DS-K3B220LX Series Swing Barrier

User Manual

Legal Information

About this Manual

The Manual includes instructions for using and managing the Product. Pictures, charts, images and all other information hereinafter are for description and explanation only. The information contained in the Manual is subject to change, without notice, due to firmware updates or other reasons. Please find the latest version of this Manual at the Hikvision website (***https:// www.hikvision.com/***).
Please use this Manual with the guidance and assistance of professionals trained in supporting the Product.

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IN THE EVENT OF ANY CONFLICTS BETWEEN THIS MANUAL AND THE APPLICABLE LAW, THE LATTER PREVAILS.

Data Protection

During the use of device, personal data will be collected, stored and processed. To protect data, the development of Hikvision devices incorporates privacy by design principles. For example, for device with facial recognition features, biometrics data is stored in your device with encryption method; for fingerprint device, only fingerprint template will be saved, which is impossible to reconstruct a fingerprint image.

As data controller, you are advised to collect, store, process and transfer data in accordance with the applicable data protection laws and regulations, including without limitation, conducting security controls to safeguard personal data, such as, implementing reasonable administrative and physical security controls, conduct periodic reviews and assessments of the effectiveness of your security controls.

Regulatory Information

FCC Information

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

FCC compliance: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

—Reorient or relocate the receiving antenna.

—Increase the separation between the equipment and receiver.

—Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

—Consult the dealer or an experienced radio/TV technician for help

This equipment should be installed and operated with a minimum distance 20cm between the radiator and your body.

FCC Conditions

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

1. This device may not cause harmful interference.

2. This device must accept any interference received, including interference that may cause undesired operation.

EU Conformity Statement

This product and - if applicable - the supplied accessories too are marked with "CE" and comply therefore with the applicable harmonized European standards listed

under the EMC Directive 2014/30/EU, RE Directive 2014/53/EU,the RoHS Directive 2011/65/EU

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

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

Safety Instruction

These instructions are intended to ensure that user can use the product correctly to avoid danger or property loss.

The precaution measure is divided into Dangers and Cautions:

Dangers: Neglecting any of the warnings may cause serious injury or death.

Cautions: Neglecting any of the cautions may cause injury or equipment damage.

⚠	⚠
Dangers: Follow these safeguards to prevent serious injury or death.	**Cautions:** Follow these precautions to prevent potential injury or material damage.

⚠ Danger:

- All the electronic operation should be strictly compliance with the electrical safety regulations, fire prevention regulations and other related regulations in your local region.
- Please use the power adapter, which is provided by normal company. The power consumption cannot be less than the required value.
- Do not connect several devices to one power adapter as adapter overload may cause over-heat or fire hazard.
- Please make sure that the power has been disconnected before you wire, install or dismantle the device.
  If the top caps should be open and the device should be powered on for maintenance, make sure:
  1. Power off the fan to prevent the operator from getting injured accidentally.
  2. Do not touch bare high-voltage components.
  3. Make sure the switch's wiring sequence is correct after maintenance.
- Please make sure that the power has been disconnected before you wire, install or dismantle the device.
- When the product is installed on wall or ceiling, the device shall be firmly fixed.
- If smoke, odors or noise rise from the device, turn off the power at once and unplug the power cable, and then please contact the service center.
- Do not ingest battery, Chemical Burn Hazard.
  This product contains a coin/button cell battery. If the coin/button cell battery is swallowed, it can cause severe internal burns in just 2 hours and can lead to death.
  Keep new and used batteries away from children. If the battery compartment does not close securely, stop using the product and keep it away from children. If you think batteries might have been swallowed or placed inside any part of the body, seek immediate medical attention.
- If the product does not work properly, please contact your dealer or the nearest service center. Never attempt to disassemble the device yourself. (We shall not assume any responsibility for problems caused by unauthorized repair or maintenance.)

