Boom Gate (DHI-IPMECD-105X Series)

User Manual

ZHEJIANG DAHUA VISION TECHNOLOGY CO., LTD. V1.0.0

Foreword

This manual introduces the installation, functions and operations of the boom gate. Read carefully before using the device, and keep the manual safe for future reference.

Models

Series	Model
DHI-IPMECD-1051 Series	DHI-IPMECD-1051-LM1515-T28
	DHI-IPMECD-1051-LM1525-T30
	DHI-IPMECD-1051-LM2525-T50
	DHI-IPMECD-1051-RM1515-T28
	DHI-IPMECD-1051-RM1525-T30
	DHI-IPMECD-1051-RM2525-T50
DHI-IPMECD-1052 Series	DHI-IPMECD-1052-LM30-T15
	DHI-IPMECD-1052-LM3040-T28
	DHI-IPMECD-1052-LM4050-T48
	DHI-IPMECD-1052-LM5060-T55
	DHI-IPMECD-1052-RM30-T15
	DHI-IPMECD-1052-RM3040-T28
	DHI-IPMECD-1052-RM4050-T48
	DHI-IPMECD-1052-RM5060-T55
DHI-IPMECD-1053 Series	DHI-IPMECD-1053-LM30-T35
	DHI-IPMECD-1053-LM35-T42
	DHI-IPMECD-1053-LM40-T55
	DHI-IPMECD-1053-LM45-T60
	DHI-IPMECD-1053-RM30-T35
	DHI-IPMECD-1053-RM35-T42
	DHI-IPMECD-1053-RM40-T55
	DHI-IPMECD-1053-RM45-T60

Safety Instructions

The following signal words might appear in the manual.

Signal Words	Meaning
DANGER	Indicates a high potential hazard which, if not avoided, will result in death or serious injury.
WARNING	Indicates a medium or low potential hazard which, if not avoided, could result in slight or moderate injury.
CAUTION	Indicates a potential risk which, if not avoided, could result in property damage, data loss, reductions in performance, or unpredictable results.

Signal Words	Meaning
TIPS	Provides methods to help you solve a problem or save time.
NOTE	Provides additional information as a supplement to the text.

Revision History

Version	Revision Content	Release Time
V1.0.0	First release.	April 2023

About the Manual

- The manual is for reference only. Slight differences might be found between the manual and the product.
- We are not liable for losses incurred due to operating the product in ways that are not in compliance with the manual.
- The manual will be updated according to the latest laws and regulations of related jurisdictions. For detailed information, see the paper user manual, use our CD-ROM, scan the QR code or visit our official website. The manual is for reference only. Slight differences might be found between the electronic version and the paper version.

Important Safeguards and Warnings

This section introduces content covering the proper handling of the boom gate, hazard prevention, and prevention of property damage. Read carefully before using the device, and comply with the guidelines when using it.

Transportation Requirements

- Pack the boom gate with packaging materials provided by its manufacturer or materials with the same quality before transporting it.
- Transport the boom gate under allowed humidity and temperature conditions.

Storage Requirements

Store the boom gate under allowed humidity and temperature conditions.

Operation Requirements

- Make sure that the power supply is correct before running the boom gate.
- Do not unplug the power cord on the side of the boom gate when the adapter is powered on.
- Operate the boom gate within the rated range of power input and output.
- Use the boom gate under allowed humidity and temperature conditions.
- Do not drip or splash liquid onto the boom gate, and make sure that there is no object filled with liquid on the boom gate to prevent liquid from flowing into it.
- Do not disassemble the boom gate.
- Clean the surface of the boom gate with a soft dry cloth or a clean soft cloth moistened with neutral detergent.
- Do not squeeze, vibrate, or immerse the boom gate in liquid.
- We recommend you use the boom gate with a lightning protection device for stronger protection against lightning. For outdoor scenarios, strictly comply with the lightning protection regulations.
- Ground the function earthing portion of the boom gate to improve its reliability. Make sure that the power supply of the class I electrical appliance is connected to a power socket with protective earthing.

Installation Requirements

WARNING

- Do not connect the boom gate to the power adapter when the adapter is powered on.
- Strictly comply with the local electrical safety codes and standards. Make sure that the ambient voltage is stable and meets the power supply requirements.
- Do not connect the boom gate to 2 or more kinds of power supplies, to avoid safety risks and damage to the boom gate.
- Use accessories suggested by the manufacturer, and install and maintain the boom gate by professionals.
- When using a laser beam device, avoid exposing the surface of the boom gate to laser beam radiation.

- Personnel working at heights must take all necessary measures to ensure personal safety including wearing a helmet and safety belts.
- Do not install or place the boom gate in a location that exposes it to sunlight or heat sources.
- Keep the boom gate away from dampness, dust or soot.
- Install the boom gate in well-ventilated places, and do not block its vent.
- Use an adapter or cabinet power supply from the manufacturer.
- Make sure that the power supply meets the SELV (Safety Extra Low Voltage) requirements and rated voltage conforms to the GB8898 (IEC60065) or GB4943.1 standard (IEC60950-1 or IEC62368-1 complies with Limited Power Source). The requirements of the power supply are subject to the device labels.

Table of Contents

1 Product Overview

1.1 Product Introduction

The boom gate consists of a top cover, casing, transmission mechanism, control box, and boom. It can be controlled on the left or right side, and is ideal for access control at parking lots.

4 types of boom gates are available: the straight, telescopic, folding and fence boom gate.

1.2 Main Features

- Uses a 24 VDC brushless servo motor to reduce power consumption, and allow the device to be safe and perform stably with little noise.
- The raising speed of the boom can be adjusted.
- The position of the limit switch can be adjusted.
- Connects to the camera through RS-485.
  You can view the working status of the boom gate on the webpage of the camera, including running times, operating status, and logs.
- Connects to the radar, coil, or IR sensor for anti-smashing. It also has a 12 VDC power supply that outputs power to radars that are connected.
- During the closing process, the boom reverses automatically if it is obstructed.
- During a power failure, you can control the servo handle by manually opening and closing the boom gate.
- Uses learning code wireless remote control, convenient and highly-confidential.
- Turns on fleet mode with one click, allowing the boom gate to stay open until a specified amount of vehicles pass.
- Counts the number of times the boom gate opens and closes.
- The delay time and speed at which the boom gate closes can be set.
- Motor lifespan: 3 million times.
- Spring lifespan: 800,000–1,000,000 times. The lifespan might vary, depending on the type and the length of the boom.

2 Product Structure

2.1 Appearance

Figure 2-1 Straight boom gate

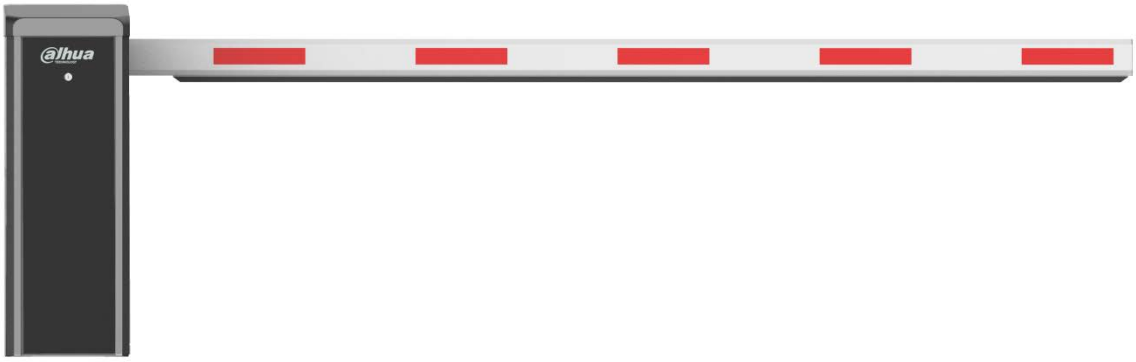


Figure 2-2 Telescopic boom gate

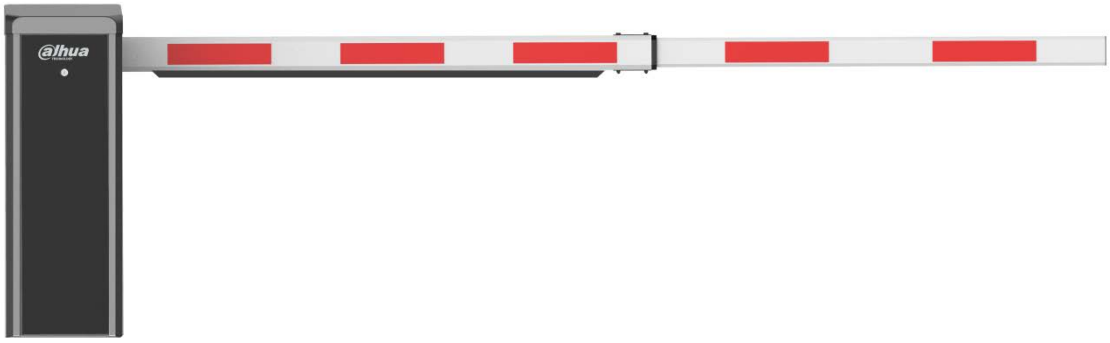
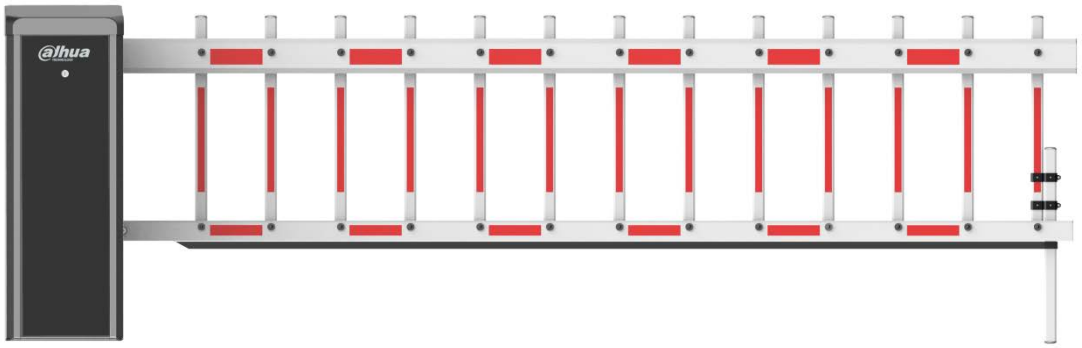


