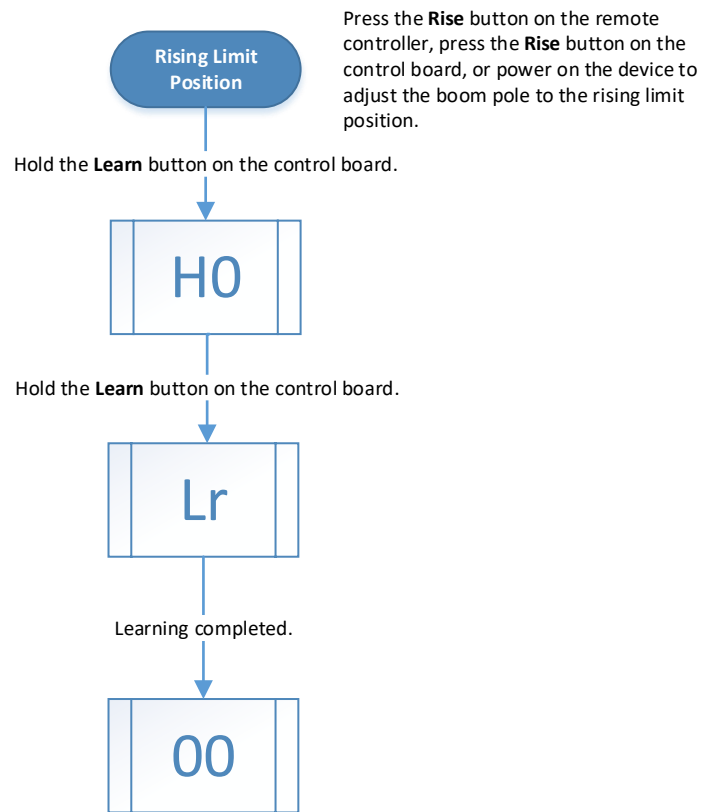


Figure 3-2 Set Manual Learning

Adjust Rising Limit Position of Boom Pole

Steps

1. Press the **Rise** button on the remote controller or press the **Rise** button on the control board to adjust the boom pole to the rising limit position.
2. Hold the **Learn** button on the control board until “H0” appears on the nixie tube.
3. Press the **Rise/Fall** button on the control board to increase/decrease the value on the nixie tube. Adjust the value to “H1”.
4. Hold the **Learn** button on the control board until “OL” appears on the nixie tube.
5. Hold the **Rise/Fall** button on the control board to adjust the boom pole to the rising limit position.
6. Press the **Learn** button on the control board to save the settings. “H1” will appear on the nixie tube.

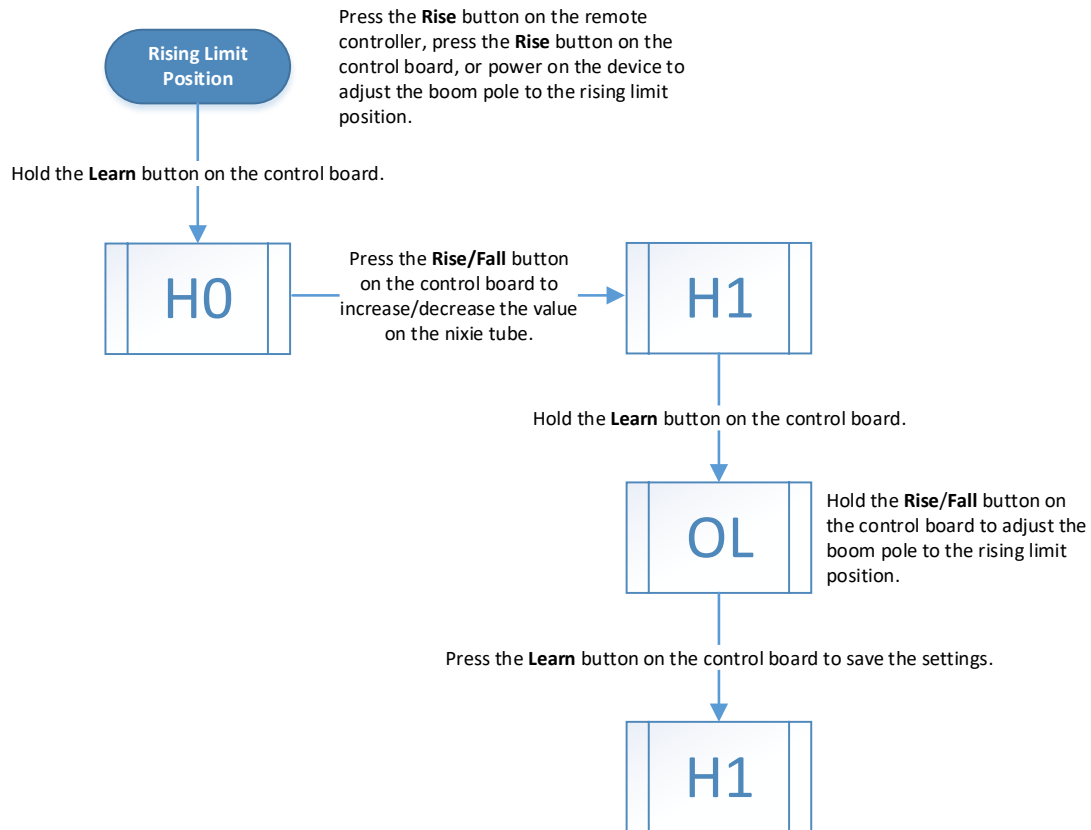


Figure 3-3 Adjust Rising Limit Position of Boom Pole

Adjust Falling Limit Position of Boom Pole

Steps

1. Press the **Fall** button on the remote controller or press the **Fall** button on the control board to adjust the boom pole to the falling limit position.
2. Hold the **Learn** button on the control board until “H1” appears on the nixie tube.
3. Hold the **Learn** button on the control board until “CL” appears on the nixie tube.
4. Hold the **Rise/Fall** button on the control board to adjust the boom pole to the falling limit position.
5. Press the **Learn** button on the control board to save the settings. “H0” will appear on the nixie tube.

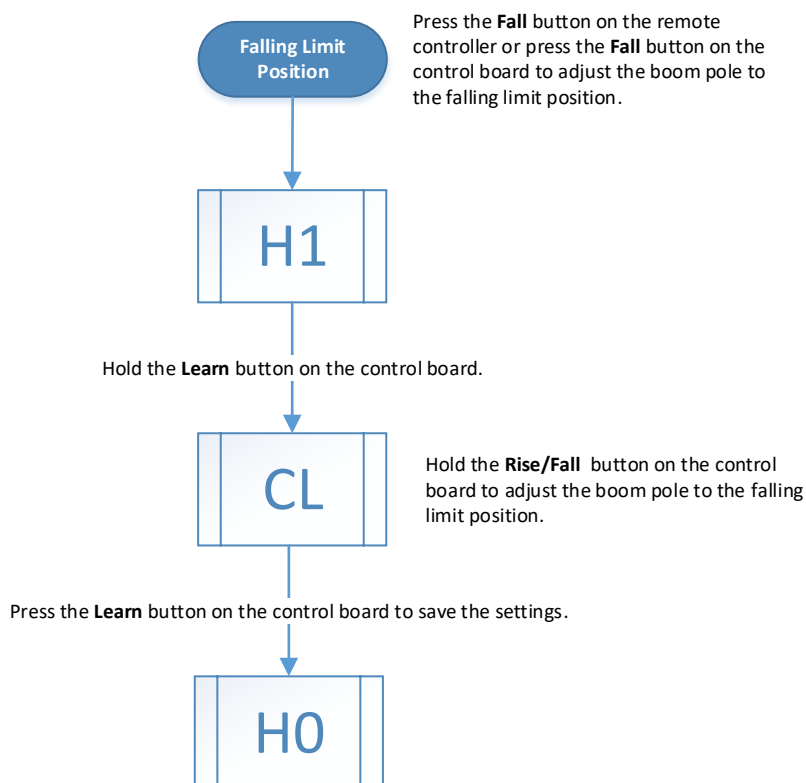


Figure 3-4 Adjust Falling Limit Position of Boom Pole

Adjust Rising Speed of Boom Pole

Steps

1. Press the **Rise** button on the remote controller, press the **Rise** button on the control board, or power on the device to adjust the boom pole to the rising limit position.
2. Hold the **Learn** button on the control board until “H0” appears on the nixie tube.
3. Press the **Rise/Fall** button on the control board to increase/decrease the value on the nixie tube. Adjust the value to “H2”.
4. Hold the **Learn** button on the control board to enter the menu settings.
5. Press the **Rise/Fall** button on the control board to adjust the value on the nixie tube.

Note

The L3 rising speed is faster than L2, which is faster than L1. Adjust the speed according to your needs.

6. Press the **Learn** button on the control board to save the settings. “H2” will appear on the nixie tube.

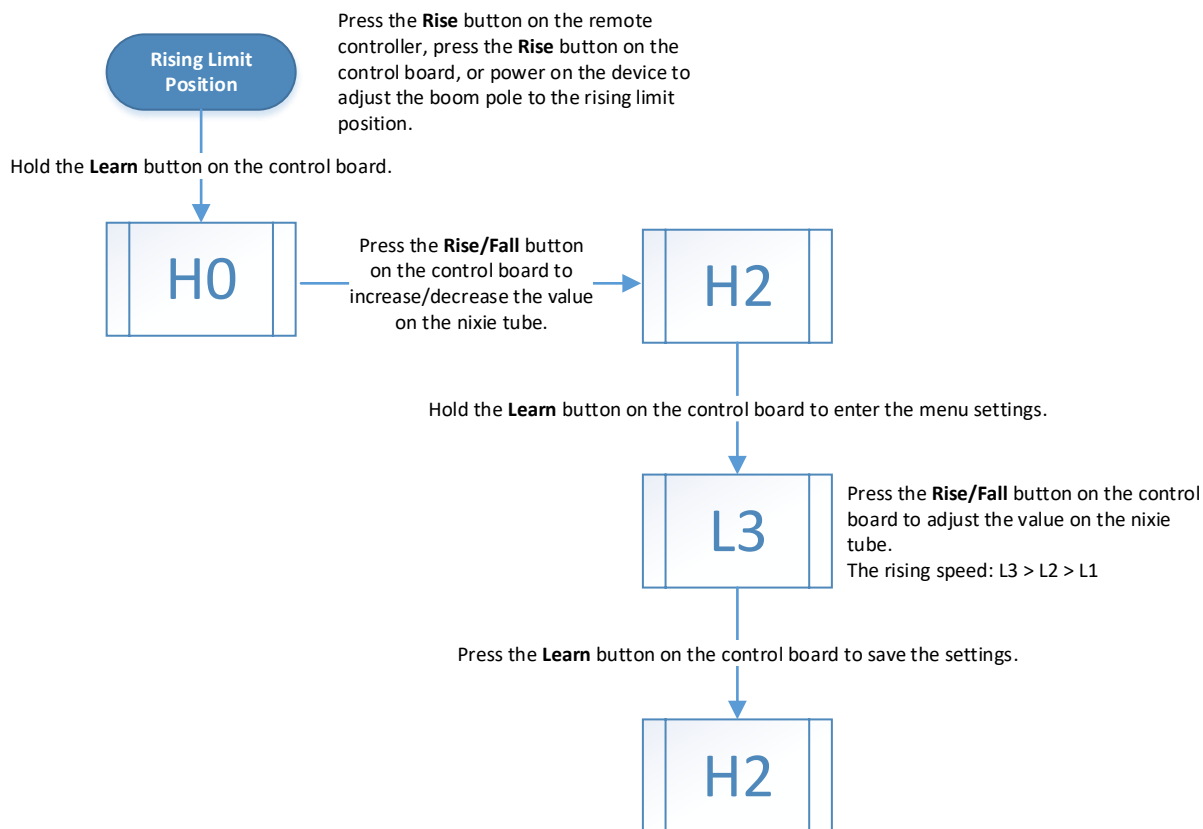


Figure 3-5 Adjust Rising Speed of Boom Pole

Adjust Falling Speed of Boom Pole

Steps

1. Press the **Rise** button on the remote controller, press the **Rise** button on the control board, or power on the device to adjust the boom pole to the rising limit position.
2. Hold the **Learn** button on the control board until “H0” appears on the nixie tube.
3. Press the **Rise/Fall** button on the control board to increase/decrease the value on the nixie tube. Adjust the value to “H3”.
4. Hold the **Learn** button on the control board to enter the menu settings.
5. Press the **Rise/Fall** button on the control board to adjust the value on the nixie tube.