⚠ **Cautions:**

- Stainless steel may be corroded in some circumstances. You need to clean and care the device by using the stainless steel cleaner. It is suggested to clean the device every month.
- Do not drop the device or subject it to physical shock, and do not expose it to high electromagnetism radiation. Avoid the equipment installation on vibrations surface or places subject to shock (ignorance can cause equipment damage).
- Do not place the device in extremely hot (refer to the specification of the device for the detailed operating temperature), cold, dusty or damp locations, and do not expose it to high electromagnetic radiation.
- The device cover for indoor use shall be kept from rain and moisture.
- Exposing the equipment to direct sun light, low ventilation or heat source such as heater or radiator is forbidden (ignorance can cause fire danger).
- Do not aim the device at the sun or extra bright places. A blooming or smear may occur otherwise (which is not a malfunction however), and affecting the endurance of sensor at the same time.
- Please use the provided glove when open up the device cover, avoid direct contact with the device cover, because the acidic sweat of the fingers may erode the surface coating of the device cover.
- Please use a soft and dry cloth when clean inside and outside surfaces of the device cover, do not use alkaline detergents.
- Please keep all wrappers after unpack them for future use. In case of any failure occurred, you need to return the device to the factory with the original wrapper. Transportation without the original wrapper may result in damage on the device and lead to additional costs.
- Improper use or replacement of the battery may result in hazard of explosion. Replace with the same or equivalent type only. Dispose of used batteries according to the instructions provided by the battery manufacturer.
- Biometric recognition products are not completely applicable to anti-spoofing environments. If you require a higher security level, use multiple authentication modes.
- Do not stay in the lane when the device is rebooting.
- RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE. DISPOSE OF USED BATTERIES ACCORDING TO THE INSTRUCTIONS.
- SUITABLE FOR MOUNTING ON CONCRETE OR OTHER NON-COMBUSTIBLE SURFACE ONLY.
- The instructions shall require connection of the equipment protective earthing conductor to the installation protective earthing conductor.
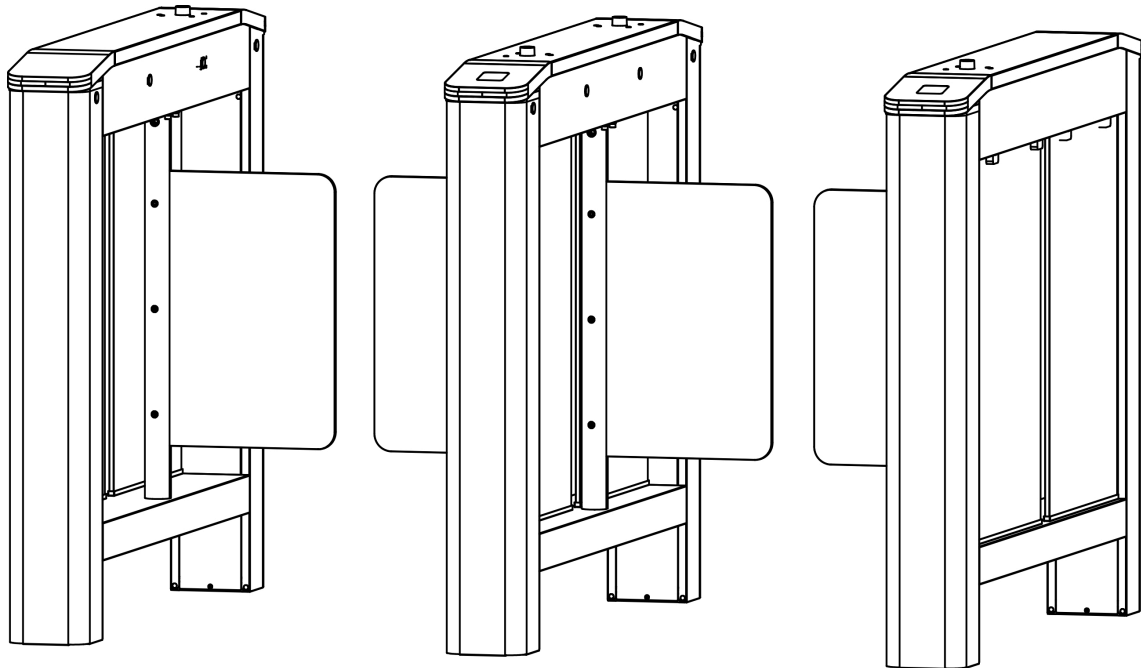
Available Models

Product Name	Model	Description
Swing Barrier	DS-K3B220LX-L	Left Pedestal
	DS-K3B220LX-M	Middle Pedestal
	DS-K3B220LX-R	Right Pedestal

Contents

Chapter 1 Overview

1.1 Introduction

The Swing barrier with 4 IR lights is designed to detect unauthorized entrance or exit. By adopting the flap barrier integratedly with the access control system, person should authenticate to pass through the lane via swiping IC or ID card, scanning QR code, etc. It is widely used in attractions, stadiums, construction sites, residences, etc.

1.2 Main Features

- Control mode, free passing mode and prohibition mode selectable on both entering and exiting direction.
- The barrier will be locked or stop working when people are nipped
- Anti-forced-accessing
  The barrier will be locked automatically without open-barrier signal.
- Self-detection, Self-diagnostics, and automatic alarm
- Audible and visual alarm will be triggered when detecting intrusion, tailgating, reverse passing, and climbing over barrier
- LED indicates the entrance/exit and passing status
- Barrier is in free status when powered down; If the device is installed with lithium battery (optional), the barrier remains open when powered down

- Fire alarm passing
  When the fire alarm is triggered, the barrier will be open automatically for emergency evacuation
- Valid passing duration settings
  System will cancel the passing permission if a person does not pass through the lane within the valid passing duration
- Adjustable indicator brightness
- Bidirectional (Entering/Exiting) lane
  The barrier opening and closing speed can be configured according to the visitor flow
- TCP/IP network communication
  The communication data is specially encrypted to relieve the concern of privacy leak
- Permissions validation and anti-tailgating

Chapter 2 System Wiring

The preparation before installation and general wiring.