Figure 2-3 Folding boom gate

Figure 2-4 Fence boom gate



2.2 Structure

Figure 2-5 Structure

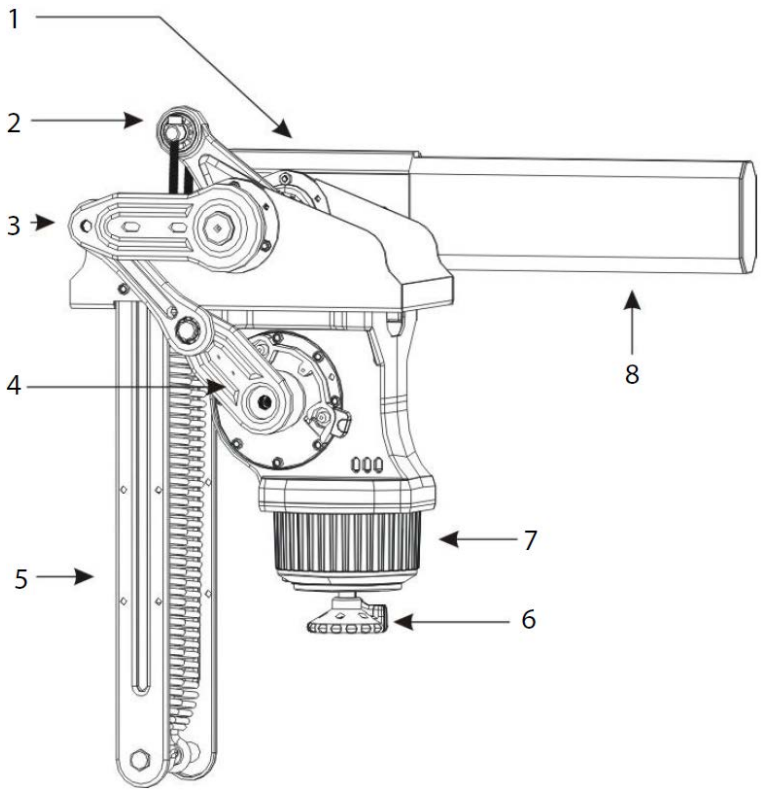
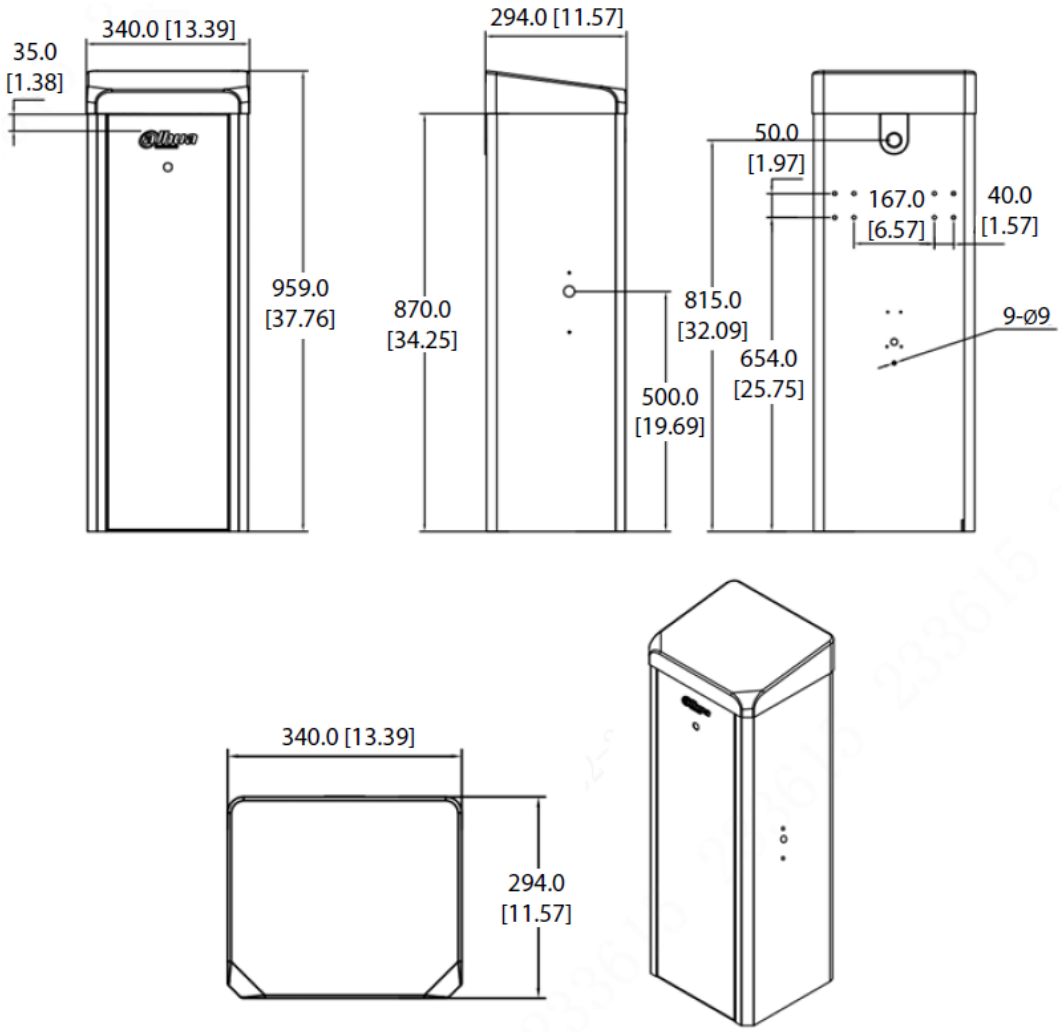


Table 2-1 Structure description

No.	Description	No.	Description
1	Boom handle	5	Balance spring
2	Spring adjustment screw	6	Motor hand wheel
3	Spring lock nut	7	DC brushless servo motor
4	Crank arm	8	Boom

2.3 Casing Dimensions

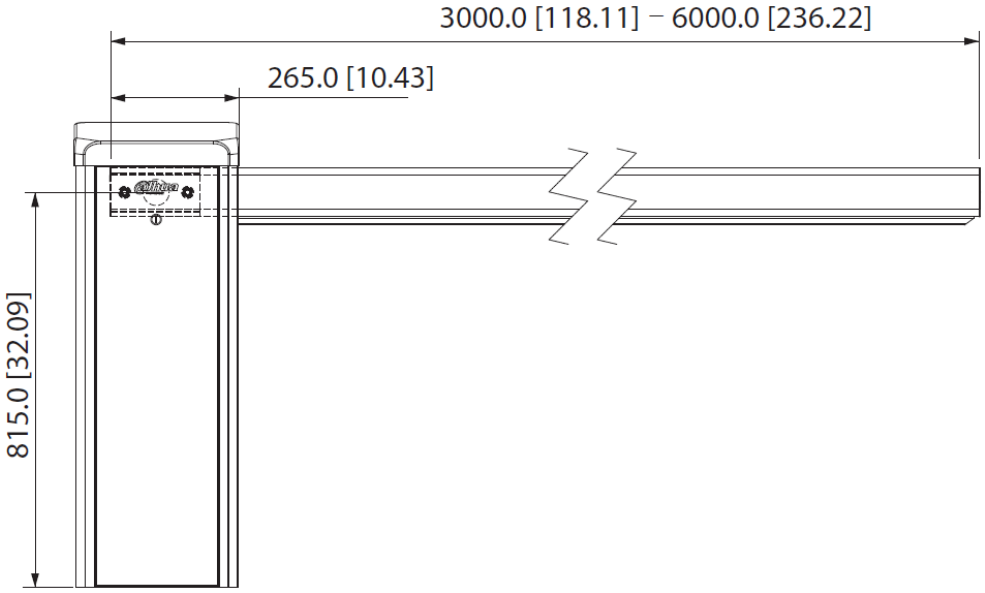
Figure 2-6 Casing dimensions (mm [inch])



2.4 Product Dimensions

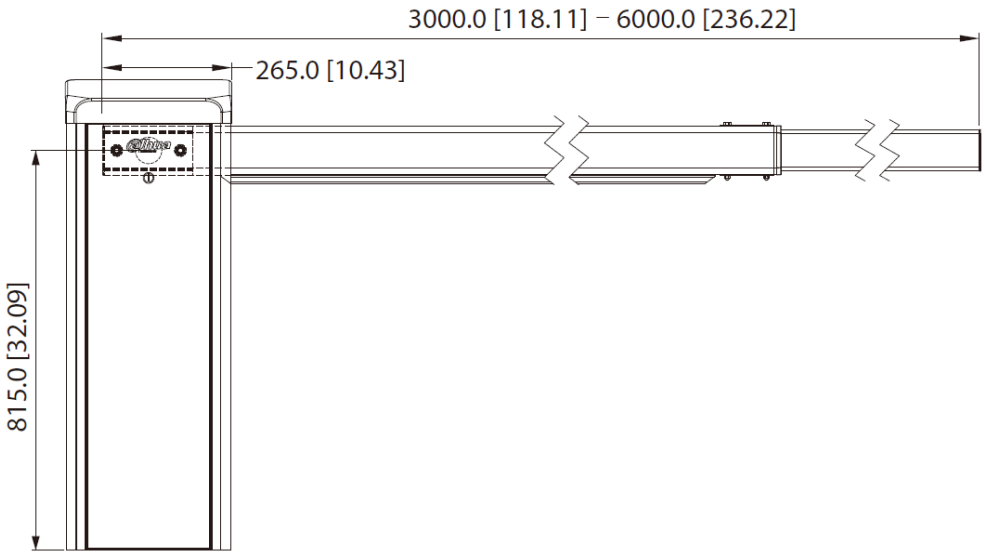
- Straight boom gate (the gate is right-oriented, and it is installed on the left side of the roadway)