Note

The L3 falling speed is faster than L2, which is faster than L1. Adjust the speed according to your needs.

6. Press the **Learn** button on the control board to save the settings. “H3” will appear on the nixie tube.

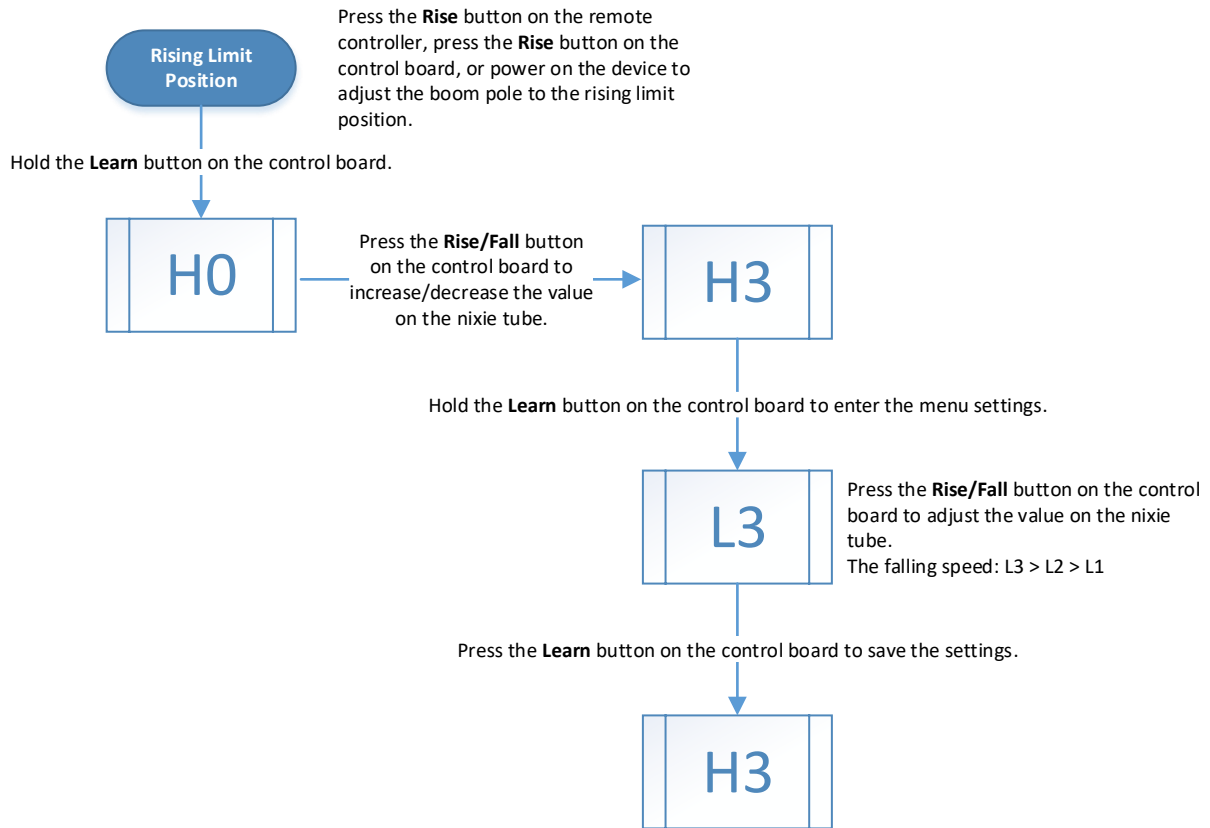


Figure 3-6 Adjust Falling Speed of Boom Pole

Set Remote Controller Learning

Steps

1. Press the **Rise** button on the remote controller, press the **Rise** button on the control board, or power on the device to adjust the boom pole to the rising limit position.
2. Hold the **Learn** button on the control board until “H0” appears on the nixie tube.
3. Press the **Rise/Fall** button on the control board to increase/decrease the value on the nixie tube. Adjust the value to “H4”.
4. Hold the **Learn** button on the control board until “PA” appears on the nixie tube.
5. Press any button on the remote controller twice, and “00” will appear on the nixie tube. Learning completed.
6. (Optional) If you want to unpair the remote controller, hold the **Stop** button on the control board until “H4” appears on the nixie tube.
7. Press the **Learn** button on the control board to save the settings. “H4” will appear on the nixie tube.

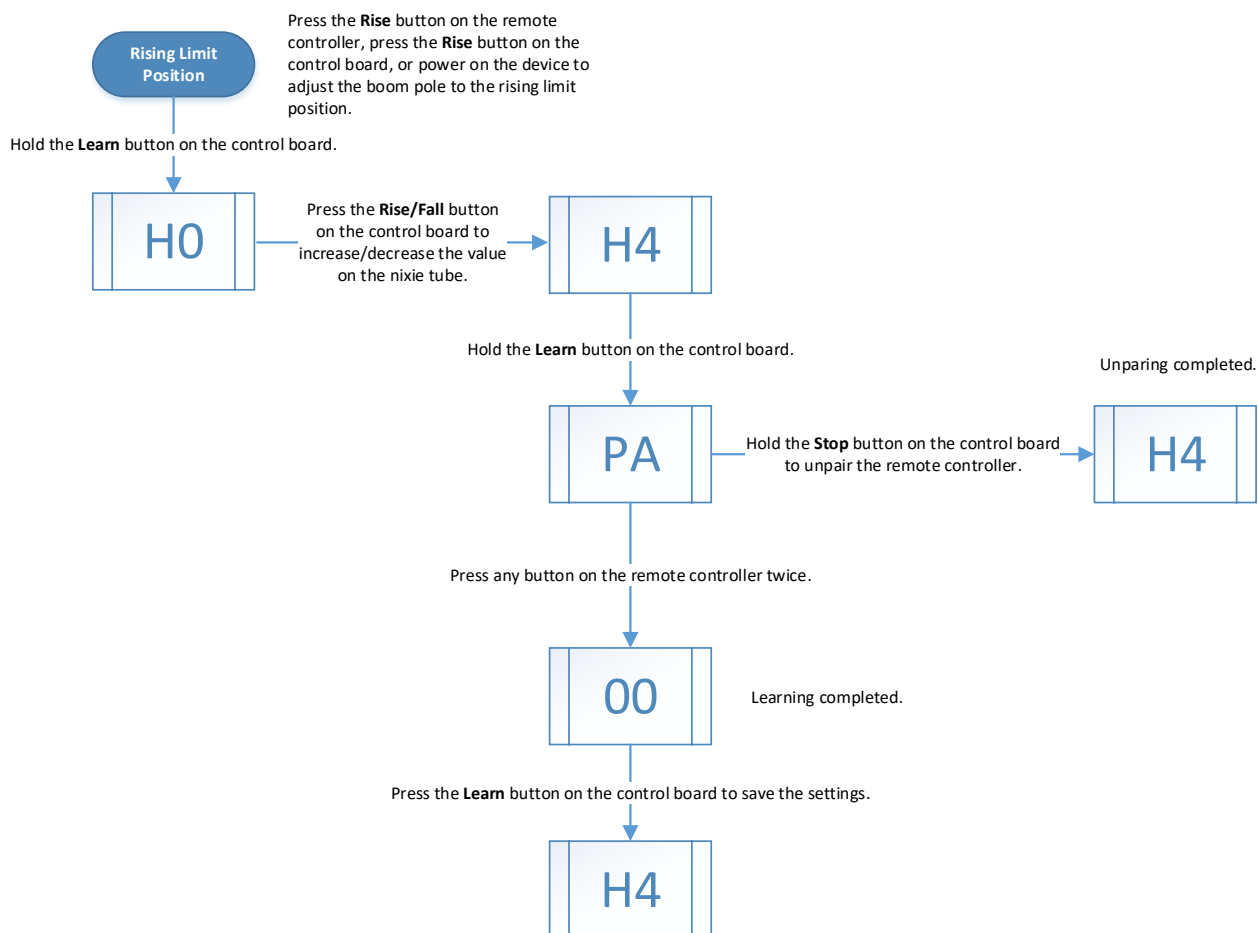


Figure 3-7 Set Remote Controller Learning

Set Vehicle Queue Mode

Steps

1. Press the **Rise** button on the remote controller, press the **Rise** button on the control board, or power on the device to adjust the boom pole to the rising limit position.
2. Hold the **Learn** button on the control board until “H0” appears on the nixie tube.
3. Press the **Rise/Fall** button on the control board to increase/decrease the value on the nixie tube. Adjust the value to “H5”.
4. Hold the **Learn** button on the control board to enter the menu settings.
5. Press the **Rise/Fall** button on the control board to adjust the value on the nixie tube.

Note

Adjust the value to 1 to enable the vehicle queue mode, and 0 to disable the mode.

6. Press the **Learn** button on the control board to save the settings. “H5” will appear on the nixie tube.

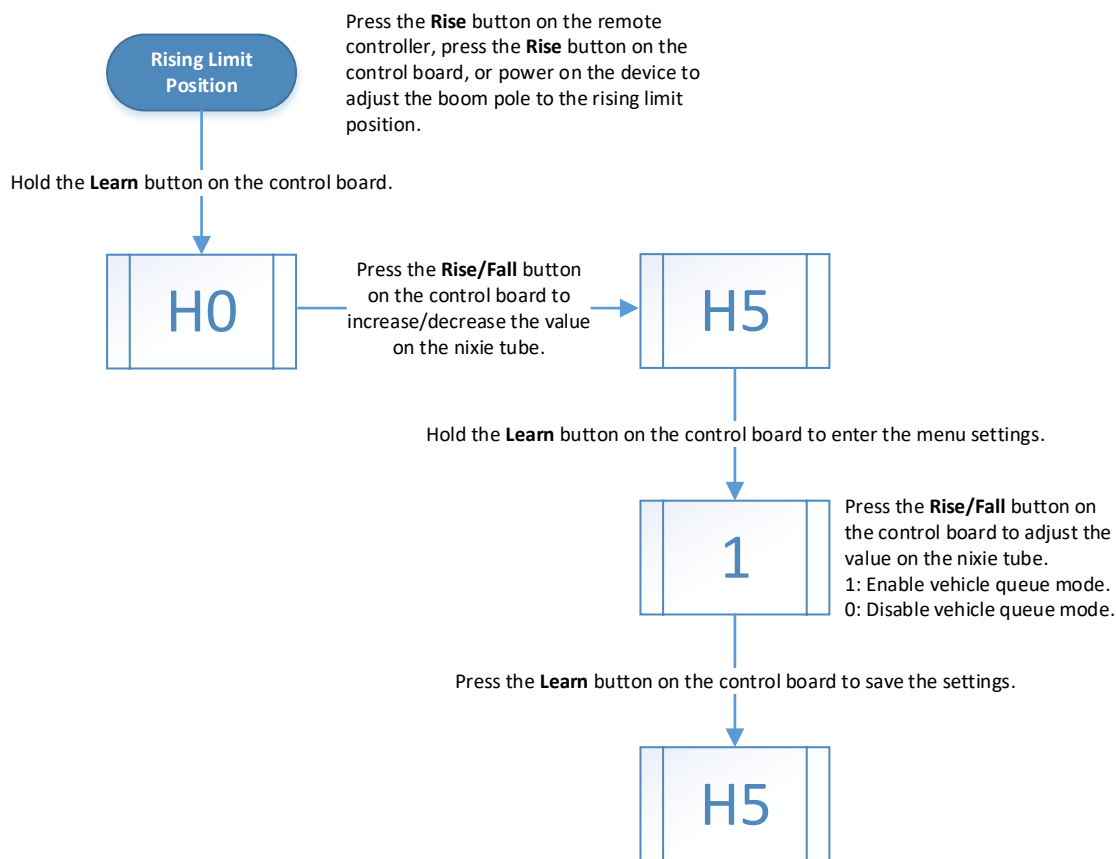


Figure 3-8 Set Vehicle Queue Mode

Enable Auto Falling of Boom Pole

Steps

1. Press the **Rise** button on the remote controller, press the **Rise** button on the control board, or power on the device to adjust the boom pole to the rising limit position.
2. Hold the **Learn** button on the control board until “H0” appears on the nixie tube.
3. Press the **Rise/Fall** button on the control board to increase/decrease the value on the nixie tube. Adjust the value to “H6”.
4. Hold the **Learn** button on the control board to enter the menu settings.
5. Press the **Rise/Fall** button on the control board to adjust the value on the nixie tube.