Steps

[i]**Note**

- The device should be installed on the concrete surface or other non-flammable surfaces.
- If the installation area is too close to the wall, make sure the distance between the pedestal and the wall should be no less than 20 mm, or you cannot open the pedestal's top panel.
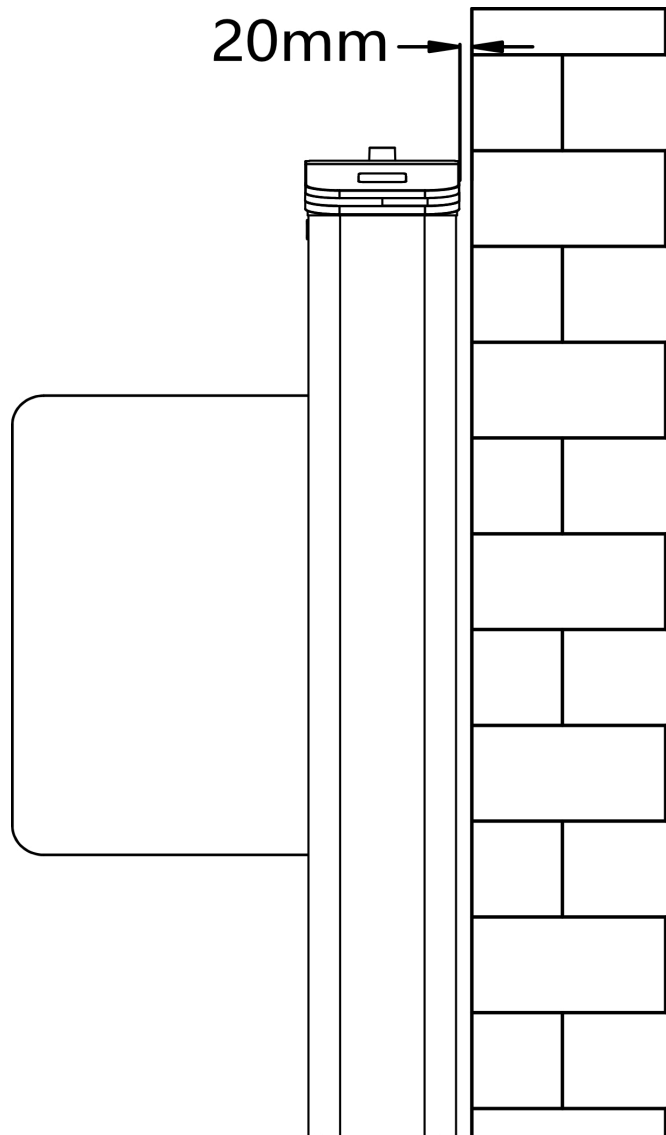
- The dimension is as follows.

Figure 2-1 Dimension

1. Draw a central line on the installation surface of the left or right pedestal.
2. Draw other parallel lines for installing the other pedestals.

📖**Note**

The distance between the nearest two line is L + 146 mm. L represents the lane width.

3. Slot on the installation surface and dig installation holes. Put 4 expansion bolts of M12*120 for each pedestal.
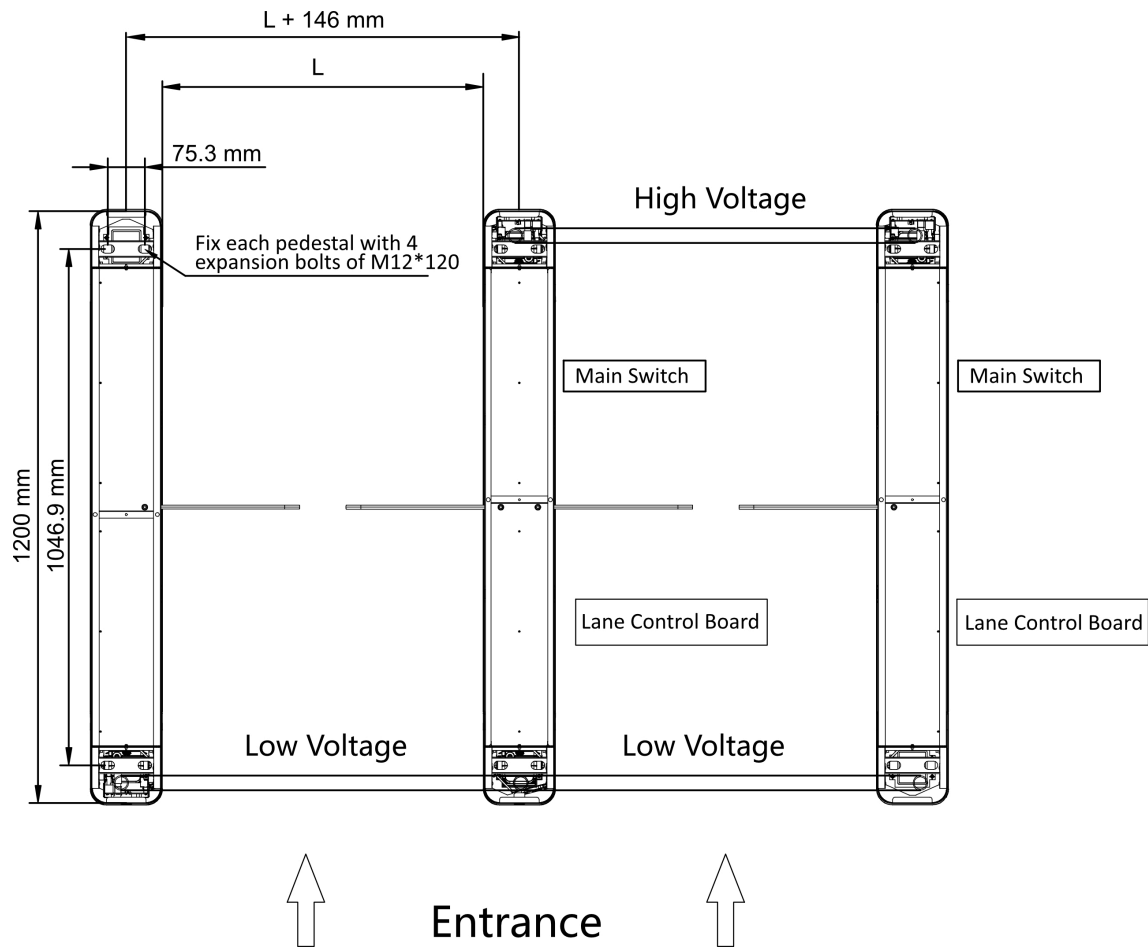
Figure 2-2 Hole Position and System Wiring