Figure 2-7 Straight boom gate dimensions (mm [inch])



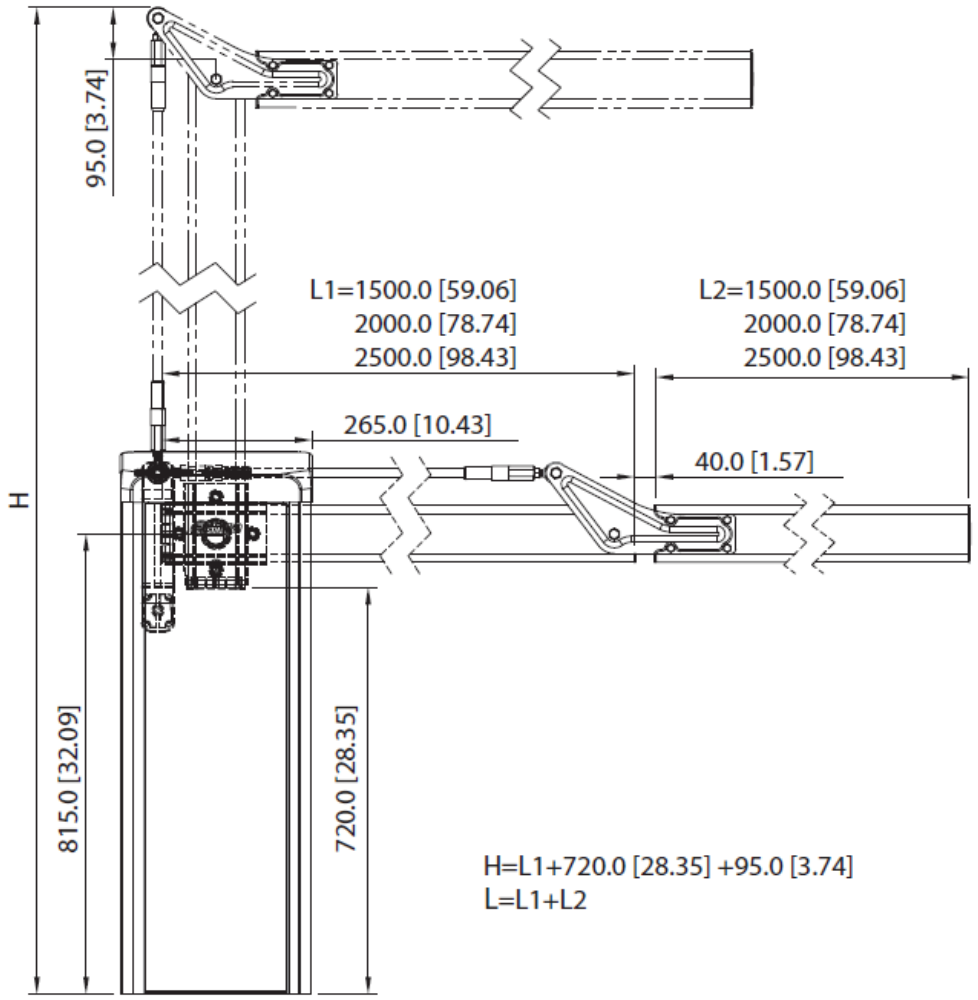
- Telescopic boom gate (the gate is right-oriented, and it is installed on the left side of the roadway)

Figure 2-8 Telescopic boom gate dimensions (mm [inch])



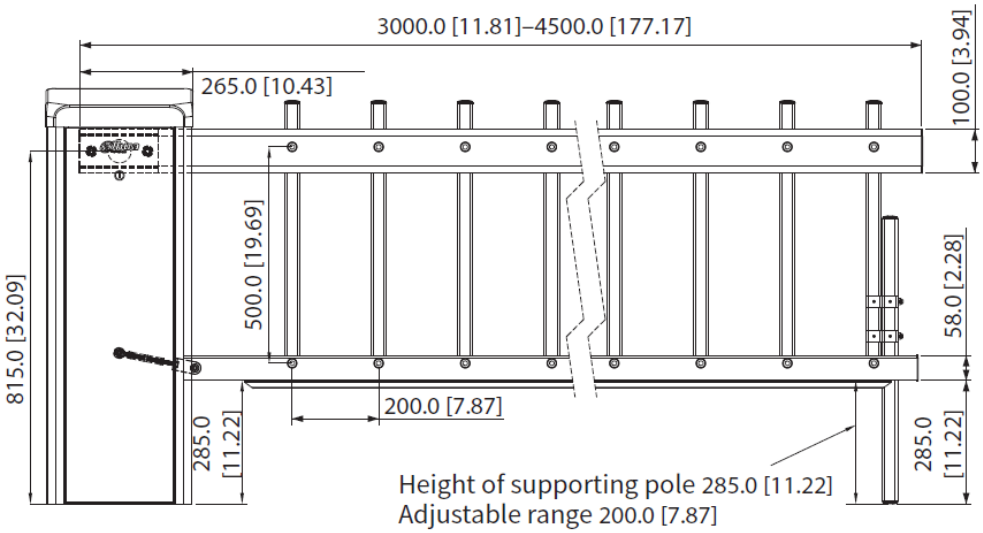
- Folding boom gate (the gate is right-oriented, and it is installed on the left side of the roadway)

Figure 2-9 Folding boom gate dimensions (mm [inch])



- Fence boom gate (the gate is right-oriented, and it is installed on the left side of the roadway)

Figure 2-10 Fence boom gate dimensions (mm [inch])



2.5 Direction

You can recognize the direction of the boom gate by facing the door of its casing. Its direction is the side that the boom closes on.

The diagrams are for reference only.

Figure 2-11 Direction

Right-oriented

Left-oriented

3 Product Installation

3.1 Concrete Base Requirements

This section introduces the requirements for selecting and constructing the concrete base. For details, see the corresponding construction guide.

A concrete base is required for installing the boom gate.

Pour concrete mixer into the location demarked for the base, to construct a concrete base that is between 150–250 mm above the ground. Heights that do not fall within this range might influence the accuracy of radar detection.

3.2 Installing the Casing

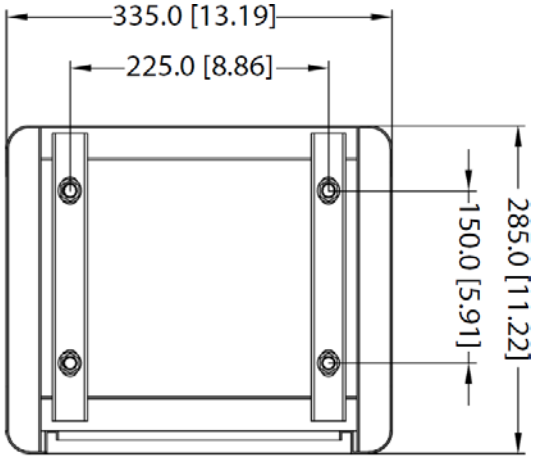
Step 1 Place the casing at the required position.

Step 2 Open the door of the casing.

Step 3 Use a screwdriver to draw lines on the ground along the groove of the base plate, and then move the casing away.

Step 4 Mark 4 expansion bolt holes according to the dimensions as shown in the following figure.

Figure 3-1 Casing dimensions (mm [inch])



Step 5 Drill holes for the expansion bolts and screw the expansion bolts into the holes. Adjust the horizontal and vertical angles of the casing, and then tighten the nuts.

Figure 3-2 Install the casing (mm [inch])

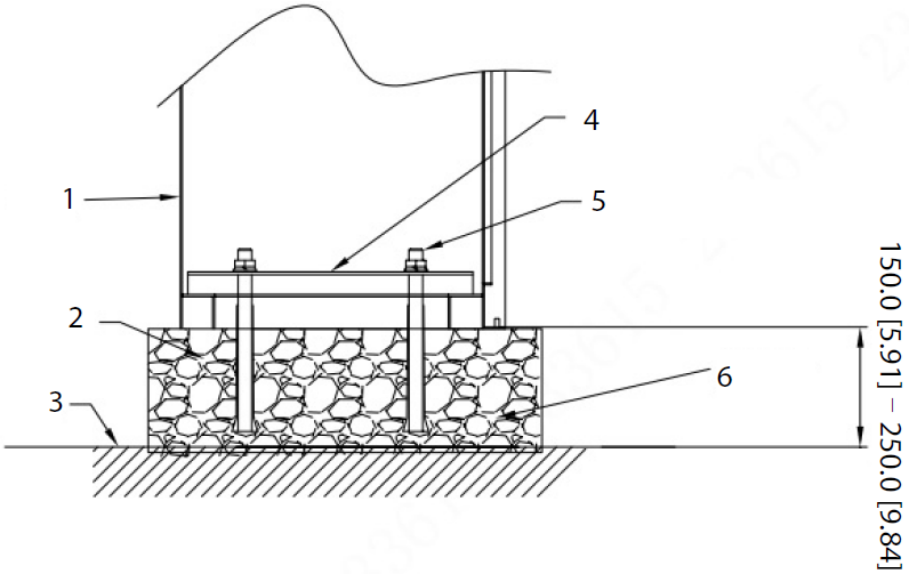


Table 3-1 Description

No.	Description	No.	Description
1	Casing	4	Plate
2	Concrete	5	Expansion screw (4-M12 × 160)
3	Ground	6	Concrete base

3.3 Installing the Boom

The installation diagrams in this section are for reference only.

3.3.1 Straight Boom Gate

Step 1 Use 2 M12 × 70 mm outer hexagon screws to secure the plate of the boom handle to the boom.

Step 2 Hold the plate with your hand, raise the boom vertically, and then fix the plate to the handle connector.