Note

Adjust the value to 1 to enable the auto falling function, and 0 to disable the function.

6. Press the **Learn** button on the control board to save the settings. “H6” will appear on the nixie tube.

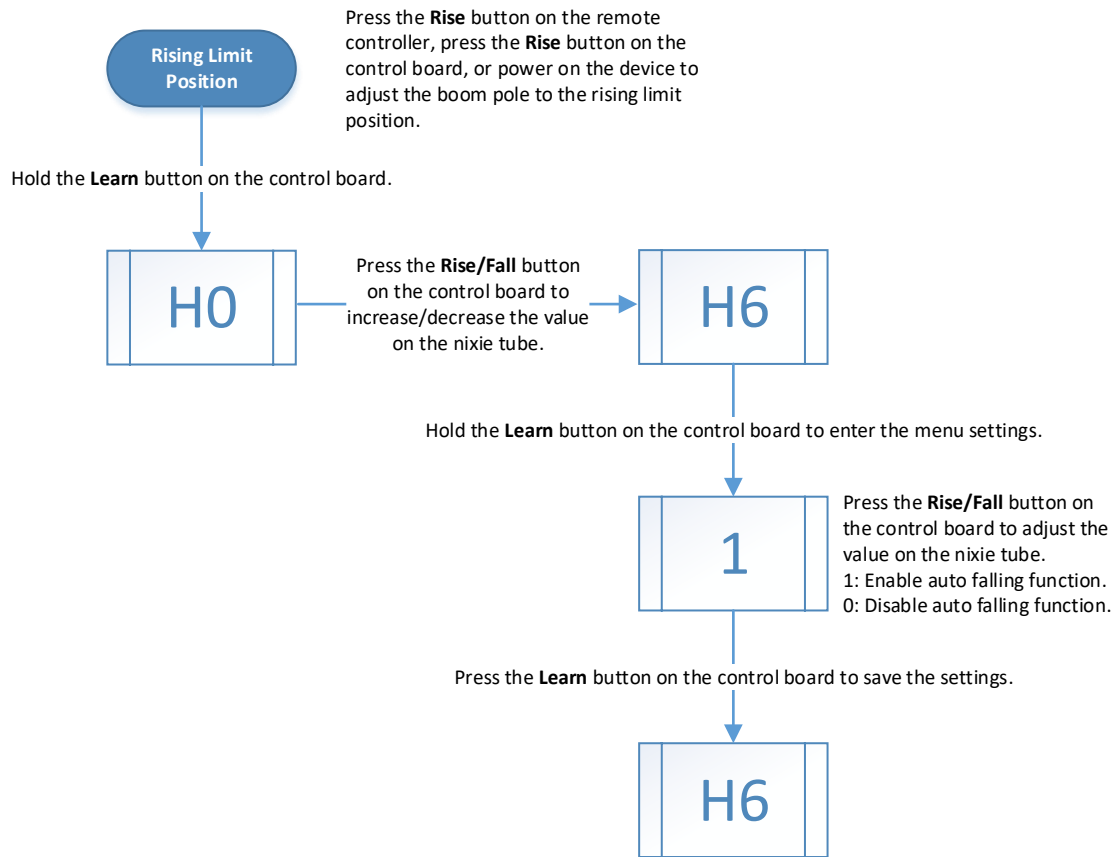


Figure 3-9 Enable Auto Falling of Boom Pole

Set Auto Falling Time of Boom Pole

Steps

1. Press the **Rise** button on the remote controller, press the **Rise** button on the control board, or power on the device to adjust the boom pole to the rising limit position.
2. Hold the **Learn** button on the control board until “H0” appears on the nixie tube.
3. Press the **Rise/Fall** button on the control board to increase/decrease the value on the nixie tube. Adjust the value to “H7”.
4. Hold the **Learn** button on the control board to enter the menu settings.
5. Press the **Rise/Fall** button on the control board to adjust the value on the nixie tube.

Note

The actual auto falling time of the boom pole after the vehicle passes = the value shown on the nixie tube × 10 s. E.g., the value shown on the nixie tube is 3. Thus the actual auto falling time is 30 s.

6. Press the **Learn** button on the control board to save the settings. “H7” will appear on the nixie tube.

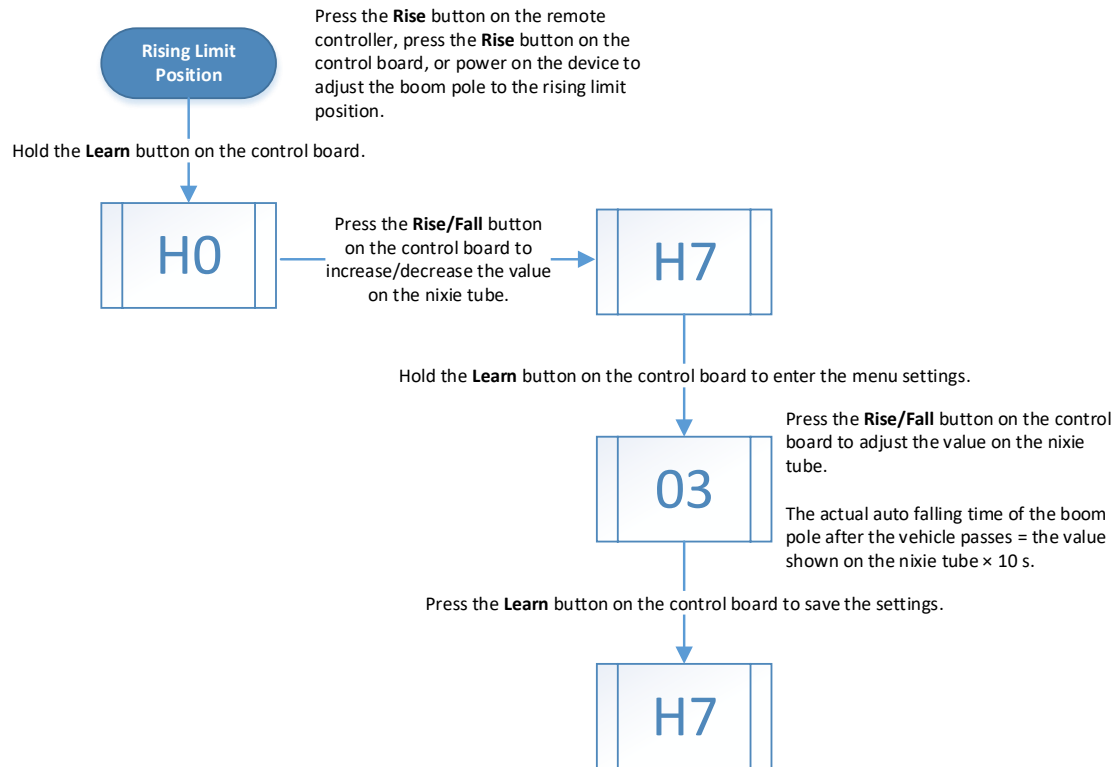


Figure 3-10 Set Auto Falling Time of Boom Pole

Enable Locking Barrier Gate via Remote Controller

Steps

1. Press the **Rise** button on the remote controller, press the **Rise** button on the control board, or power on the device to adjust the boom pole to the rising limit position.
2. Hold the **Learn** button on the control board until “H0” appears on the nixie tube.
3. Press the **Rise/Fall** button on the control board to increase/decrease the value on the nixie tube. Adjust the value to “H8”.
4. Hold the **Learn** button on the control board to enter the menu settings.
5. Press the **Rise/Fall** button on the control board to adjust the value on the nixie tube.

Note

Adjust the value to 1 to enable locking barrier gate via the remote controller, and 0 to disable the function.

6. Press the **Learn** button on the control board to save the settings. “H8” will appear on the nixie tube.

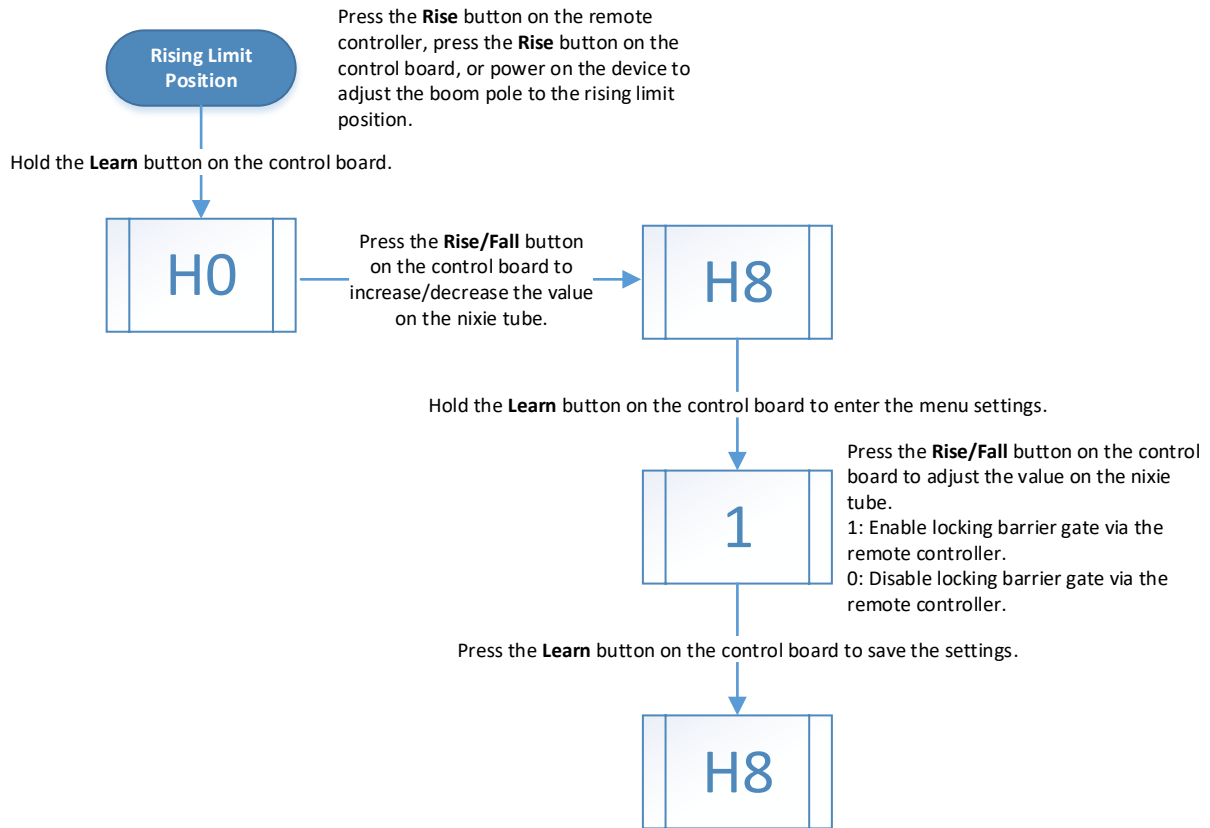


Figure 3-11 Enable Locking Barrier Gate via Remote Controller

Lock Barrier Gate

Lock the barrier gate via the remote controller. Press the **Rise**, **Stop**, and **Rise** buttons on the remote controller in sequence until “Lc” appears on the nixie tube.