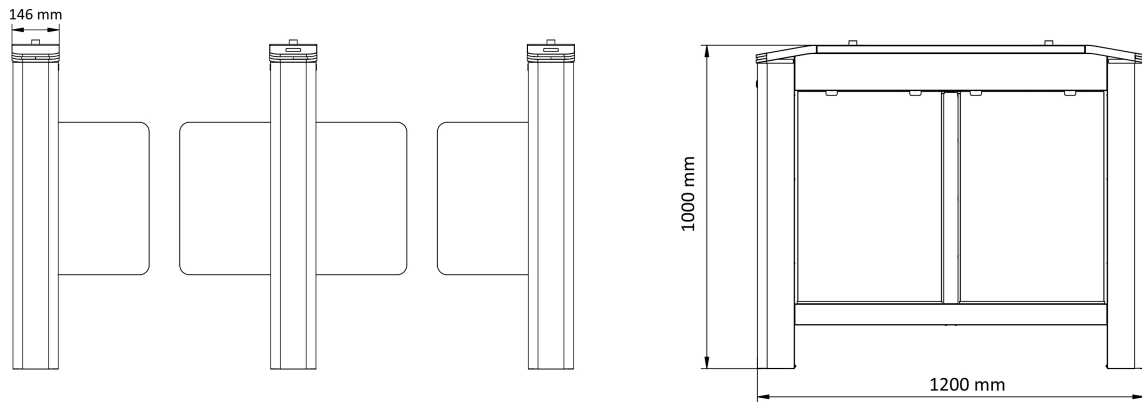**4.** Bury cables. Each lane buries 1 high voltage cable and 1 low voltage cable. For details, see the system wiring diagram of step 3.

Note

- High voltage: AC power input
  Low voltage: interconnecting cable (communication cable and 24 V power cable) and network communication cable
- The supplied interconnecting cable length is 4 m.
- The suggested inner diameter of the low voltage conduit is larger than 30 mm.
- If you want to bury both of the AC power cord and the low voltage cable, the two cables should be in separated conduits to avoid interference.
- If more peripherals are required to connect, you should increase the conduit diameter or bury another conduit for the external cables.
- The external AC power cord should be double-insulated.
- The network cable must be CAT5e or the network cable has better performance. And the suggested network cable length should be less than 100 m.