Step 3 Install the flat washer, spring washer, and M12 nut on the screws, and then use a wrench to secure the boom screws.

Figure 3-3 Install the straight boom gate

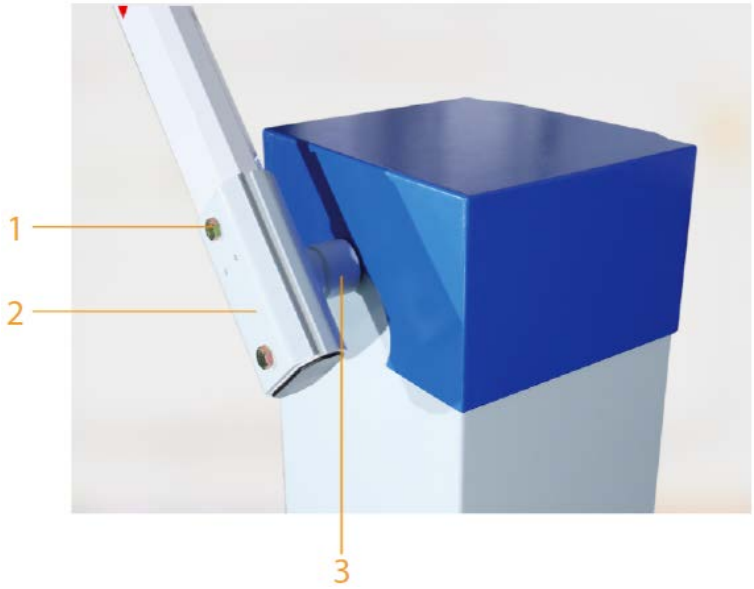


Table 3-2 Straight boom gate description

No.	Description	No.	Description
1	M12 × 70 outer hexagon screw	3	Handle connector
2	Plate for boom handle	—	—

3.3.2 Telescopic Boom Gate

The procedure for installing a telescopic boom gate is the same as that of installing the straight boom gate. For details, see "3.3.1 Straight Boom Gate".

3.3.3 Folding Boom Gate

Step 1 Follow Step 1–Step 3 in "3.3.1 Straight Boom Gate".

Step 2 Install the bearing on the support plate, and then secure the bearing with screws.

Step 3 Loosen the 2 ends of the cast aluminum casing, rotate the stainless steel tube, and adjust the horizontal and vertical directions of the boom respectively. After it has been adjusted, tighten the 2 ends of the cast aluminum casing.

Figure 3-4 Install the folding boom gate

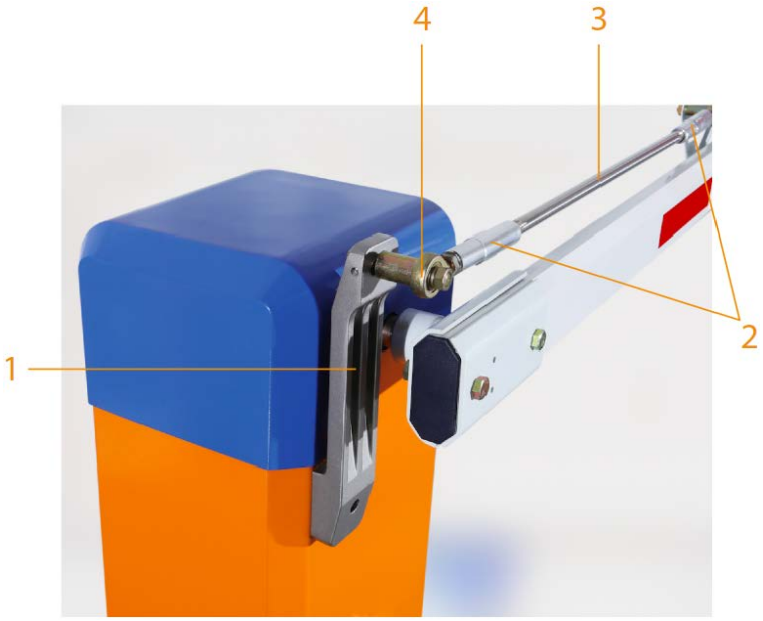


Table 3-3 Folding boom gate description

No.	Description	No.	Description
1	Support plate	3	Stainless steel tube
2	Cast aluminum casing	4	Bearing

3.3.4 Fence Boom Gate

Step 1 Follow Step 1–Step 3 in "3.3.1 Straight Boom Gate".

Step 2 Use the hex socket to fix one end of the bearing of the U-shaped connector to the cone shaft of the casing.

Step 3 Use screws to secure the lower horizontal bar to the U-shaped connector.

Step 4 Loosen the 2 nuts of the U-shaped connector, and then adjust the length of the boom, to make it perpendicular to the ground.

Figure 3-5 Install the fence boom gate

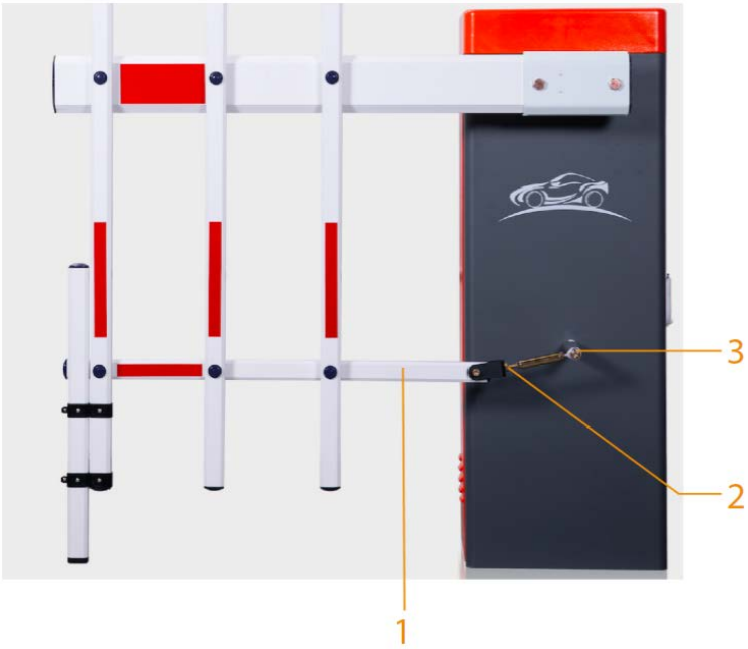


Table 3-4 Fence boom gate description

No.	Description	No.	Description
1	Lower horizontal bar	3	Cone shaft
2	U-shaped connector	—	—

3.4 Connecting Cables

The wiring for the boom gate was completed before delivery. Simply connect the boom gate to the power supply and protective earth wire for it to begin working.