Set Rising Limit Output Mode

Steps

1. Press the **Rise** button on the remote controller, press the **Rise** button on the control board, or power on the device to adjust the boom pole to the rising limit position.
2. Hold the **Learn** button on the control board until “H0” appears on the nixie tube.
3. Press the **Rise/Fall** button on the control board to increase/decrease the value on the nixie tube. Adjust the value to “H9”.
4. Hold the **Learn** button on the control board to enter the menu settings.
5. Press the **Rise/Fall** button on the control board to adjust the value on the nixie tube.

Note

Adjust the value to 1 to enable outputting the rising pulse after the boom pole rises to the rising limit position, and 0 to disable the function.

6. Press the **Learn** button on the control board to save the settings. “H9” will appear on the nixie tube.

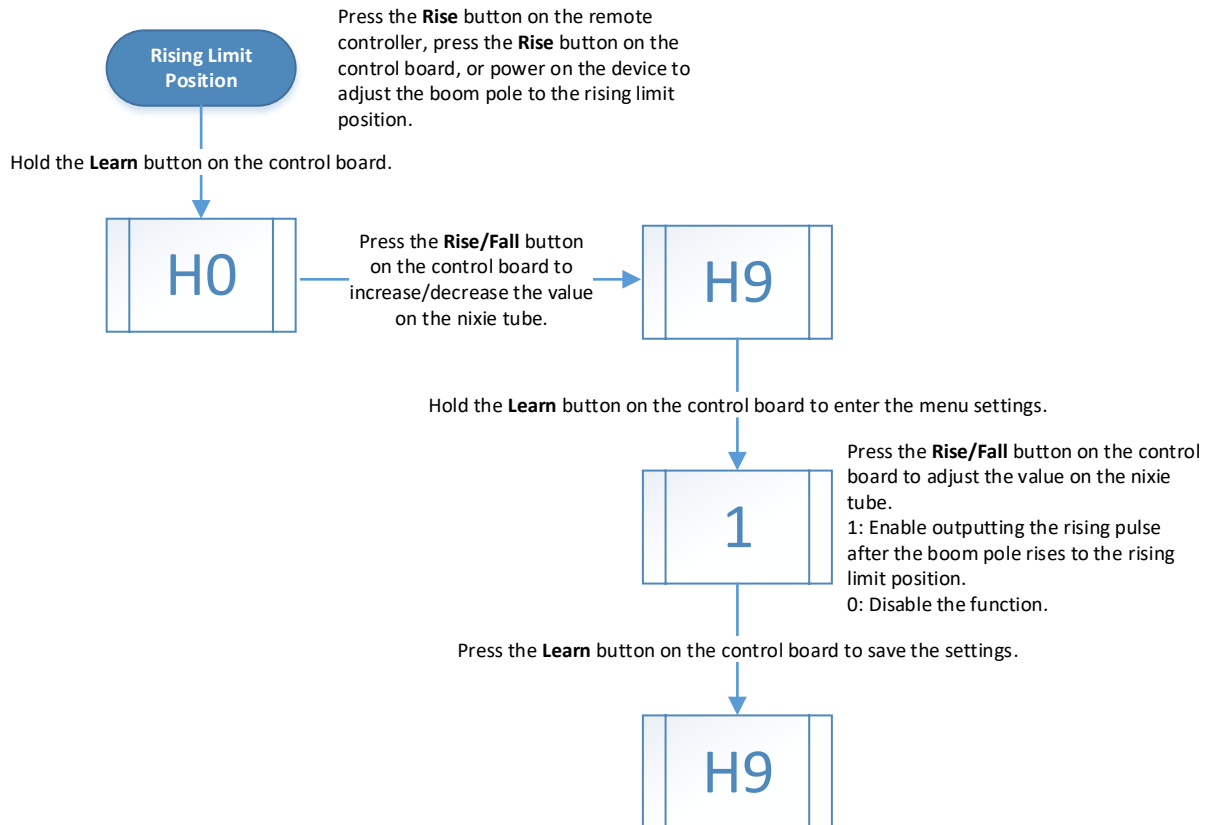


Figure 3-12 Set Rising Limit Output Mode

Set Boom Pole Running Direction after Power Shutdown

Steps

1. Press the **Rise** button on the remote controller, press the **Rise** button on the control board, or power on the device to adjust the boom pole to the rising limit position.
2. Hold the **Learn** button on the control board until “H0” appears on the nixie tube.
3. Press the **Rise/Fall** button on the control board to increase/decrease the value on the nixie tube. Adjust the value to “HA”.
4. Hold the **Learn** button on the control board to enter the menu settings.
5. Press the **Rise/Fall** button on the control board to adjust the value on the nixie tube.

Note

Adjust the value to 1 to enable the boom pole to rise to the rising limit position after the power shutdown, and 0 to enable the boom pole to fall to the falling limit position after the power shutdown.

6. Press the **Learn** button on the control board to save the settings. “HA” will appear on the nixie tube.

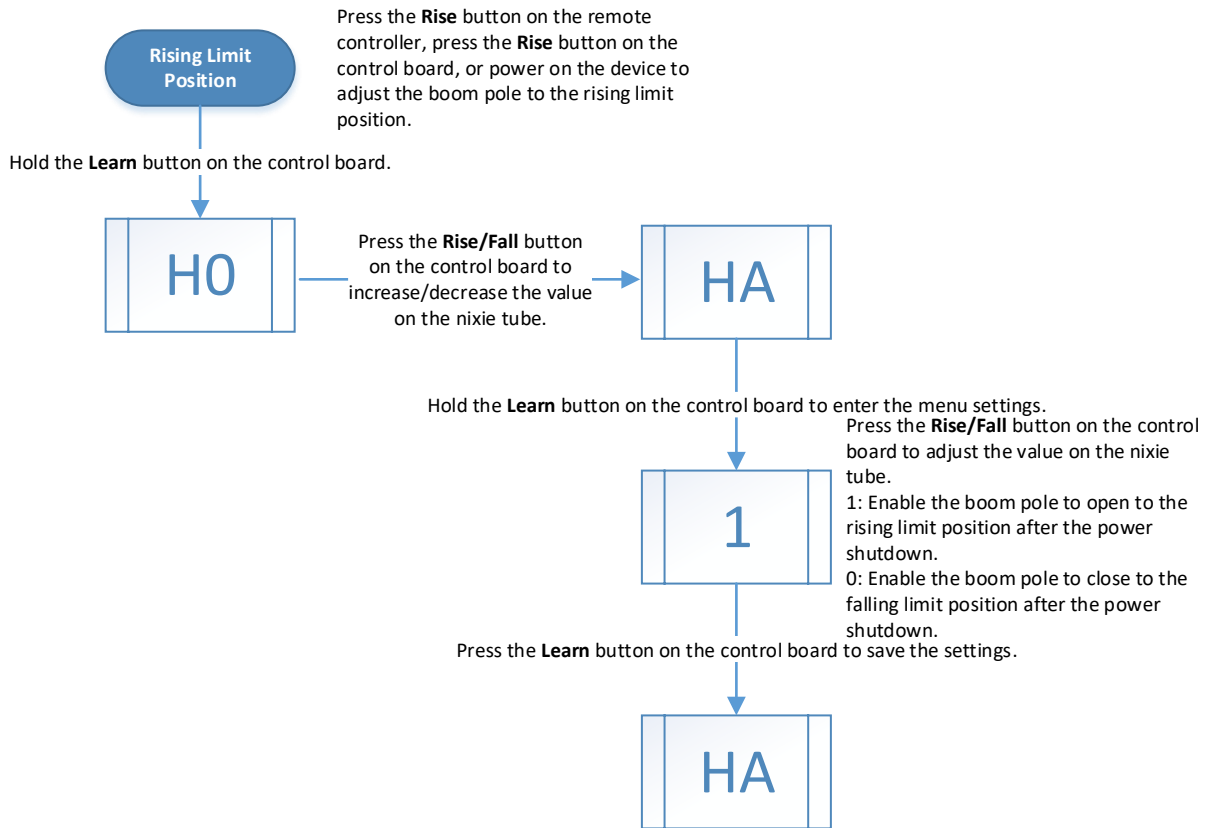


Figure 3-13 Set Boom Pole Running Direction after Power Shutdown

Set Boom Pole Type

Steps

1. Press the **Rise** button on the remote controller, press the **Rise** button on the control board, or power on the device to adjust the boom pole to the rising limit position.
2. Hold the **Learn** button on the control board until “H0” appears on the nixie tube.
3. Press the **Rise/Fall** button on the control board to increase/decrease the value on the nixie tube. Adjust the value to “Hb”.
4. Hold the **Learn** button on the control board to enter the menu settings.
5. Press the **Rise/Fall** button on the control board to adjust the value on the nixie tube.

Note

Refer to Table 3-2 for the value description.

6. Press the **Learn** button on the control board to save the settings. “Hb” will appear on the nixie tube.

Table 3-2 Boom Pole Type Value Description

Value	Boom Pole Type
2	2 m straight boom pole
3	3 m straight boom pole

Value	Boom Pole Type
4	4 m straight boom pole
5	5 m straight boom pole
6	6 m straight boom pole
3F	3 m fence boom pole
4F	4 m fence boom pole
5F	5 m fence boom pole
3C	3 m folding boom pole
4C	4 m folding boom pole
5C	5 m folding boom pole
3L	3 m boom pole with strip light
4L	4 m boom pole with strip light
4E	4 m octagonal telescopic boom pole
5E	5 m octagonal telescopic boom pole
6E	6 m octagonal telescopic boom pole

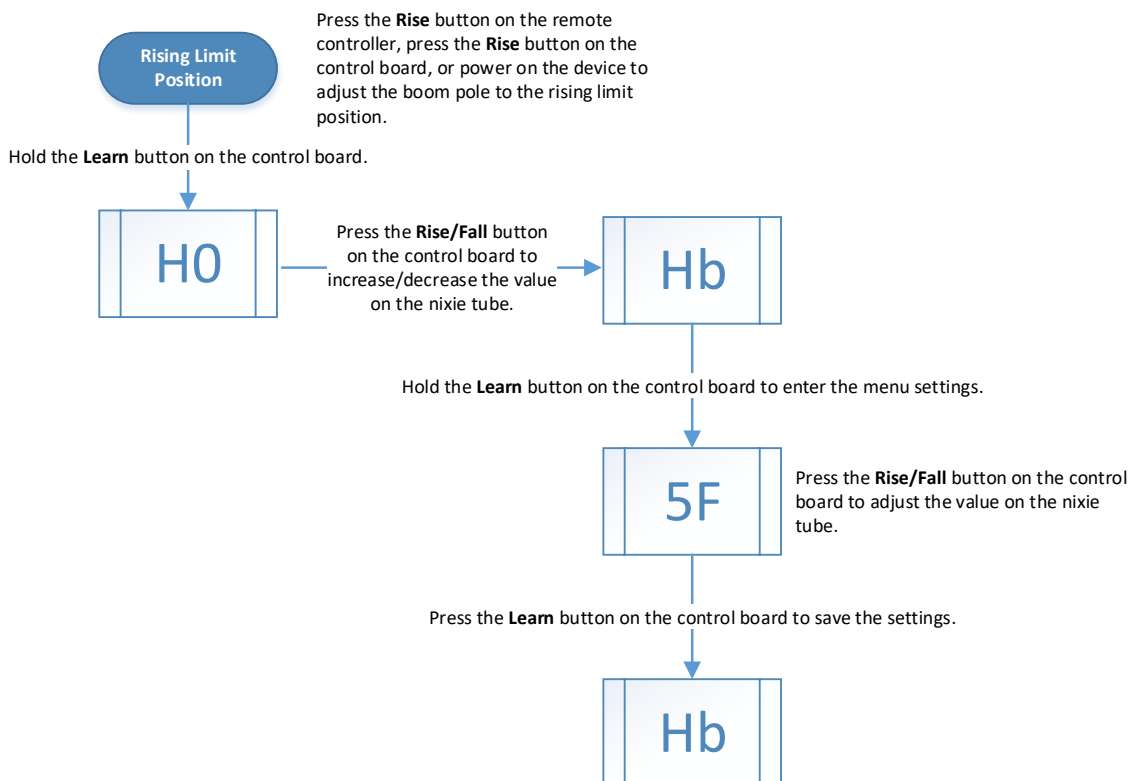


Figure 3-14 Set Boom Pole Type

Chapter 4 Maintenance

4.1 Adjust Boom Pole Balance

Adjust the balance of the boom pole.