Chapter 3 Installation

1. Before installation, you should unscrew and disassemble the pedestal.

Screw holes
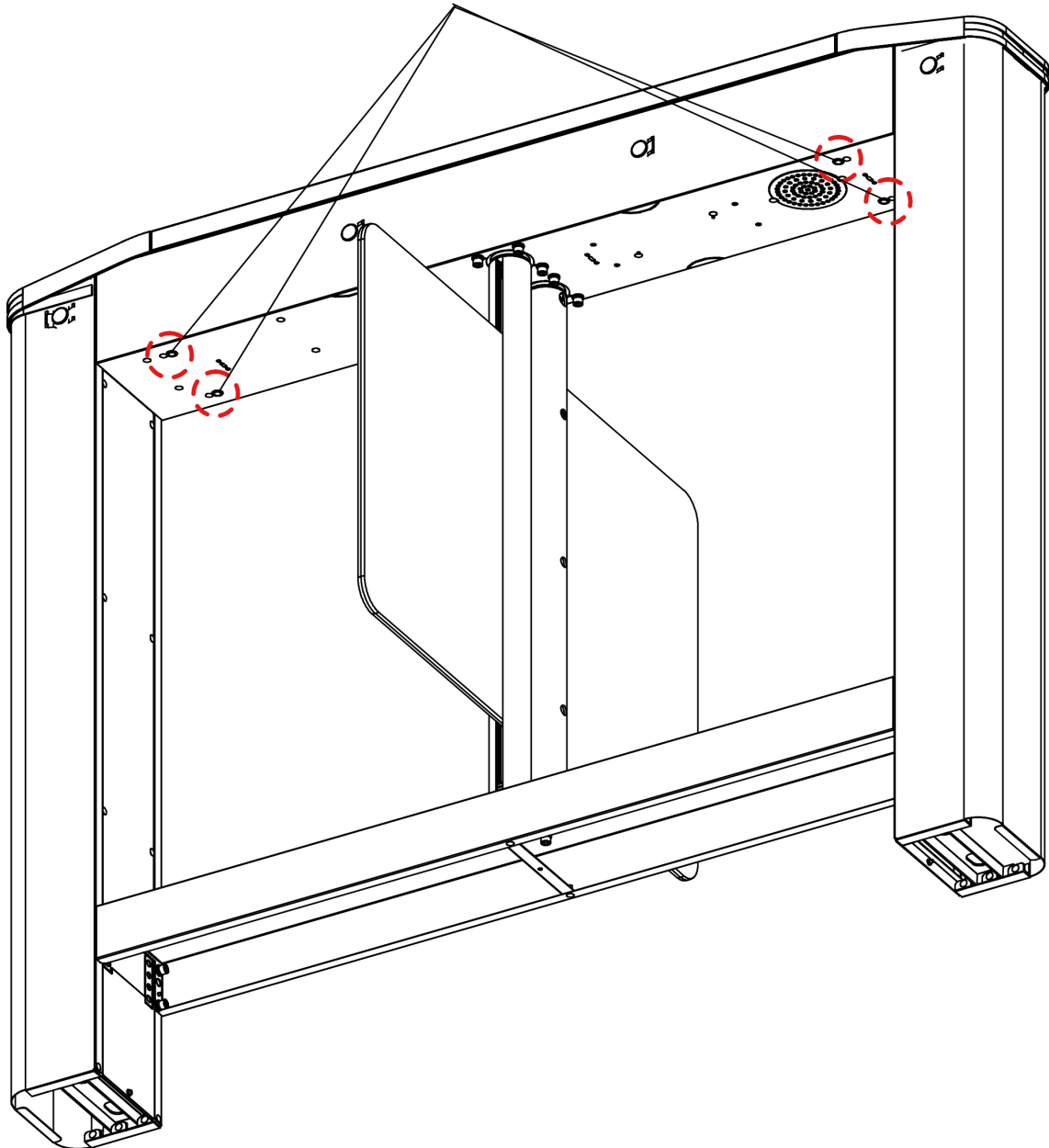
Figure 3-1 Screw Hole

2. Keep the disassembled components and make sure the accessories are intact.
3. Prepare for system wiring and installation. For details, see ***System Wiring*** .

4. Place the pedestal above the embedded expansion bolt. Unscrew and remove the maintenance door.
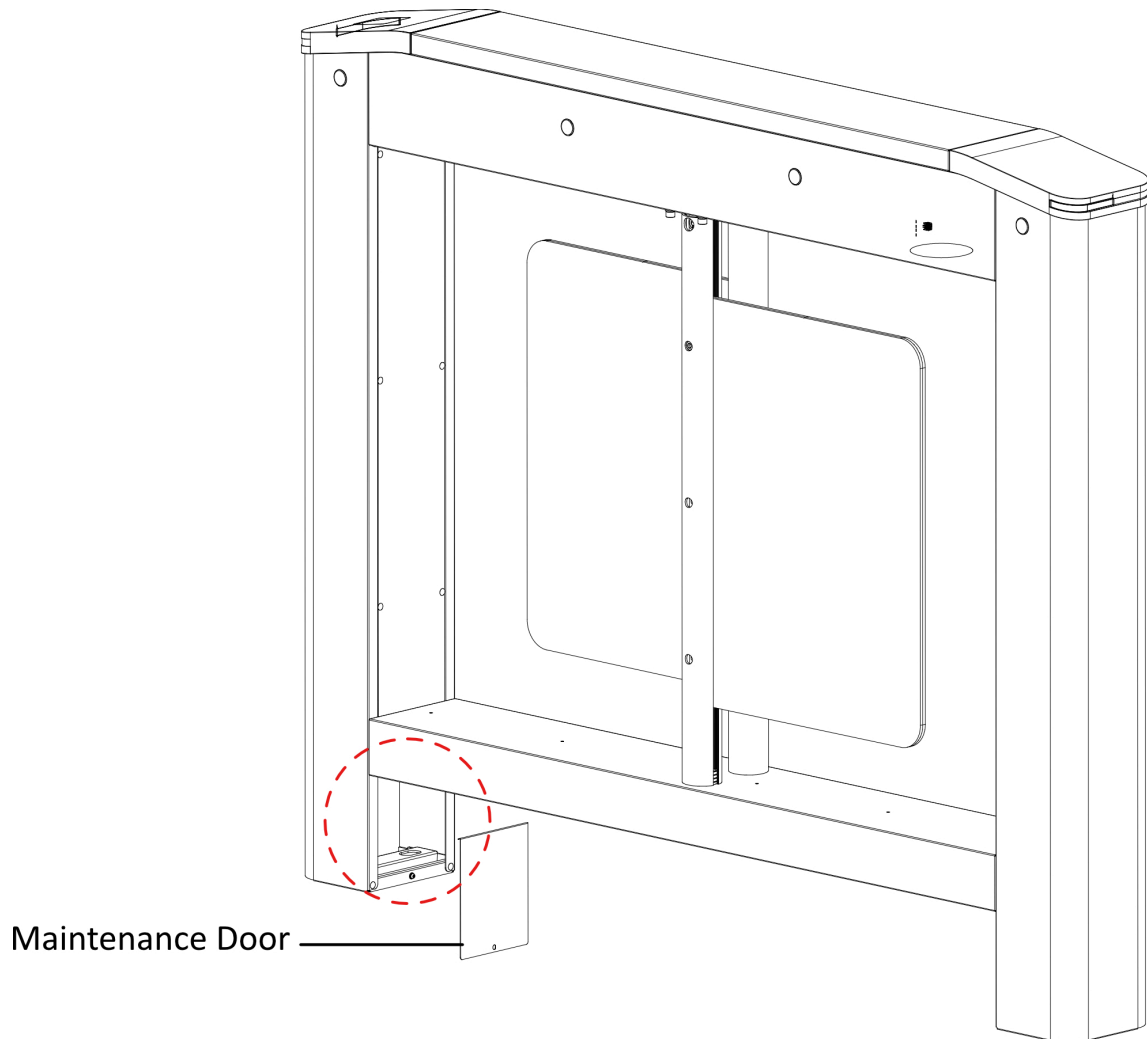
Maintenance Door