3.4.1 Connecting Controller Ports

Figure 3-6 Wiring diagram of the controller

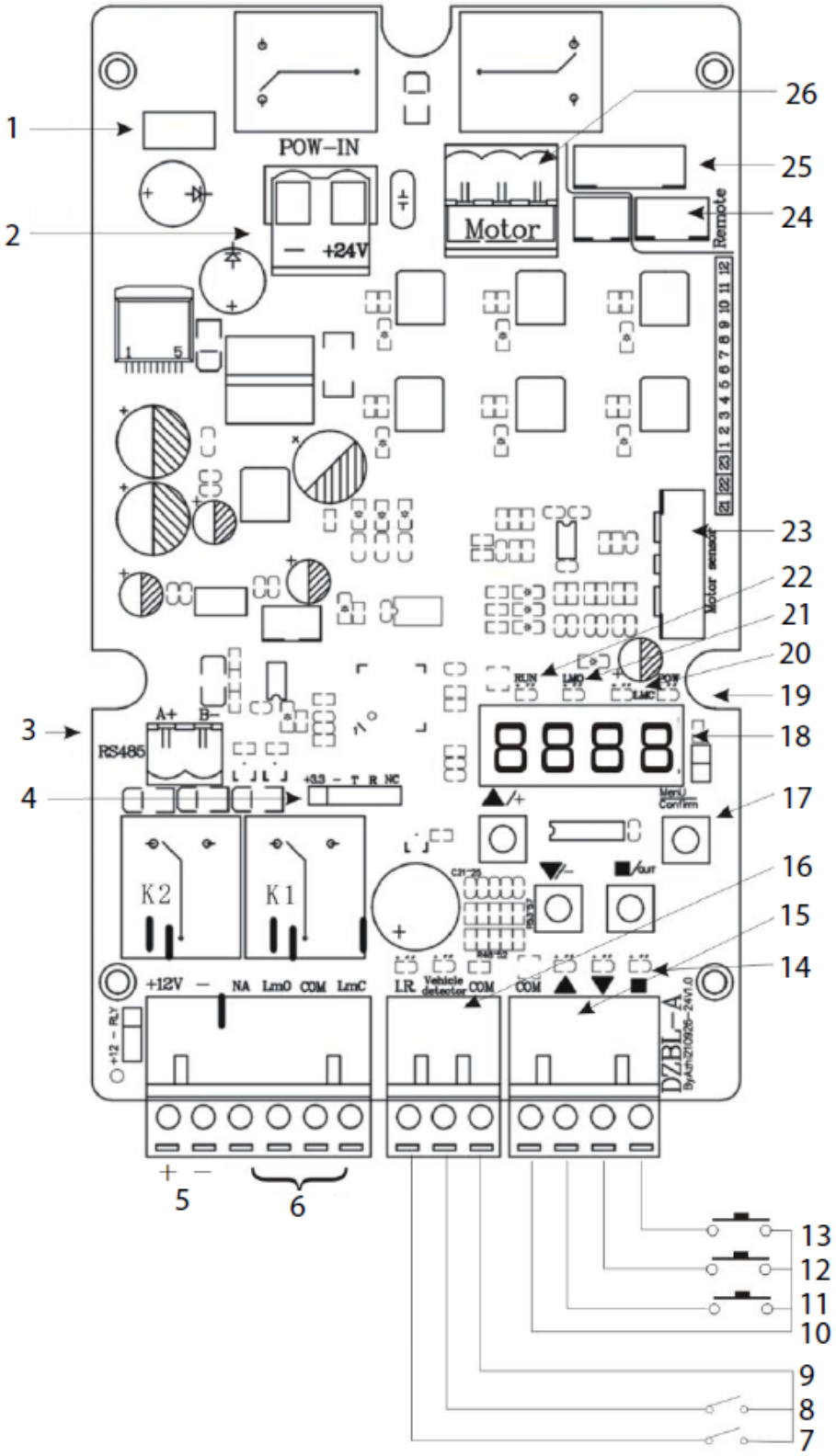


Table 3-5 Controller port description

No.	Description	No.	Description
1	Fuse.	2	24 VDC power input.
3	RS-485 communication interface. Connects to the RS-485 port of the access control camera through a twisted pair cable, so that the camera can obtain the working status, fault code and log of the boom gate.	4	Bluetooth mode interface (optional).
5	12 VDC power input. Outputs a maximum of 12 VDC and 1 A current, to supply power to the radar or IR anti-smashing device.	6	Multiplying relay output interface.
7	IR photocell signal input.	8	Loop detecton and radar signal input.
9	GND (COM).	10	GND (COM).
11	Open.	12	Close.
13	Stop.	14	Wire control indicator.
15	Wire control interface. Used to connect the boom gate to the parking system, or to connect the external button switches to control the boom gate. ● Open the boom gate: Short **Open** and **GND**. ● Close the boom gate: Short **Close** and **GND**. ● Stop the boom gate: Short **Stop** and **GND**.	16	Anti-smashing interface. ● Anti-smashing by IR sensor: Used when closing the boom gate, short **IR** and **GND** to open the boom gate. ● Anti-smashing by coil: Used when closing the boom gate, short coil or radar and **GND** to open the boom gate. After the boom gate is opened, it will automatically close when the coil or radar and **GND** are disconnected.

No.	Description	No.	Description
17	Function buttons. The 4 function buttons have 2 working statuses: the normal working status and menu setting status. ● In the normal working status, you can press **Open**, **Close**, or **Stop** to open, close, or stop the boom gate, and press and hold **Settings** for 2 seconds to enter the menu setting status. ● In the menu setting status, you can press the **Open** and **Close** buttons to adjust the menu items or parameters, and press **Exit** to cancel settings or exit the menu setting status. You can press **Settings** to enter menu of next level, or save the configurations.	18	Digital tube display. Displays the working status, parameters, menu items, and other information of the boom gate. LED is lit after the boom gate is powered on. If the buttons are not used within 60 seconds, the LED will enter low-power mode. In this mode, the LED dims, and power consumption is reduced. Press any button for the LED to enter the normal working status. It will light up.
19	Power indicator.	20	Close limit indicator.
21	Open limit indicator.	22	Running status indicator. Indicates the working status of the boom gate.
23	Motor sensor interface.	24	3-wire radio receiver interface.
25	5-wire radio receiver interface.	26	Motor interface.

3.4.2 Configuring Controller Parameters

3.4.2.1 Common Menu

Common Menu Settings

Step 1 Press and hold **Menu/OK** for 2 seconds to enter the menu setting status.
The LED displays "F-XX".

Step 2 Select menu items using the **Open** and **Close** buttons. Press the button once to select the previous or next menu. Press and hold the button to select the previous menu or to continuously cycle through menus.

Step 3 When the "F-XX" item displayed is the parameter that you want to set, press **Settings** to start configuring the parameter, and then press **Stop** to return to the previous level of the menu or exit the page.

Step 4 After the parameters have been set, press **Settings** to save the configurations. If you press **Stop**, the configurations will not be saved. The buzzer on the control panel beeps, the system exits the menu setting status and returns to the normal working status.

Table 3-6 Common menu list

Menu	Function	Default	Range	Description
F-00	Opening speed	50	15–100	The higher the value, the faster the boom gate opens.
F-01	Closing speed	50	15–100	The higher the value, the faster the boom gate closes.
F-02	Opening deceleration angle	50	10–80	The angle that the boom gate starts decelerating when it is opening.
F-03	Closing deceleration angle	30	10–80	The angle that the boom gate starts decelerating when it is closing.
F-04	Low-speed opening angle	90	45–90	The angle that the boom gate starts opening when the speed is slow.
F-05	Low-speed closing angle	0	0–45	The angle that the boom gate starts closing when the speed is slow.
F-06	Opening end speed	8	1–50	The speed that the boom gate finishes opening.
F-07	Closing end speed	4	1–50	The speed that the boom gate finishes closing.
F-08	Horizontal position adjustment	15	1–255	Fine-tune the horizontal position of the boom.
F-09	Vertical position adjustment	6	1–99	Fine-tune the vertical position of the boom.
F-10	Automatic delay closing time	0	0–255	The time that the boom gate automatically closes if no vehicle passes. Unit: seconds.
F-13	Self-learning speed after power-on	25	10–80	Learns the up and down limits according the defined speed.
F-15	Sensitivity of boom	10	1–40	The sensitivity of the boom when it is obstructed while closing. Unit: 0.05 seconds. For example, if you set the value to 20, the sensitivity will be 1 second (0.05 × 20).

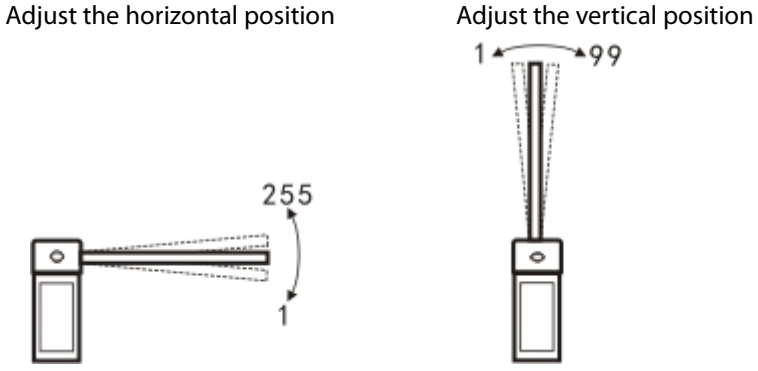
Common Menu Description

- F-02: Opening deceleration angle.
  The angle that the boom gate starts decelerating when it is opening. The angle is 0° when the boom is in the horizontal position, and 90° when the boom is in the vertical position. You can decrease the angle if the boom dithers when the boom gate is opened in place.
- F-03: Closing deceleration angle.
  The angle that the boom gate starts decelerating when it is closing. The angle is 0° when the boom is in the horizontal position, and 90° when the boom is in the vertical position. You can increase the angle if the boom dithers when the boom gate is closed.
- F-04: Low-speed opening angle.
  When the boom gate opens to the defined F-04 angle, it starts opening at the defined F-06 speed, until it is completely opened.
- F-05: Low-speed closing angle.

The angle that the boom gate starts closing when the speed is slow. When it is closing and reaches this angle, the boom gate will close at the F-07 closing speed until the boom gate is completely closed. This function is invalid if F-05 is set to 0, or is greater than the F-03 closing deceleration angle.

- F-06: Opening end speed.
  The speed at which the boom gate completely opens. Values that are too high will cause the boom to dither when the boom gate is completely open. If F-04 is greater than the F-02 opening deceleration angle and less than 90°, then after the boom gate opens to F-04 low-speed opening angle, it will work at the F-06 opening end speed, until it is completely open.
- F-07: Closing end speed.
  The speed at which the boom gate completely closes. Values that are too high will cause the boom to dither when the boom gate is completely closed. If F-05 is greater than 0 and less than the F-03 closing deceleration angle, the boom gate will work at the F-07 closing end speed, until it is completely closed.
- F-08: Horizontal position adjustment.
  You can fine-tune the horizontal position of the boom by adjusting this parameter. The higher the value, the more the boom will tilt upwards. The lower the value, the more the boom will tilt downwards. The value is only valid when H-33 is set to 0. Otherwise, if the parameter is saved, it will take effect when H-33 is set to 0.
- F-09: Vertical position adjustment.
  You can fine-tune the vertical position of the boom by adjusting this parameter. The larger the value, the easier it will be for the boom to tilt upwards. The lower the value, the easier it will be for the boom to tilt downwards. The value is only valid when H-33 is set to 0. Otherwise, if the parameter is saved, it will take effect after H-33 is set to 0.

Figure 3-7 Adjust the boom position



- F-10: Automatic delay closing time.
  Set F-10 to higher than 0, and after the boom gate is opened in place, the LED will show the dxxx (xxx means seconds) countdown when no vehicles pass. The boom gate will automatically close when the countdown reaches 0. If the boom gate receives an opening command during the countdown, the countdown will restart. If the boom gate receives a stop command, the countdown will stop. The automatic opening speed depends on the H-45 value of the advanced menu.
- F-13: Self-learning speed after power-on.
  Set different speeds for learning the up limit and the down limit after powering on.
  1) After entering the menu, set the speed for learning the up limit first. The LED displays "1-XX" (XX refers to the speed for learning the up limit). You can press the **Open** and **Close** buttons to adjust the speed.

2) After setting the speed for learning the up limit, press **Settings**, and the LED displays "2-XX" (XX refers to the speed for learning down limit). You can press the **Open** and **Close** buttons to adjust the speed.
3) After setting the speeds, press **Settings** to save the configurations.
The settings do not take effect if you press **Stop**.

When manually adjusting the limit, the system learns the limits at the speed of 1-XX.

- F-15: Sensitivity of boom.
While it is closing, if the boom is obstructed from moving for longer than the defined time, it will open. Er.ob (see "3.4.2.3 Error Code") will be displayed on the LED.

3.4.2.2 Advanced Menu

Advanced Settings

Press and hold the **Settings** and **Stop** buttons for 2 seconds at the same time to go to the advanced menu. The LED displays H-XX.

- Advanced menu is for professionals and technical personnel.
- Do not modify the items that are not listed in the table below, to avoid causing the boom gate to malfunction.