Steps

1. Cut off the power supply. Rotate the hand wheel of the machine core to raise the boom pole to the position where the angle between the boom pole and the ground surface is $20^\circ \pm 5^\circ$.
2. Release the hand wheel to check if the boom pole can return to the position where the angle between the boom pole and the ground surface is $60^\circ \pm 15^\circ$ naturally.

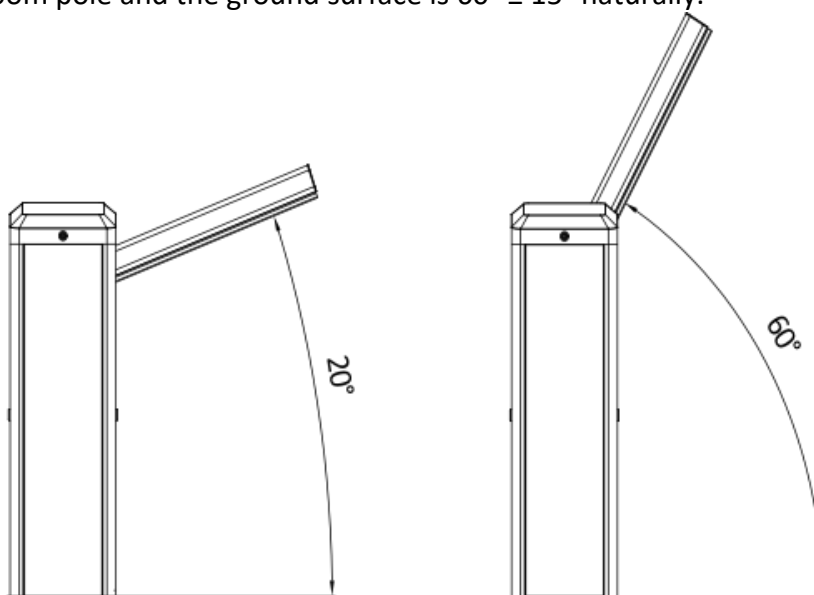


Figure 4-1 Adjust Boom Pole Balance

4.2 Change 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.

Before you start

Adjust the boom pole to the rising limit position, and then cut off the power supply.

Steps

1. Unscrew the cap nuts, spring washers, and flat washers on the other sides of the four assembling bolts. Save the components and parts for the following installations.

2. Disassemble the boom pole and chuck.
3. Repeat the boom pole installation procedure to install a new boom pole.

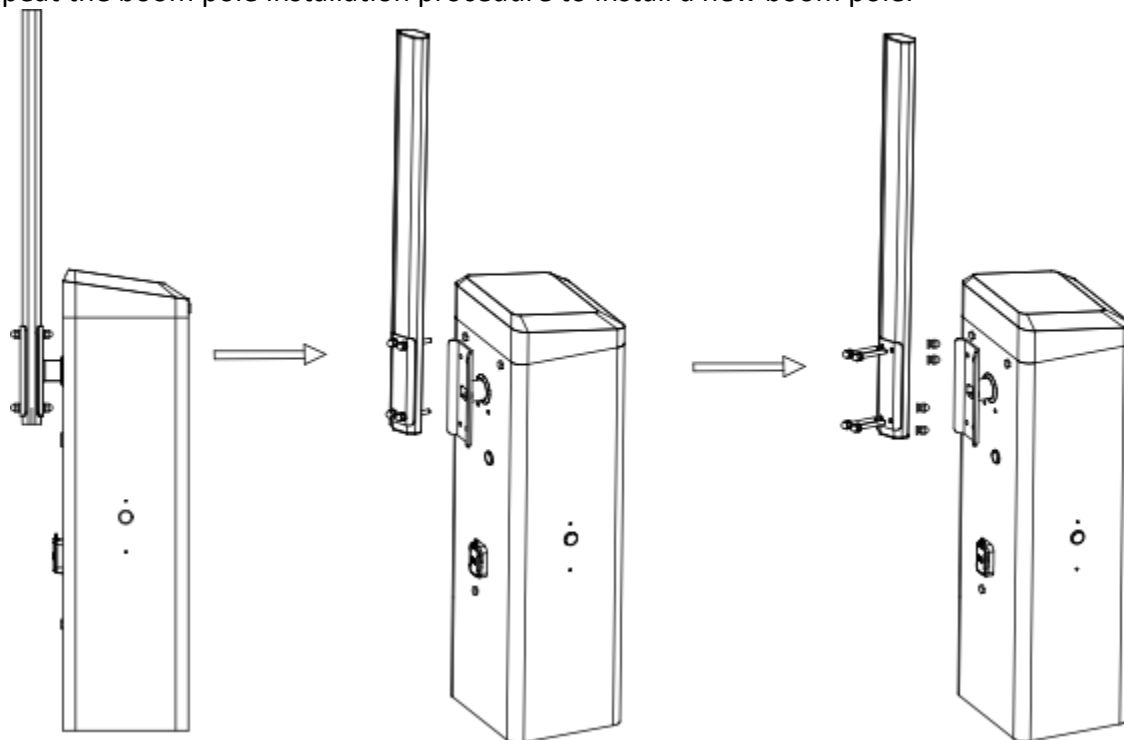


Figure 4-2 Change Boom Pole

4.3 Change Spindle Rod and Spring

4.3.1 Spring and Spindle Rod Specifications

If you need to change the boom pole, prepare the corresponding springs and spindle rods according to the boom pole types. Refer to the table below for details.

Table 4-1 Spring and Spindle Rod Specifications

Boom Pole Type	Spring	Spindle Rod
2 m small octagonal boom pole	Spring with green hook × 1	Small octagonal boom pole spindle rod
3 m small octagonal boom pole	Spring with white hook × 1	Small octagonal boom pole spindle rod
4 m small octagonal boom pole	Spring with white hook × 1	Small octagonal boom pole spindle rod
5 m large octagonal boom pole	Spring with white hook × 2	Large octagonal boom pole spindle rod

6 m large octagonal boom pole	Spring with white hook × 1 Spring with red hook × 1	Large octagonal boom pole spindle rod
1.5 m + 1.5 m folding boom pole	Spring with white hook × 1	Small octagonal boom pole spindle rod
2 m + 2 m folding boom pole	Spring with green hook × 1 Spring with white hook × 1	Small octagonal boom pole spindle rod
2.5 m + 2.5 m folding boom pole	Spring with white hook × 2	Small octagonal boom pole spindle rod
3 m fence boom pole	Spring with white hook × 2	Large octagonal boom pole spindle rod
4 m fence boom pole	Spring with white hook × 1 Spring with red hook × 1	Large octagonal boom pole spindle rod
5 m fence boom pole	Spring with red hook × 2	Large octagonal boom pole spindle rod
2 m anti-collision cylinder boom pole	Spring with green hook × 1	Anti-collision round boom pole spindle rod
3 m anti-collision cylinder boom pole	Spring with white hook × 1	Anti-collision round boom pole spindle rod
4 m anti-collision cylinder boom pole	Spring with green hook × 1 Spring with white hook × 1	Anti-collision round boom pole spindle rod
6 m boom pole with strip light	Spring with red hook × 1 Spring with white hook × 1	Spindle rod for boom pole with strip light
4 m boom pole with strip light	Spring with green hook × 1 Spring with white hook × 1	Spindle rod for boom pole with strip light
3 m boom pole with strip light	Spring with green hook × 1	Spindle rod for boom pole with strip light

4.3.2 Change Spindle Rod

Before you start

Adjust the boom pole to the rising limit position, and then cut off the power supply.

Steps

1. Unscrew the cap nuts, spring washers, and flat washers on the other sides of the four

assembling bolts. Save the components and parts for the following installations.

2. Disassemble the boom pole and chuck.

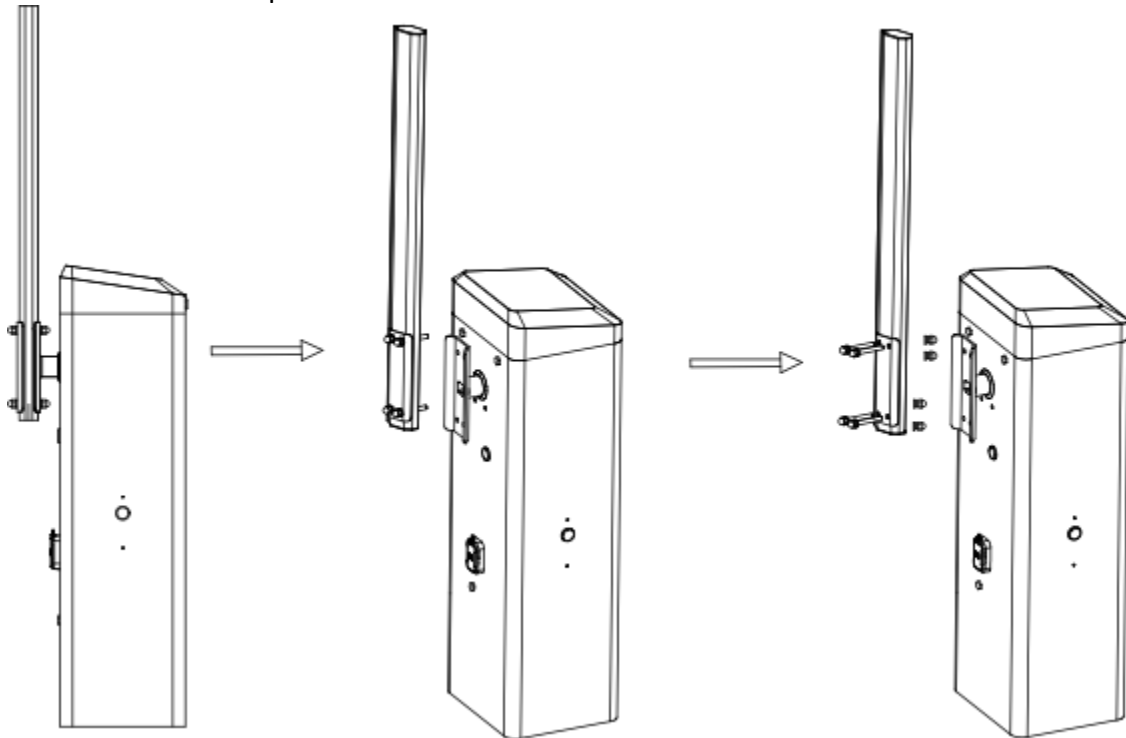


Figure 4-3 Disassemble Boom Pole and Chuck

3. Unscrew the M12 fixing bolt of the spindle rod anticlockwise with a 10 mm hex wrench, and disassemble the bolt.

M12 × 65 hex socket head cap bolt (with spring and flat washers)

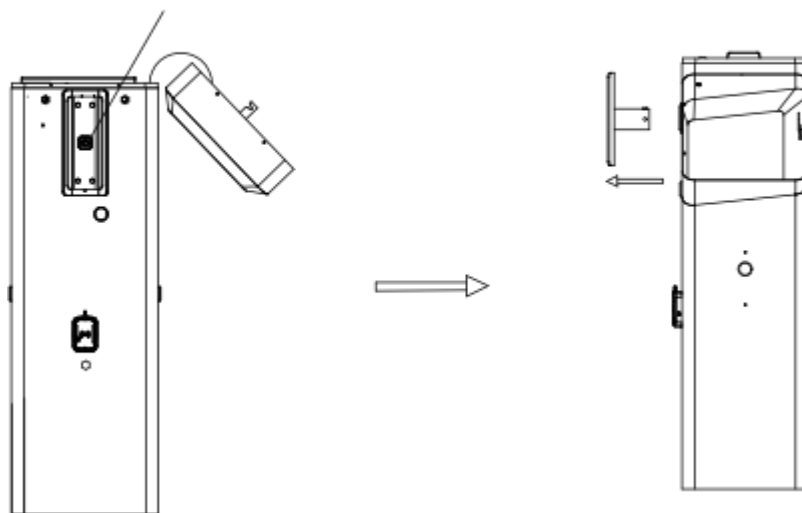


Figure 4-4 Disassemble Bolt

4. Loosen the barrier gate control box captive screw with the screwdriver, and then rotate the control box (more than 160°).
5. Loosen the M8 × 20 hex socket head cap screw and M8 nut on the side of the spindle rod with a No. 6 hex wrench and an adjustable wrench.