Figure 3-2 Maintenance Door

5. Place the platen on the expansion bolt and adjust the position of the pedestal to make sure the platen fits well to the bottom of the pedestal.

Figure 3-3 Platen

6. Fasten the nuts of the expansion bolts with a screwdriver (shaft diameter under 7 mm and shank length more than 120 mm) and reinstall the maintenance door.

Scan the QR Code to watch the installation guide video.

Chapter 4 General Wiring

ⁱNote

- When you should maintain or disassemble the high voltage modules, you should remove the entire high voltage modules and maintain it outside the turnstile. You should unplug the cables that connected to the peripherals before maintenance to avoid destroy of the device.
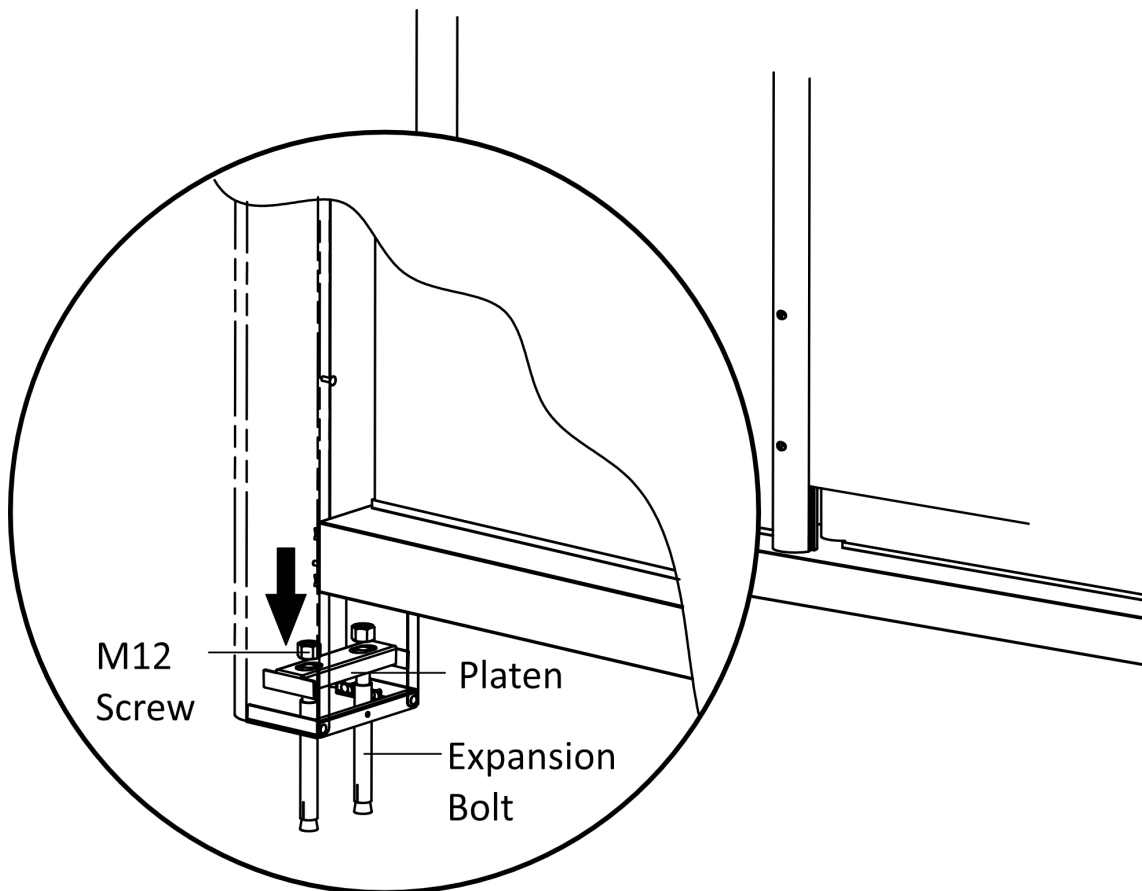- When disassembling the high voltage module, you should disconnect the power to avoid injury.
- If only wiring is needed without maintenance, do not remove the high voltage modules.
- The switch and the main lane control board are already connected. The 14 AWG cable to connect between the AC electric supply and the switch should be purchased separately.
- 2 interconnecting cables are supplied: 24 V Power Cable and Communication Cable.
  24 V Power Cable: 5 m long, which is in the middle and right pedestal.
  Communication Cable: 4 m long, CAT5e, which is in the package of middle and right pedestal.