Table 3-7 Some of the advanced menu items

Menu	Function	Default	Range	Description
H-02	Quick commissioning.	—	—	See Advanced Settings Details.
H-03	Automatic delay closing after a vehicle passes.	0	0–255	The boom gate automatically delays closing by the defined time after the vehicle passes. Unit: seconds.
H-07	Counting function.	1	0–10	Calculates the running times of the boom gate. When it is set to 1, the boom gate opens and closes after a vehicle passes.
H-08	Automatic test.	0	0–5	Automatic aging test interval. 0 means no automatic aging test, 2 means test every 2 seconds. Unit: seconds.
H-09	Restores to its factory default settings.	0	0–255	10: Restores to its factory default settings.
H-17	The traffic light changes when the boom opens to the defined angle.	60	0–90	The red traffic light turns green when the boom gate opens to the defined angle.
H-25	RS-485 communication baud rate.	0	0–3	0: 115200, 1: 38400, 2: 19200, 3: 9600. Leave it as the default.

Menu	Function	Default	Range	Description
H-26	RS-485 communication address.	1	1–255	—
H-31	Enter the fleet mode when opening the boom gate by remote control.	0	0, 1	See Advanced Settings Details.
H-33	Learn the up and down limits according to the defined speed.	0	0–2	0: Learn the up and down limits. 1: Only learn the up limit (recommended). 2: Only learn the down limit.
H-34	Adjust the up and down limits manually.	None	None	Only manually adjust the up and down limits.
H-35	Adjust the up limit manually.	None	None	Only manually adjust the up limit. Recommended for fence boom gate.
H-36	Adjust the down limit manually.	None	None	Only manually adjust the down limit. Recommended when there is eave.
H-38	Coil signal buzzer.	0	0, 1	0: Not buzz. 1: Buzz.
H-45	Speed of auto delay closing.	50	15–100	Refer to this value when F-10 >0.
H-46	Auto opening time if low voltage occurs.	0	0–50	0 means the boom gate does not open when in low voltage. Unit: 0.1 seconds. For example, when you set the time to 20, 2 seconds (20 × 0.1) after the voltage is lower than the defined threshold, the boom gate will automatically open.
H-47	Auto opening when reaching the low voltage threshold.	21	15–22	The boom gate automatically opens when the voltage meets the defined threshold. Unit: volt.

Advanced Settings Details

- H-02: Quick commissioning.

Table 3-8 Commissioning mode

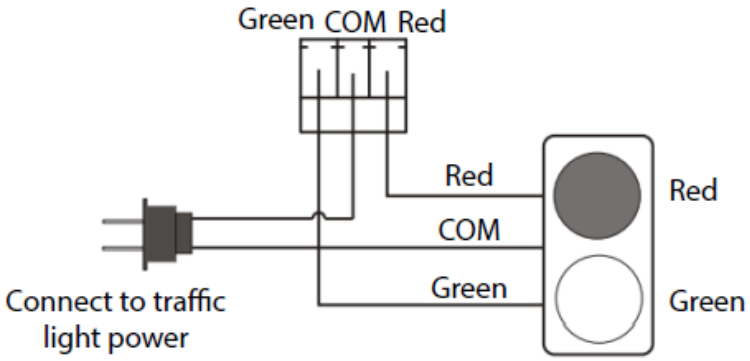
Commissioning Mode	Opening/Closing Speed (second)	Commissioning Mode	Opening/Closing Speed (second)
3E1.2	1.2	3E1.5	1.5
3E2	2	3E3	3
3E4	4	3E5	5
3E6	6	—	—

Select one of the options, and then press **Settings**, the parameters of F-00 to F-07 are automatically modified, and H-33 is automatically changed to 1. If the speed does not meet the on-site requirements, you can fine-tune the parameters of F-00 to F-07.

This option can reduce the difficulty of on-site commissioning and the commissioning time.

- H-03: Automatic delay closing after vehicle passes.
  The range of H-03 is 0–255 (0 by default). Unit: 1 second. Different from F-10, H-03 means that the countdown starts after the vehicle passes the coil or radar.
  - ◇ If there is an opening command during the countdown, the timer will be reset.
  - ◇ If the boom gate receives closing command, it will close immediately.
  - ◇ If it receives stop command, it will stop delay.
  - ◇ If the value is set to 0, the function will be turned off, and the boom gate closes after the vehicle passes.
- H-07: Counting function.
  In some cases, the boom gate closes only when the number of opening times matches with the closing times of ground sense relay. 0 means turning off the function. The value indicates the maximum number of consecutive opening times.
- H-08: Automatic test.
  Interval of automatic aging test. 0 means the function is turned off. After the test is complete, set this parameter to 0, or press **Stop** during the opening or closing process to exit automatic test.
- H-09: Restore factory default settings.
  To prevent improper operation, set the parameter to 10, and then press **Settings** to restore default settings. After the operation is complete, if you hear one buzz, the operation was successful; and if it is 2 buzzes, the operation failed.
  After restoring default settings, restart the device to make the settings take effect.
- H-17: Traffic light changes when the boom opens to the defined angle.
  When the boom gate opens to the defined angle, the relay of the traffic light interface changes from COM and Red shorted to COM and Green shorted. After connecting to the traffic light power supply, the traffic light interface can adapt to traffic lights of any voltage.

Figure 3-8 Traffic light wiring



- H-31: Enter the fleet mode when opening the boom gate by remote control.
  - ◇ Setting H-31 to 1 means that after opening the boom gate by remote control, it enters fleet mode (the boom gate keeps open until a specified amount of vehicles pass), until you close the boom gate. You can exit the fleet mode by remote control, or when the connected camera sends closing signal. The boom gate does not enter the fleet mode when it opens after receiving opening command from the connected camera.
  - ◇ Set H-31 to 0, and when the boom gate is opened, press and hold **Open** on the remote control for 4 seconds to enter the fleet mode.
- H-33: Define the up and down limits according to the defined speed.
  After powering on the boom gate for the first time, it needs to find the limit of the gate before it can enter the normal working mode.
  The controller supports 3 limit finding modes.

- ◇ 0: Find both up limit and down limit. Press **Open**, the boom rises. The motor stops after the boom finds the up limit. Press **Close**, the boom falls. The motor stops after the boom finds the down limit. After both up and down limits are found, the boom gate enters the normal working mode.
- ◇ 1: After powering on the controller for the first time, press **Open**, the boom rises. The boom gate enters the normal working mode after it finds the up limit. The motor will stop. If you press **Close** after first-time power-on, the boom rises. The boom gate enters the normal working mode after it finds the up limit. The boom gate will be closed in normal working mode.
- ◇ 2: After powering on the controller for the first time, press **Close**, the boom falls. The boom gate enters the normal working mode after it finds the down limit. If you press **Open** after first-time power-on, the boom gate closes first, finds the down limit, and then it can open in the normal working mode. This mode is ideal for scenes blocked with eaves.

- H-34: Adjust the up and down limits manually.

  You can use this command to manually set the up and down positions of the boom, so that it is more intuitive to adjust the up and down positions of the boom.
  - ◇ After entering the H-34 command, the LED shows L-00, and then the boom falls. After the boom finds the down limit, the buzzer beeps, and the LED changes to L-01. Then the boom rises, the buzzer beeps, and the LED changes to L-02, meaning that the up limit has been found. At this moment, the gate stops, and you need to manually find the vertical and horizontal positions of the boom:
    1) Press and hold **Close**, the boom works in the closing direction, until it is in the required vertical position.
    2) Press **Settings** to confirm the vertical position, then the LED shows L-03, meaning that the boom gate finishes finding the vertical position.
    3) Continue to press and hold **Close** until the boom is in the desired horizontal position.
    4) Press **Settings** to confirm the horizontal position. After you hear the sound from the buzzer, the boom gate goes back to the normal working status.
  - ◇ If the boom does not reach the desired position after manual adjustment, you can press **Open** or **Close** to adjust the position. During the adjustment process, if you do not release the **Open** or **Close** button when the boom reaches the up or down limit, the controller will stop the motor, and the buzzer makes continuous buzzes for alarm.
  - ◇ If H-33 is set to 0, the boom gate can work normally after manual adjustment. If H-33 is set to 1, the parameters manually adjusted are saved, and they will take effect only when H-33 is set to 0.
  - ◇ The parameters adjusted through H-34 will influence F-08 and F-09. You can view the adjustment value of horizontal and vertical positions through F-08 and F-09.
  - ◇ You can use H-34, configure F-08 and F-09 to adjust the vertical and horizontal positions, but using H-34 is more intuitive.
- H-35: Adjust the up limit manually (recommended for straight boom gate or fence boom gate, with boom length of 5 meters or more).
  - ◇ After entering the H-35 command, the LED shows L-00, and then the boom rises. After the boom finds the up limit, the buzzer beeps, and the LED changes to L-01, meaning that the up limit has been found. At this moment, the gate stops, and you need to manually find the vertical and horizontal positions of the boom:

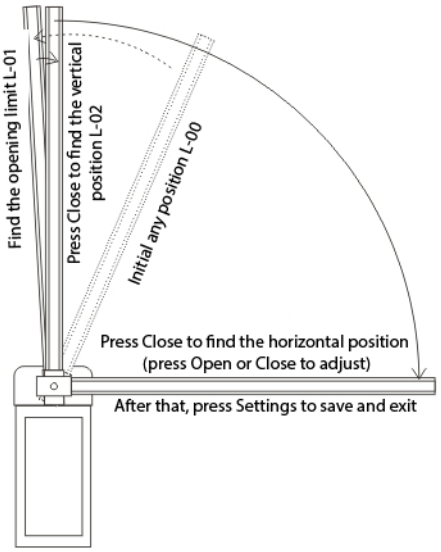
1) Press and hold **Close**, the boom works in the closing direction, until it is in the required vertical position.
2) Press **Settings** to confirm the vertical position, then the LED shows L-02, meaning that the boom gate finishes finding the vertical position.
3) Continue to press and hold **Close** until the boom is in the desired horizontal position.
4) Press **Settings** to confirm the horizontal position. After you hear the sound from the buzzer, the boom gate goes back to the normal working status.