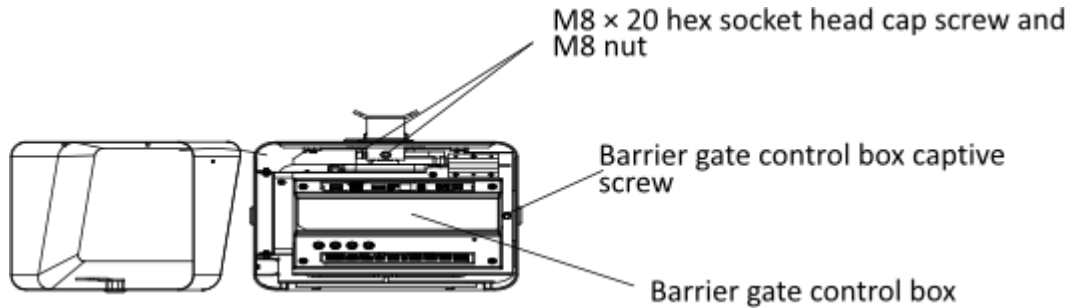


Figure 4-5 Disassemble Control Box

6. Disassemble the spindle rod and change a new one. Install the M12 fixing bolt of the spindle rod, and fasten it with a torque no smaller than 60 NM.

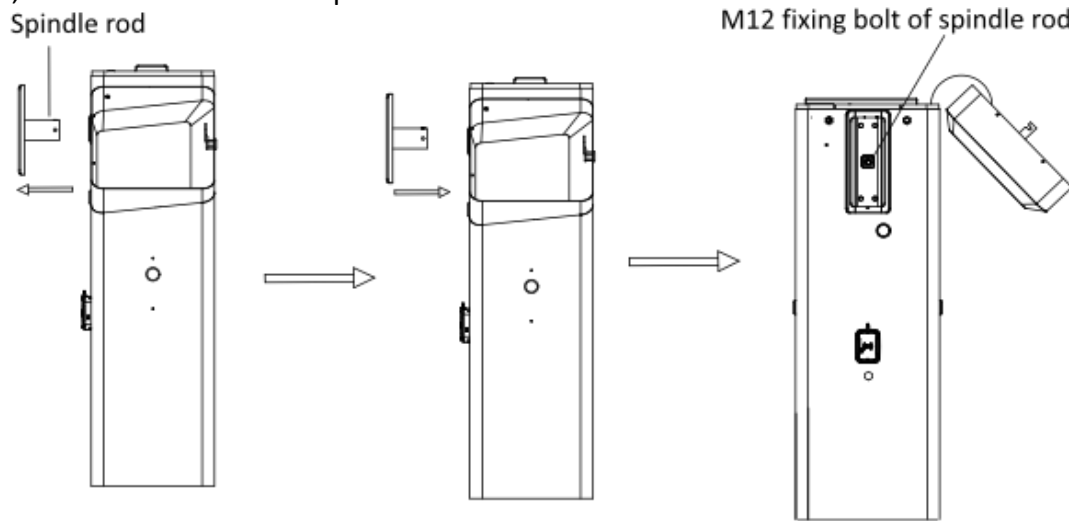


Figure 4-6 Change Spindle Rod

7. Fix the M8 x 20 hex socket head cap screw and M8 nut on the side of the spindle rod, rotate the control box to the original position, and tighten the captive screw with the screwdriver.

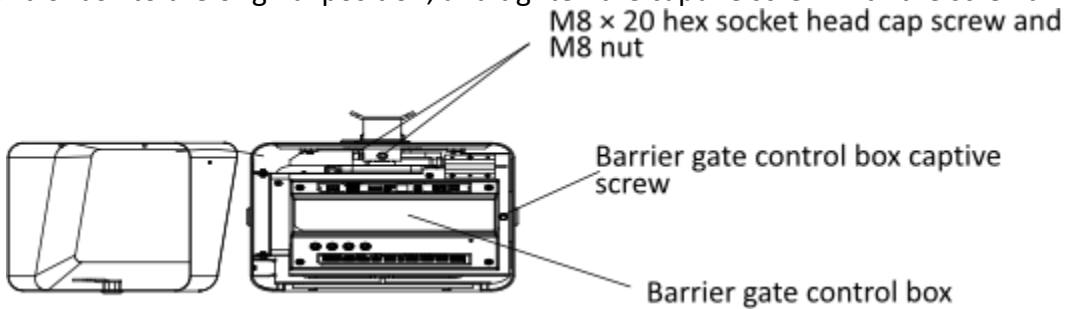


Figure 4-7 Reinstall Control Box

8. Repeat the boom pole installation procedure to install a new boom pole.

4.3.3 Change Spring

Before you start

Adjust the boom pole to the rising limit position, and then cut off the power supply.

Steps

1. Close the cotter pin openings with needle-nose pliers.

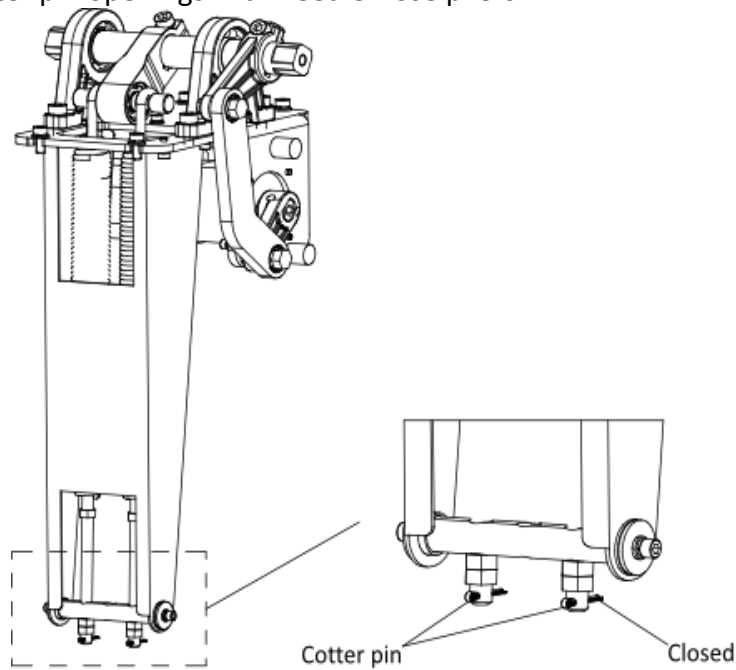


Figure 4-8 Close Cotter Pin Openings

2. Pull the cotter pins out with needle-nose pliers.

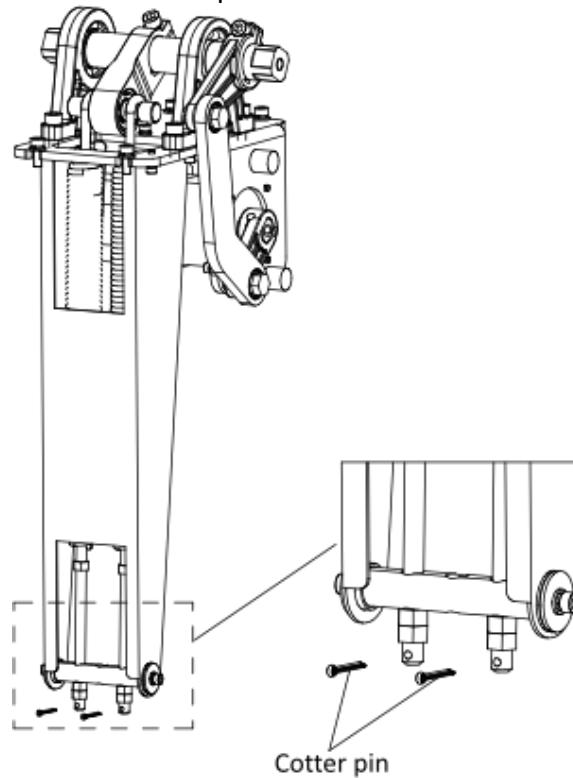


Figure 4-9 Pull Cotter Pins Out

3. Hold the upper screw weld nuts with an adjustable wrench, and then unscrew the two bottom lock nuts with another adjustable wrench.

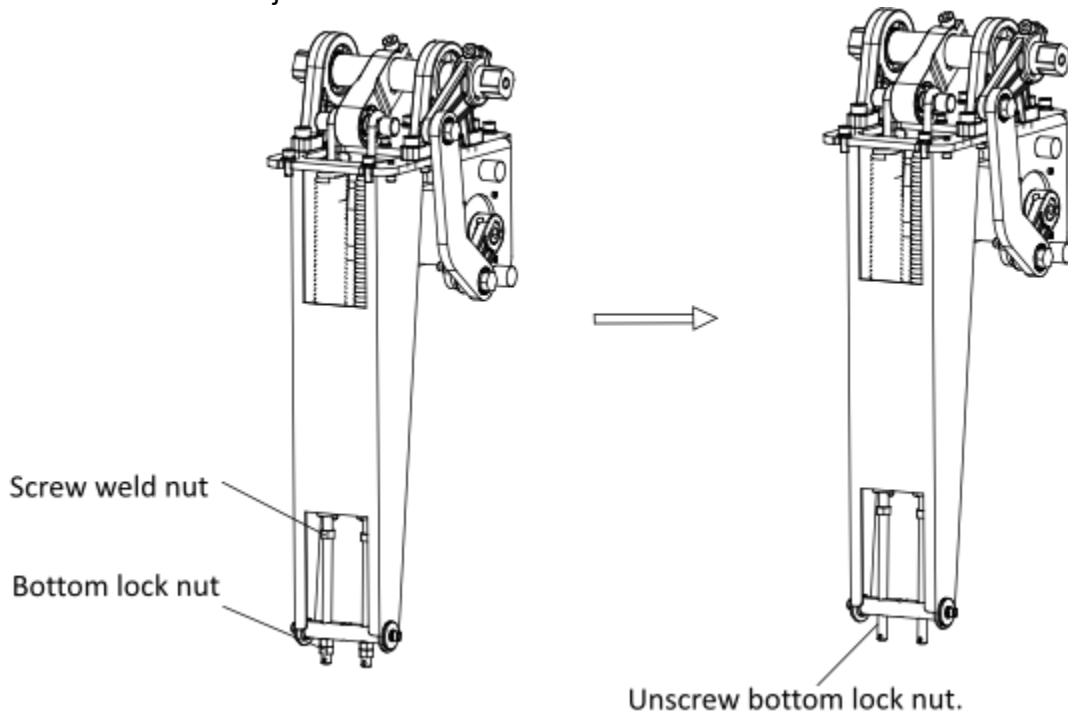


Figure 4-10 Unscrew Lock Nut

4. Adjust the boom pole of the barrier gate to the falling status to keep the three points shown in the figure below in a straight line, and then the spring and spring shaft are lifted.
Spring and spring shaft are lifted.