4.1 Components Introduction

By default, basic components of the turnstile are connected well. The pedestals can communicate by wiring the interconnecting cables. And the turnstile supports wiring the AC electric supply for the whole system's power supply.

ⁱNote

The voltage fluctuation of the electric supply is between 100 VAC and 240 VAC, 50 to 60 Hz.

The picture displayed below describes each component's position on the turnstile.

ⁱNote

The diagram is for reference only.

Circuit Breaker

Main Switch

Motor

Indicator (Entrance)

Main/Sub Lane
Control Board

Side Board
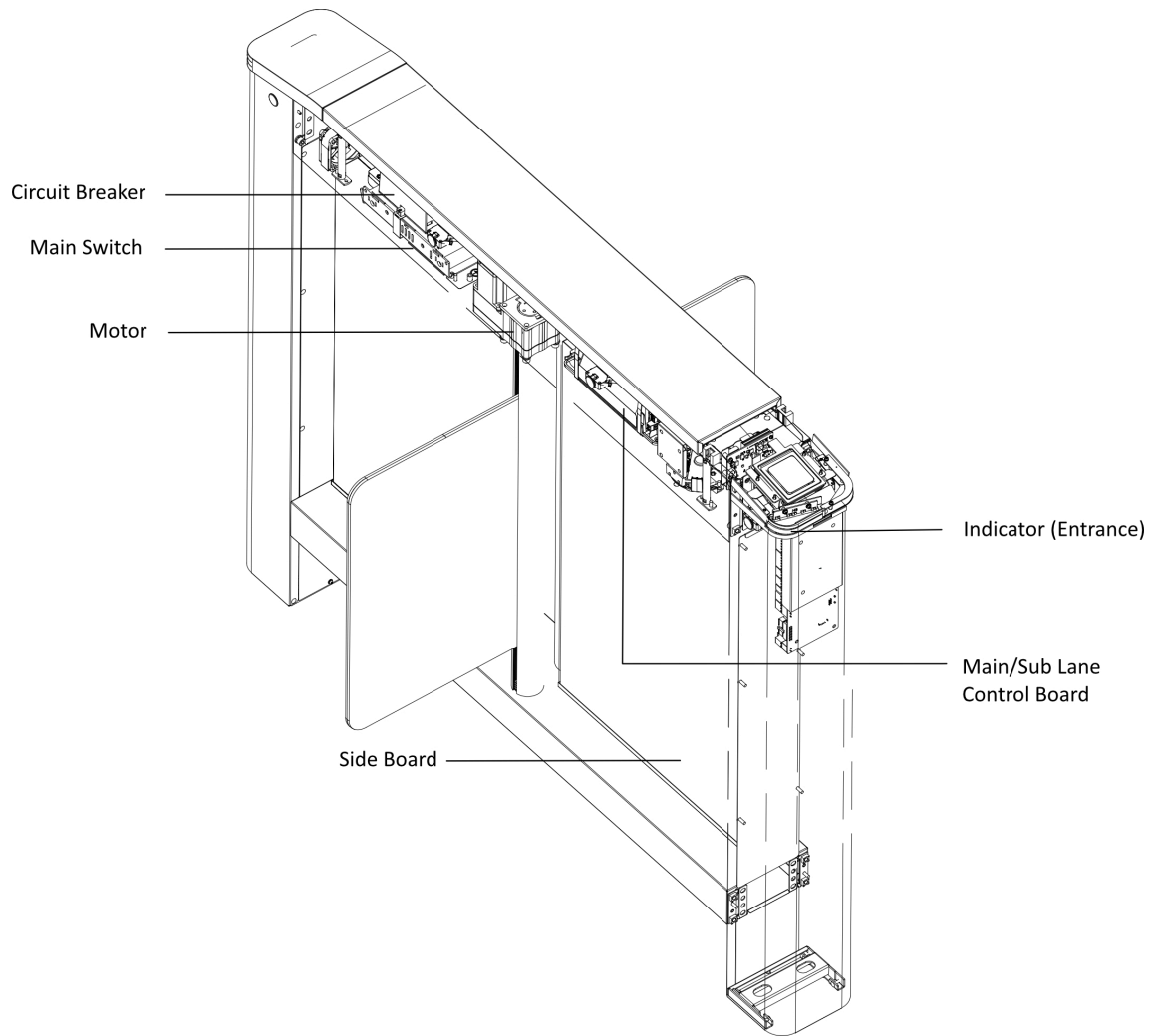
Figure 4-1 Components Diagram