◇ If the boom does not reach the desired position after adjustment, you can press **Open** or **Close** to adjust the position. During the adjustment process, if you do not release the **Open** or **Close** button when the boom reaches the up or down limit, the controller will stop the motor, and the buzzer makes continuous buzzes for alarm.

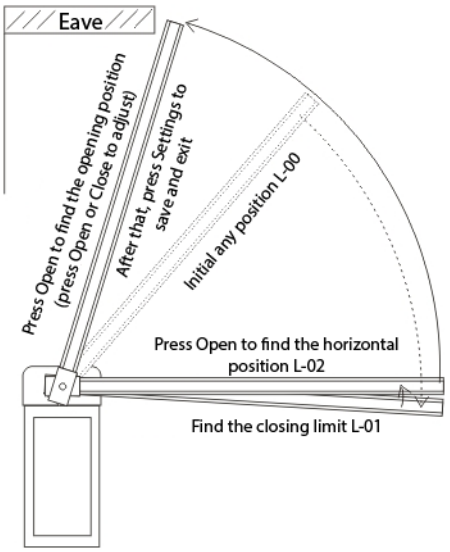
◇ If H-33 is set to 1, the boom gate can work normally after manual adjustment. If H-33 is set to 0, the parameters manually adjusted are saved, and they will take effect only when H-33 is set to 1.

Figure 3-9 Adjust the up limit manually

H-35 adjust the up limit manually (recommended for straight boom gate or fence boom gate, with boom length of 5 meters or more)
The boom gate works at the speed of F-13 value



H-36 adjust the down limit manually (recommended when there is an eave)
The boom gate works at the speed of F-13 value



- H-36: Adjust the down limit manually (recommended when there is an eave).
  ◇ After entering the H-36 command, the LED shows L-00, and then the boom rises. After the boom finds the down limit, the buzzer beeps, and the LED changes to L-01, meaning that the down limit has been found. At this moment, the gate stops, and you need to manually find the vertical and horizontal positions of the boom:
  1) Press and hold **Open**, the boom works in the opening direction, until it is in the required horizontal position.
  2) Press **Settings** to confirm the horizontal position, then the LED shows L-02, meaning that the boom gate finishes finding the horizontal position.
  3) Continue to press and hold **Open** until the boom is in the desired opening position.
  4) Press Settings to confirm the position. After you hear the sound from the buzzer, the boom gate goes back to the normal working status.

- ◇ If the boom does not reach the desired position after adjustment, you can press **Open** or **Close** to adjust the position. During the adjustment process, if you do not release the **Open** or **Close** button when the boom reaches the up or down limit, the controller will stop the motor, and the buzzer makes continuous buzzes for alarm.
- ◇ If H-33 is set to 2, the boom gate can work normally after manual adjustment. If H-33 is set to 0 or 1, the parameters manually adjusted are saved, and they will take effect only when H-33 is set to 2.

- H-38: Coil signal buzzer.
  You can set whether the boom gate buzzes when it receives coil or radar signals for anti-smashing. The parameter is 0 by default, meaning no buzzes when the boom gate receives coil or radar signals, 1 means the boom gate buzzes.
- H -45: Speed of auto delay closing.
  When F-10 (automatic delay closing time) is greater than 0, after the countdown finishes, the boom gate opens at H-45 speed. The greater the value is, the faster the speed will be. When the spring tension is large, the H-45 speed is too small, making the boom open when it is obstructed during closing, you can increase the value appropriately.
- H-46: Auto opening time if low voltage occurs.
  This parameter defines the automatic opening function in case of power failure. It works with H-47. When the power supply voltage is lower than the defined H-47 value, and the low voltage continues for the defined H-46 value, the boom gate automatically opens. After it is opened, the digital tube displays loxx (xx indicates the value of H-47). This function is available when an ultracapacitor backup power module is installed. If H-46 is set to 0, it means that the function is turned off.
- H-47: Auto opening when reaching the low voltage threshold.
  This parameter defines the voltage that the boom gate opens in case of power failure. It works with H-46. In case of power failure, the boom gate automatically opens when the voltage is lower than the defined H-47 value for more than the time defined in H-46.

3.4.2.3 Error Code

When the controller detects an exception, error codes as shown in the following table will be displayed.

Table 3-9 Error code

Error Code	Reason
Er.ob	The boom reverses or stops when it is obstructed during the opening process.
Er. 7	Alarm when someone rises the boom manually.

3.4.2.4 LED Message Display

Table 3-10 LED message display

Message	Description
IdLE	The plug of the motor sensor is not inserted or the motor sensor fails, which might be caused by loosen cable.
STOP	The boom gate stops working.
cLOS	The boom gate is closing.

Message	Description
OPEN	The boom gate is opening.
HOLd	The boom gate is opened.
LocK	The boom gate is locked, and it enters the fleet mode.
uPxx	xx is the number of opening times after enabling the counting function.
dxxx	The time that auto delays in closing the boom gate. xxx refers to the countdown time (only displays after enabling the auto delay in closing function).
Fcxx	Software version. xx refers to the version. The larger the value, the newer the version.
Loxx	Automatically open the boom gate in low voltage. xx refers to the H-47 value.
Value	The running times of the boom gate. If less than 100,000 times, the entire number will be displayed; if more than 100,000 times, the number will be replaced by "_". For example, 23_ means 230,000 times.

3.5 Adjusting Spring Balance

- The spring of boom gate is adjusted by default.
- Do not change the boom and adjust the boom length.
- The spring length is for reference only.
- The spring is a wear part, and you need to maintain and replace it regularly.

Step 1 Select the spring.

Table 3-11 Select spring

Boom Type	Boom Length L (m)	Spring Cable Diameter (mm)	Remarks
Straight Boom with Rubber Strip	6 ≥ L > 5.3	Φ6.0 + Φ4.5	Cable color. ● Φ4.5 spring: red ● Φ5.5 spring: blue ● Φ6.0 spring: green ● Φ6.8 spring: yellow
Straight Boom with Rubber Strip	5.3 ≥ L ≥ 4.3	Φ5.5 + Φ4.5	
Straight Boom with Rubber Strip	4.3 > L ≥ 3.5	Φ4.5 + Φ4.5	
Straight Boom with Rubber Strip	3.5 > L ≥ 3	Φ5.5	
Straight Boom with Rubber Strip	L < 3	Φ4.5	
Telescopic Boom	3–4	Φ4.5 + Φ4.5	
Telescopic Boom	4–5	Φ4.5 + Φ5.5	
Telescopic Boom	5–6	Φ4.5 + Φ6	
Folding Boom	5 ≥ L ≥ 4.3	Φ5.5 + Φ4.5	
Folding Boom	4.3 > L ≥ 3	Φ4.5 + Φ4.5	
Folding Boom	L < 3	Φ4.5	
Fence Boom (two sections)	L = 4.5	Φ6.0 + Φ6.0	
Fence Boom (two sections)	4.5 > L ≥ 4	Φ6.0 + Φ5.5	

Boom Type	Boom Length L (m)	Spring Cable Diameter (mm)	Remarks
Fence Boom (two sections)	4 > L ≥ 3.5	Φ5.5 + Φ5.5	
Fence Boom (two sections)	3.5 > L ≥ 3	Φ5.5 + Φ4.5	
Fence Boom (two sections)	L < 3	Φ4.5 + Φ4.5	

Step 2 Remove the spring.

1) Open the boom gate to make the boom stay at 90°.
2) Loosen the spring lock nut, use a hexagonal wrench to remove the spring adjustment screw (M8 × 140 mm), and then take out the spring from the hook.
   The installation procedure is the opposite of the removing process.

Figure 3-10 Position of spring

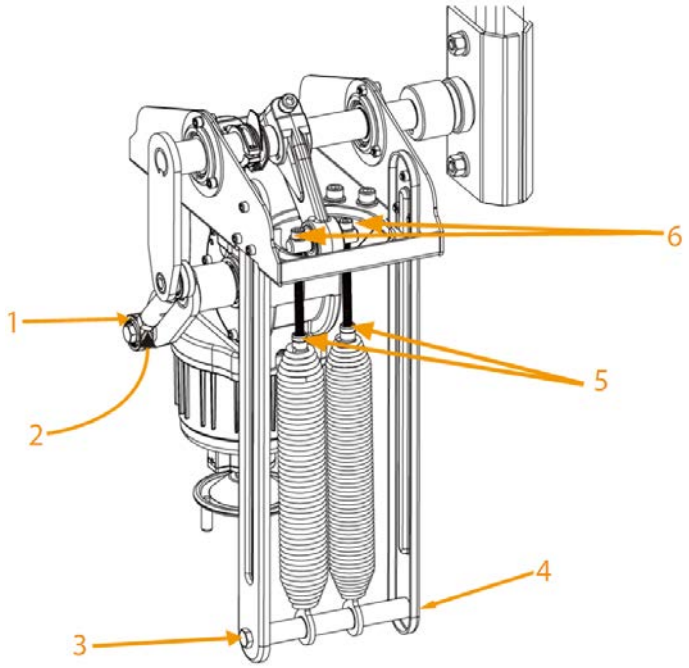


Table 3-12 Structure description

No.	Description	No.	Description
1	Spring adjustment nut	4	Hook
2	M12 lock nut	5	Spring lock nut
3	M10 screw	6	Spring adjustment screw (M8 × 140 mm)

Step 3 Adjust the spring.

1) Power off the boom gate.
2) Rotate the motor hand wheel to make the boom move in the direction of closing the boom gate.
   After rotating the hand wheel to the nearly-horizontal position, if the hand wheel jitters during rotation, you need to tighten the spring. Rotate the hand wheel in the direction of opening the boom gate, and when rotate it to the nearly-vertical position, if the hand wheel jitters, you need to loosen the spring. Try several ways according to the previous description to rotate the hand wheel, until the hand wheel works smooth, and the spring is balanced.