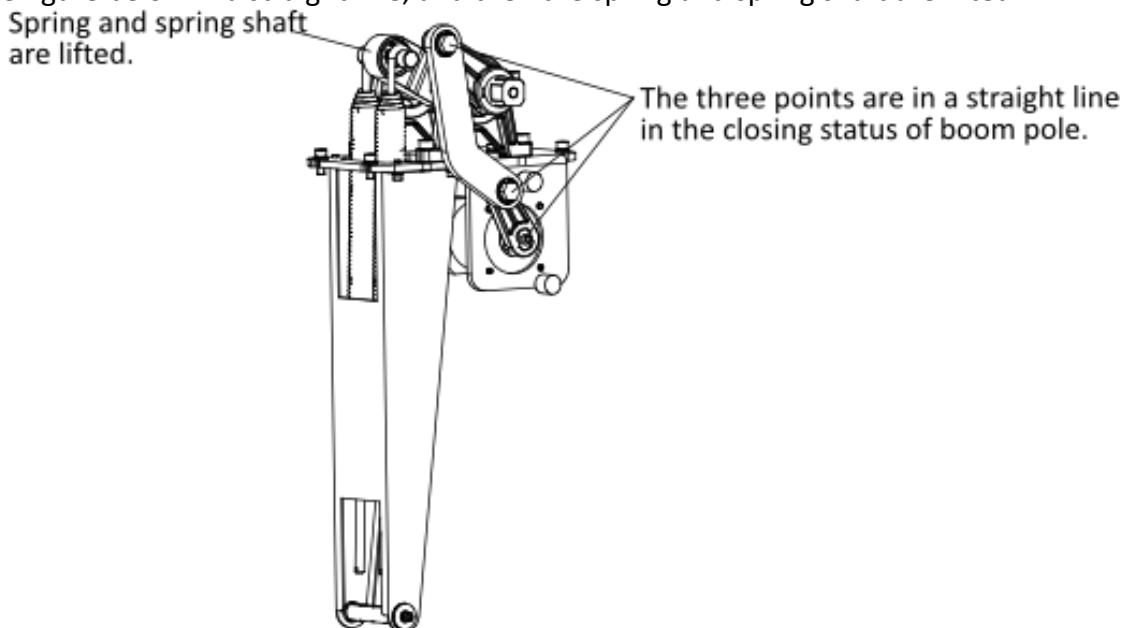


Figure 4-11 Close Boom Pole

5. Hold the spring hook to pull up the spring, and then change a new spring.

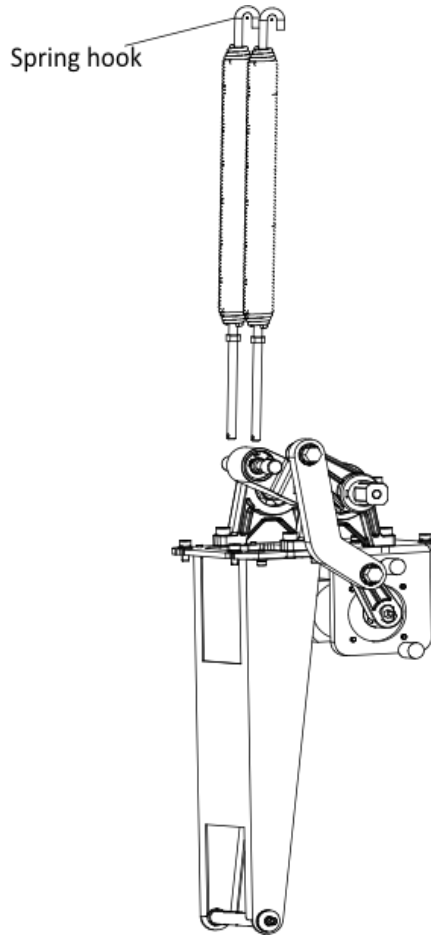


Figure 4-12 Change Spring

6. Install the new spring according to the steps above reversely.

4.4 Change Machine Core

Before you start

Cut off the power supply. Disassemble the boom pole and spindle rod according to the procedure above.

Steps

1. Use a cross screwdriver to remove the grounding terminal of the motor wire, and then unplug the motor power cord and signal line terminals on the barrier gate control board. Rotate the control box, and remove the motor wire from the wire slot.

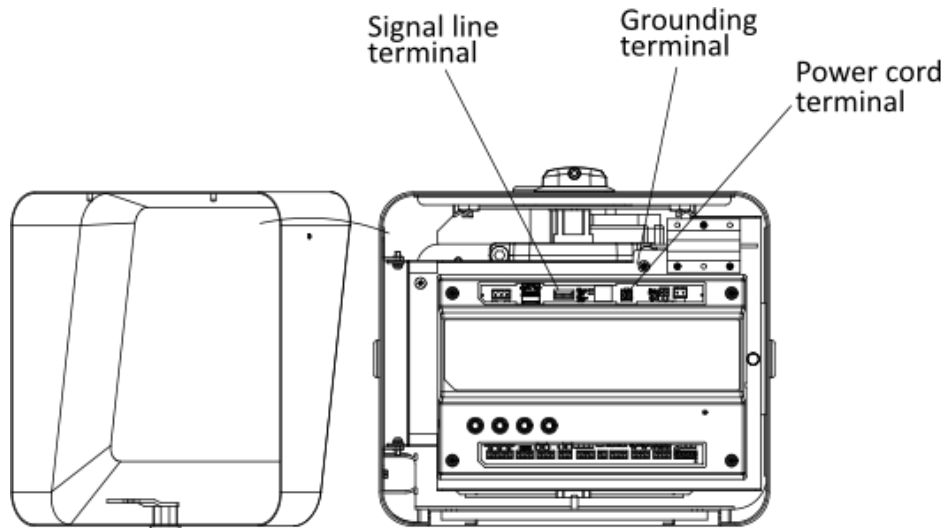


Figure 4-13 Remove Motor Wire

2. Remove the M8 hex socket head cap screws of the machine core with a No. 6 hex wrench.
3. Disassemble the machine core and change a new one.
4. Fix the machine core with the M8 hex socket head cap screws, put motor wire into the wire slot, connect the power cord and signal line terminals, and then fix the grounding terminal.

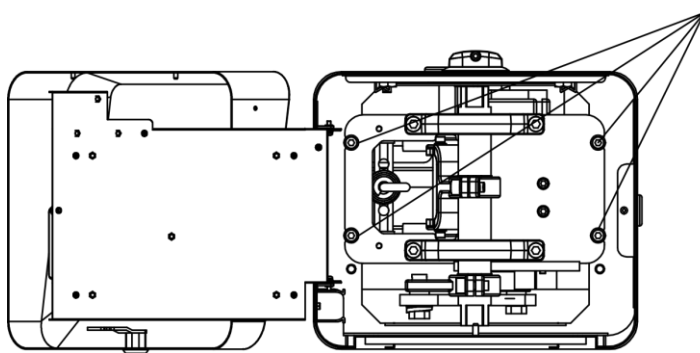


Figure 4-14 Fix Machine Core

5. Install the boom pole. Refer to 4.2 *Change Boom Pole* for details.
6. Install the spindle rod. Refer to 4.3.2 *Change Spindle Rod* for details.

4.5 Left/Right Direction of Boom Pole

The boom pole direction depends on the driving direction of the vehicle. When you look from the driving direction as shown below, the left boom pole is the one that the boom pole is on the left of the barrier gate host, and the right boom pole is the one that the boom pole is on the right of the barrier gate host.

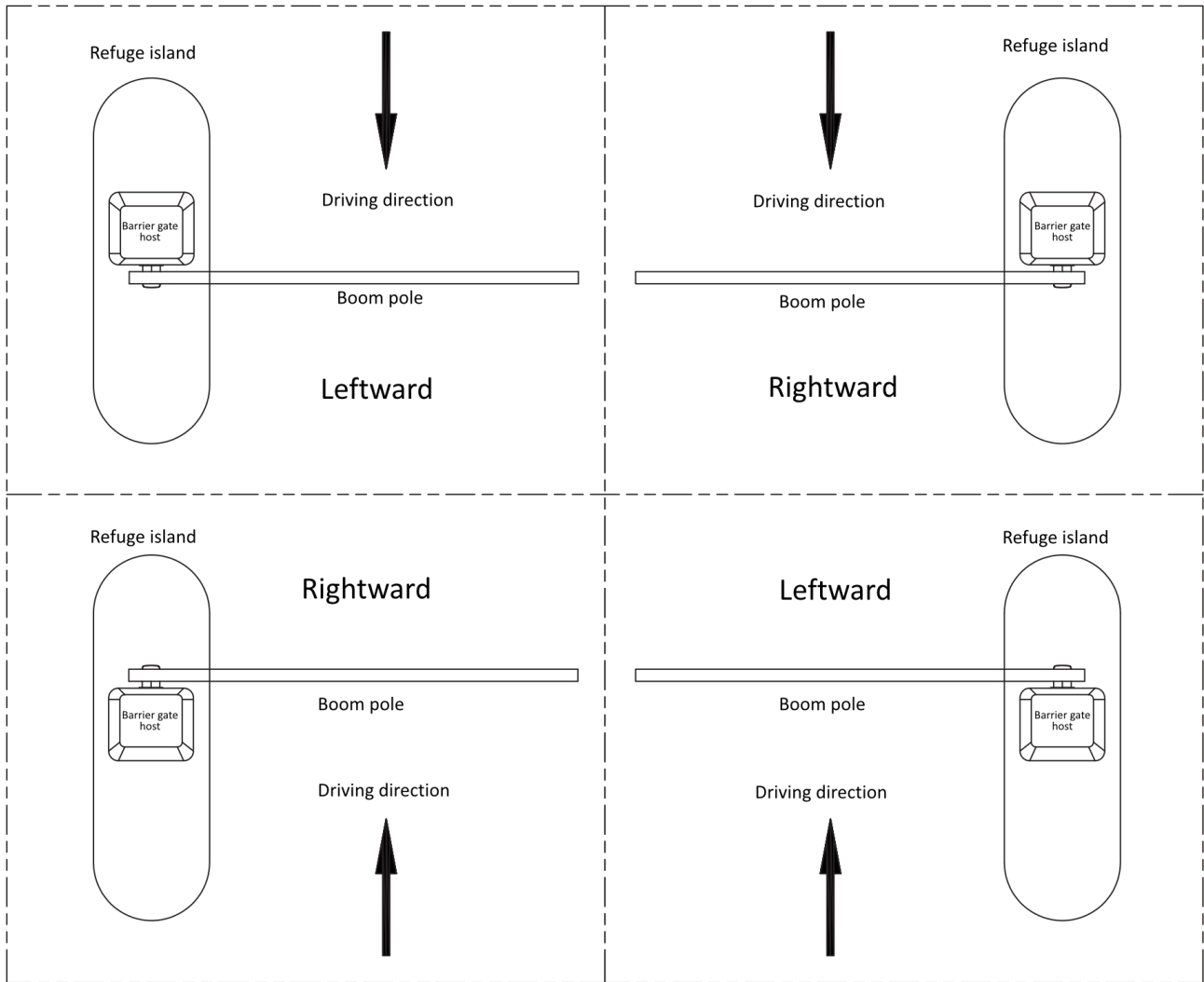


Figure 4-15 Boom Pole Direction Instruction

4.6 Change Left/Right Direction of Machine Core

Before you start

Cut off the power supply. Disassemble the boom pole and spindle rod according to the procedure above.

Steps

1. Use a cross screwdriver to remove the grounding terminal of the motor wire, and then unplug the motor power cord and signal line terminals on the barrier gate control board. Rotate the control box, and remove the motor wire from the wire slot.