You can check whether the spring is balanced by powering on the boom gate, and observing the working status of the boom. The spring is too tight if the boom dithers during the opening process, and is too loose if the boom dithers during the closing process.

3.6 Remote Control

The remote control receiver comes with the controller is a learning code receiver.

The remote control can work normally after it exits the unpairing status.

Pairing

Step 1 Unplug the remote control receiver (or power off the boom gate).

Step 2 Press and hold the **Open** button of the remote control, and then plug in the remote control receiver (or power on the boom gate).

Step 3 When the indicator (the indicator inside the receiver) flashes slowly, the remote control starts pairing (about 2 seconds). Release the **Open** button, and then press and hold the **Stop** button for about 5 seconds. If the indicator is solid on, the pairing was successful. After the indicator flashes slowly again, you can start pairing the second remote control.

Step 4 Press and hold the **Stop** button of the second remote control for 3 seconds. If the indicator is solid on, the second remote control was successfully paired. You can continue to pair other remote controls similarly.

If there is no pairing operation after 1 minute, the remote control automatically exits the pairing status, and enters normal working status (or press and hold the **Open** button of the paired remote control over 3 seconds to exit the pairing status). A maximum of 40 remote controls can be paired. If there are more than 40 remote controls, the records of remote controls that are paired earlier will be covered.

Unpairing

Step 1 Unplug the remote control receiver (or power off the boom gate).

Step 2 Press and hold the **Close** button of the paired remote control, and then plug in the remote control receiver (or power on the boom gate).

Step 3 When the indicator flashes quickly, the remote control enters the unpairing status. Release the **Close** button, and then press and hold the **Stop** button for 5 seconds. If the indicator is solid on, all the remote controls are successfully unpairded. 6 seconds later, the remote control automatically switches to the normal working status.

4 Maintenance

- Clean the casing surface to avoid dust and litter.
- Check the fasteners are well tightened once a month, and fasten them when necessary.
- Check spring balance after the boom gate runs every 300,000 times; replace the spring with a new one after the boom gate runs 1 million times or 12 months, to avoid spring fracture due to overuse.
- Check and replace (if necessary) wear parts every 6 months by professionals.
- If the remote control distance is too close, check whether the receiver is shielded by metal objects, or the battery of the remote control is low. The remote control distance might be reduced if there are multiple devices of the same frequency interference in the area, or under severe weather conditions such as rain, fog, wind and snow.

Appendix 1 FAQ

1. **1. Power on the boom gate, open or close it by remote control. The boom does not work.**
   - Check whether the controller power indicator is on. If not, check whether the fuse is in good condition.
   - Check whether the remote control matches with the boom gate, or the battery is low.
   - There is frequency interference near the remote control. Press the control button on the controller to check whether the boom works (if there is no button, short **COM**, **Open** and **Close**).
   - External protection circuit failure, or the circuit is in a protected status. Check whether the radar indicator and the coil indicator are on.
2. **The boom gate stops finding the up and down limit in the closing process after power-on.**
   Check whether the boom is installed. When the spring is installed, the boom gate cannot work without the boom.
3. **The boom gate opens and closes too fast after powered on for the first time.**
   Check whether F-13 power-on self-learning speed is too great. If yes, reduce the 1-XX and 2-XX values of F-13.
4. **The bar cannot be in place when manually locating the limit position, and the buzzer will alarm.**
   Check whether F-13 power-on self-learning speed is too small. If yes, increase the 1-XX and 2-XX values of F-13, and try again.
5. **The controller displays IDLE.**
   - Check whether motor sensor plug is inserted. If not, insert it.
   - Check the motor sensor, and replace it if it fails.
6. **The controller resets when the boom gate is running.**
   - Check whether there is short circuit inside the motor. Measure the phase line resistance with a multimeter.
   - Check the controller, and replace it if it fails.
7. **The boom gate automatically opens during the closing process.**
   - Check whether F-15 sensitivity of boom is too small. Increase the value.
   - Check whether coil or radar has abnormal signals by checking whether the coil or radar signal indicator flashes abnormally.
8. **The boom dithers obviously when the boom gate is opened in place.**
   - Decrease F-06.
   - Decrease F-06 and F-02.
   - Decrease F-00.
9. **The boom dithers obviously when the boom gate is closed in place.**
   - Decrease F-07.
   - Decrease F-07 and increase F-03.
   - Decrease F-01.
10. **The remote control distance is too close.**
    - Check whether the battery voltage of the remote control is too low. If yes, replace the battery.
    - Check whether there are power lines or severe electromagnetic interference nearby. If yes, replace the remote control with a high-power one.

11. **The remote control failed to learn.**
    The remote control does not match the receiver. Contact the manufacturer to confirm whether it is the matched remote control.
12. **The boom is not vertical after the boom opens.**
    Check whether the vertical position value of the controller is properly configured. If H-33 is set to 0, adjust the F-08 value of the controller.
13. **The boom is not horizontal after the boom closes.**
    Check whether the horizontal position value of the controller is properly configured. If H-33 is set to 0, adjust the F-09 value of the controller.

Appendix 2 Cybersecurity Recommendations

Cybersecurity is more than just a buzzword: it's something that pertains to every device that is connected to the internet. IP video surveillance is not immune to cyber risks, but taking basic steps toward protecting and strengthening networks and networked appliances will make them less susceptible to attacks. Below are some tips and recommendations from Dahua on how to create a more secured security system.

Mandatory actions to be taken for basic device network security:

1. **Use Strong Passwords**

   Please refer to the following suggestions to set passwords.

   - The length should not be less than 8 characters.
   - Include at least two types of characters; character types include upper and lower case letters, numbers and symbols.
   - Do not contain the account name or the account name in reverse order.
   - Do not use continuous characters, such as 123, abc, etc.
   - Do not use overlapped characters, such as 111, aaa, etc.

2. **Update Firmware and Client Software in Time**

   - According to the standard procedure in Tech-industry, we recommend to keep your device (such as NVR, DVR, IP camera, etc.) firmware up-to-date to ensure the system is equipped with the latest security patches and fixes. When the device is connected to the public network, it is recommended to enable the "auto-check for updates" function to obtain timely information of firmware updates released by the manufacturer.
   - We suggest that you download and use the latest version of client software.

"Nice to have" recommendations to improve your device network security:

1. **Physical Protection**

   We suggest that you perform physical protection to device, especially storage devices. For example, place the device in a special computer room and cabinet, and implement well-done access control permission and key management to prevent unauthorized personnel from carrying out physical contacts such as damaging hardware, unauthorized connection of removable device (such as USB flash disk, serial port), etc.

2. **Change Passwords Regularly**

   We suggest that you change passwords regularly to reduce the risk of being guessed or cracked.

3. **Set and Update Passwords Reset Information Timely**

   The device supports password reset function. Please set up related information for password reset in time, including the end user's mailbox and password protection questions. If the information changes, please modify it in time. When setting password protection questions, it is suggested not to use those that can be easily guessed.

4. **Enable Account Lock**

   The account lock feature is enabled by default, and we recommend you to keep it on to guarantee the account security. If an attacker attempts to log in with the wrong password several times, the corresponding account and the source IP address will be locked.

5. **Change Default HTTP and Other Service Ports**

   We suggest you to change default HTTP and other service ports into any set of numbers between

1024–65535, reducing the risk of outsiders being able to guess which ports you are using.

6. **HTTPS**

   We suggest you to enable HTTPS, so that you visit Web service through a secure communication channel.

7. **MAC Address Binding**

   We recommend you to bind the IP and MAC address of the gateway to the device, thus reducing the risk of ARP spoofing.

8. **Assign Accounts and Privileges Reasonably**

   According to business and management requirements, reasonably add users and assign a minimum set of permissions to them.

9. **Disable Unnecessary Services and Choose Secure Modes**

   If not needed, it is recommended to turn off some services such as SNMP, SMTP, UPnP, etc., to reduce risks.

   If necessary, it is highly recommended that you use safe modes, including but not limited to the following services:

   - SNMP: Choose SNMP v3, and set up strong encryption passwords and authentication passwords.
   - SMTP Choose TLS to access mailbox server.
   - FTP Choose SFTP, and set up strong passwords.
   - AP hotspot: Choose WPA2-PSK encryption mode, and set up strong passwords.

10. **Audio and Video Encrypted Transmission**

    If your audio and video data contents are very important or sensitive, we recommend that you use encrypted transmission function, to reduce the risk of audio and video data being stolen during transmission.

    Reminder: encrypted transmission will cause some loss in transmission efficiency.

11. **Secure Auditing**

    - Check online users: we suggest that you check online users regularly to see if the device is logged in without authorization.
    - Check device log: By viewing the logs, you can know the IP addresses that were used to log in to your devices and their key operations.

12. **Network Log**

    Due to the limited storage capacity of the device, the stored log is limited. If you need to save the log for a long time, it is recommended that you enable the network log function to ensure that the critical logs are synchronized to the network log server for tracing.

13. **Construct a Safe Network Environment**

    In order to better ensure the safety of device and reduce potential cyber risks, we recommend:

    - Disable the port mapping function of the router to avoid direct access to the intranet devices from external network.
    - The network should be partitioned and isolated according to the actual network needs. If there are no communication requirements between two sub networks, it is suggested to use VLAN, network GAP and other technologies to partition the network, so as to achieve the network isolation effect.
    - Establish the 802.1x access authentication system to reduce the risk of unauthorized access to private networks.
    - Enable IP/MAC address filtering function to limit the range of hosts allowed to access the device.

More information

Please visit Dahua official website security emergency response center for security announcements and the latest security recommendations.

ENABLING A SAFER SOCIETY AND SMARTER LIVING

ZHEJIANG DAHUA VISION TECHNOLOGY CO., LTD.
Address: No. 1399, Binxing Road, Binjiang District, Hangzhou, P. R. China | Website: www.dahuasecurity.com | Postcode: 310053
Email: dhoverseas@dhvisiontech.com | Tel: +86-571-87688888 28933188