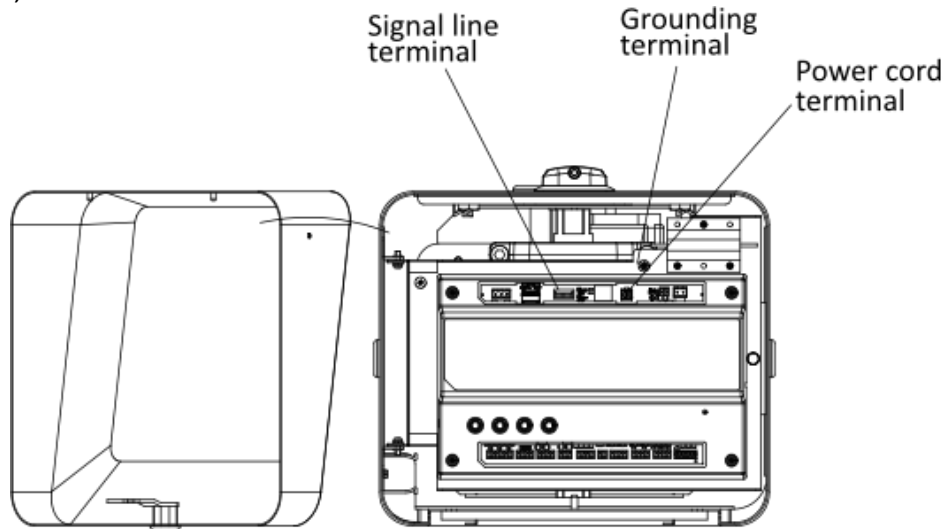


Figure 4-16 Remove Machine Core Wire

2. Remove the M8 hex socket head cap screw of the machine core with a No. 6 hex wrench.
3. Rotate the machine core 180° horizontally, and then put it into the host.

Note

The installation position is different after direction is changed.

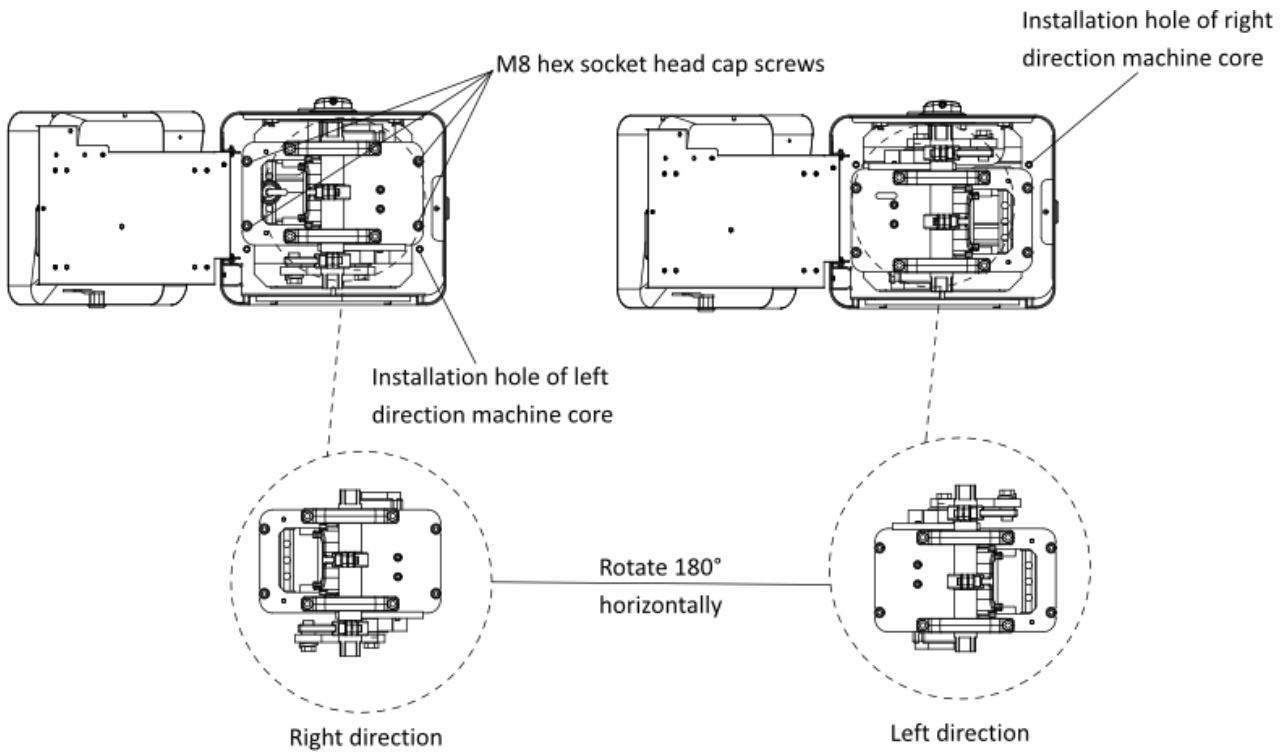


Figure 4-17 Change Machine Core Direction

4. Fix the machine core with the M8 hex socket head cap screws, put motor wire into the wire slot, connect the power cord and signal line terminals, and then fix the grounding terminal.

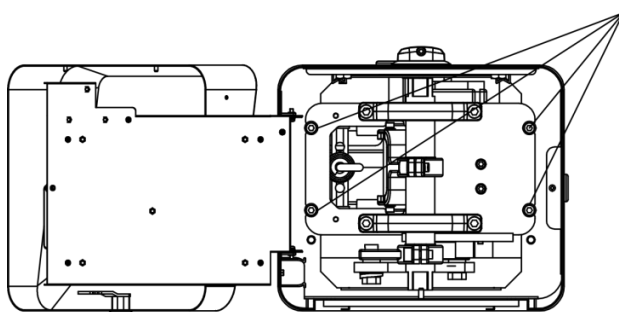


Figure 4-18 Fix Machine Core

5. Install the boom pole. Refer to 4.2 *Change Boom Pole* for details.
6. Install the spindle rod. Refer to 4.3.2 *Change Spindle Rod* for details.

A. FAQ

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

No.	Code	Description
1	01	<ul style="list-style-type: none"> ● The barrier gate was hit.
2	02	<ul style="list-style-type: none"> ● The boom pole does not match. ● The control box was damaged.
3	03	<ul style="list-style-type: none"> ● The boom pole was blocked from falling by obstacles. Remove them. ● The spring is too tightened. ● The boom pole does not match. ● Learning limit positions failed. Learn again.
4	04	<ul style="list-style-type: none"> ● There are obstacles on the boom pole or the connection components. Remove them. ● The spring has reached the inner wall of the host in compression status. Adjust the spring. ● The boom pole does not match. ● The gearbox was damaged. ● The control box was damaged.
5	05	<ul style="list-style-type: none"> ● The cables of encoder or motor were not connected well. ● The boom pole or the connection component got stuck. ● The motor was damaged. ● The gearbox was damaged. ● The control box was damaged
6	06	<ul style="list-style-type: none"> ● The power input is abnormal. ● The power output of the transformer is abnormal. ● The braking resistor was not inserted. ● The control box was damaged.
7	07	<ul style="list-style-type: none"> ● The power input is abnormal. ● The power output of transformer is abnormal. ● The control box was damaged.
8	0d	<ul style="list-style-type: none"> ● The gearbox was damaged. ● The encoder was interfered. ● The boom pole was damaged.
9	0E	The radar, vehicle detector, or protection signal was triggered during learning.
10	10	The stopping control or stopping via hand shank terminal was short-circuited.
11	11	The stopping control or falling via hand shank terminal was

No.	Code	Description
		short-circuited.
12	15	FOC timeout.
13	16	The software is abnormal.
14	17	<ul style="list-style-type: none"> ● The braking resistor was damaged or not inserted firmly. ● The control box was damaged.
15	18	The signal cable was not connected well.
16	64	If the device fail to rise to the limit position, but the motor is running well, the system will reboot if it receives the rise command.
17	65	If the device fail to fall to the limit position, but the motor is running well, the system will reboot if it receives the rise command.
18	66	Learning failed. The system will reboot if it receives the rise command.
19	68	The motor wiring was not connected well.
20	69	FLASH is abnormal.
21	Lc	The barrier gate is locked. Check if the rising control + and rising control - interfaces are connected or if the barrier gate is locked via remote controller.
22	Lr	The barrier gate is in learning limit process, finish it first.

B. Peripheral Device Interfaces Introduction

Open the top cover of host, and you can see the interfaces as shown below.

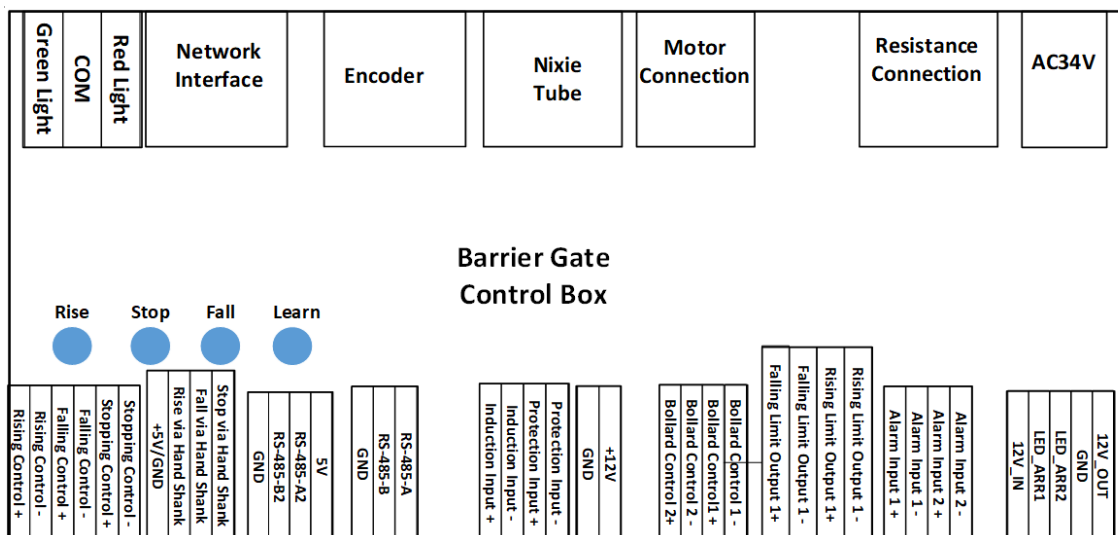


Figure B-1 Interfaces

Table B-1 Interface Description

Name	Description	Max. Voltage	Max. Current
Red Light	Connects to the red traffic signal light.	AC 240 V/ DC 100 V	2 A
Green Light	Connects to the green traffic signal light.		
Rising Control +	Connects to control signals (relay) to execute rising, falling, and stopping command.	DC 12 V	/
Rising Control -			
Falling Control +			
Falling Control -			
Stopping Control +			
Stopping Control -			
Rise via Hand Shank	Connects to hand shank control tool to control the boom pole to rise, fall, and stop remotely.	DC 12 V	/
Fall via Hand Shank			
Stop via Hand Shank			
+5V/GND	Hand shank power supply.	/	/

Name	Description	Max. Voltage	Max. Current
5V	Connects to the remote receiving module.	/	/
RS485-A2			
RS485-B2			
GND			
RS485-A	Inputs RS-485 control signals. A connects to RS-485 +, and B connects to RS-485 -.	/	/
RS485-B			
GND			
+12V	Connects to 12 V power supply.	/	/
GND	GND		
Rising Limit Output +	<ul style="list-style-type: none"> ● The alarm output of exceptional rising of the boom pole. ● Relay signals to output the rising status of the boom pole to detection unit. 	DC 24 V	1 A
Rising Limit Output +			
Falling Limit Output +	Relay signals to output the falling status of the boom pole to the detection unit.	/	/
Falling Limit Output -			
12V_IN	Connects to power input.	DC 12 V	1 A
LED-ARR2	Connects to the negative pole of LED strip light, displaying green.		
LED-ARR1	Connects to the negative pole of LED strip light, displaying red.		
12V_OUT	Connects to the positive pole of LED strip light.		
GND	GND		
Induction Input +	Connect to anti-fall device (anti-fall radar or anti-fall coil). The pole will fall automatically if the signal disappears.	DC 12 V	/
Induction Input -			
Protection Input +	Connect to anti-fall device (anti-fall radar or anti-fall coil).	/	/
Protection Input -			
Network Interface	Reserved interfaces.	/	/

Name	Description	Max. Voltage	Max. Current
Bollard Control 1 +	Reserved interfaces.	DC 24 V	1 A
Bollard Control 1 -			
Bollard Control 2 +			
Bollard Control 2 -			
Alarm Input 1 +		DC 12 V	/
Alarm Input 1 -			
Alarm Input 2 +			
Alarm Input 2 -			



See Far, Go Further