The picture displayed below describes the IR sending/receiving module and their corresponding number on the pedestal.
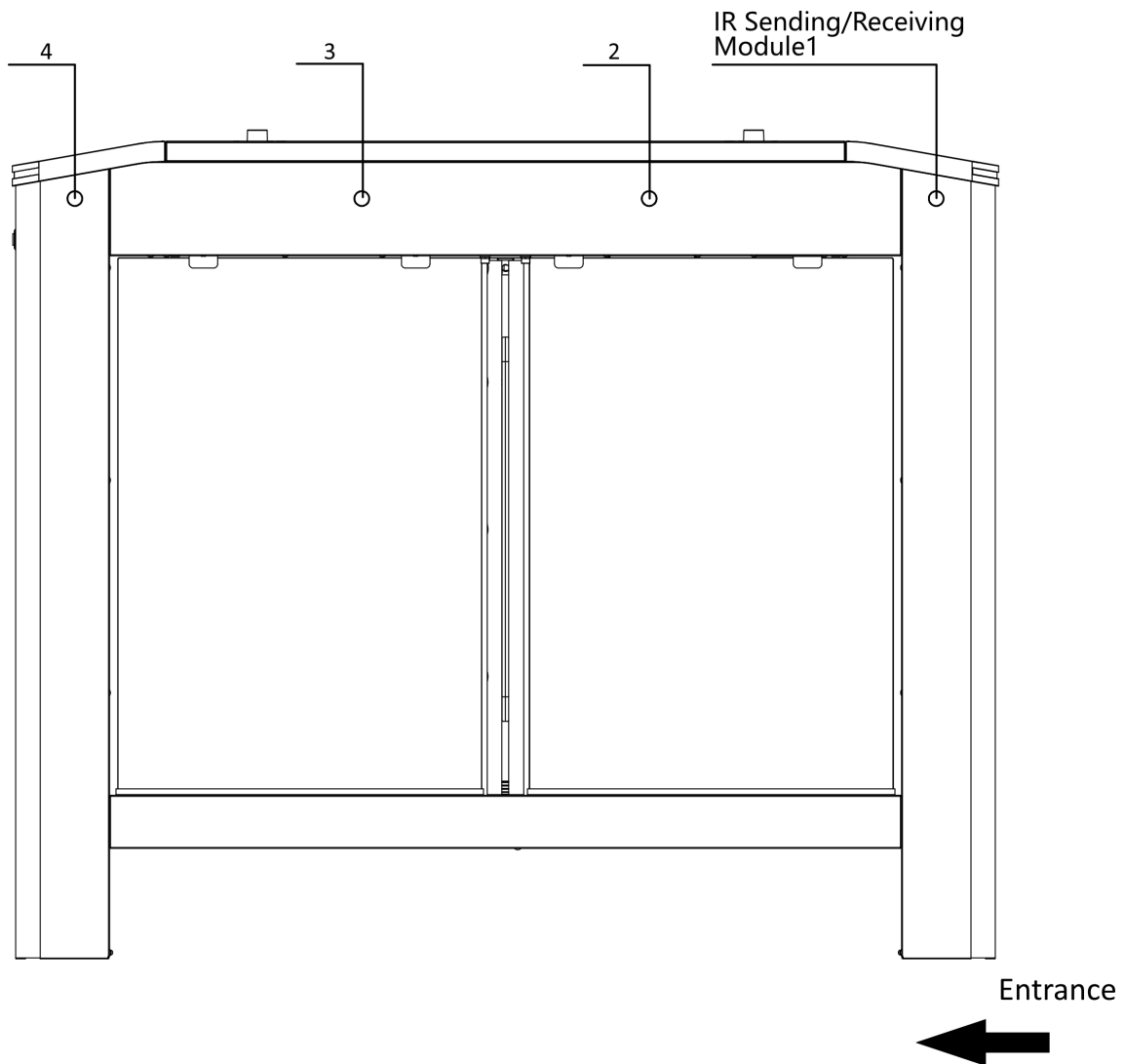
Figure 4-2 IR Sending/Receiving Module Position

> 📋**Note**
> If the turnstile contains two lanes, standing at the entrance position, the IR modules on the left pedestal are the IR sending modules. The IR modules on the right pedestal are the IR receiving modules. The IR modules on the left side of the middle pedestal are the IR receiving modules, while the IR modules on the right side of the middle pedestal are the IR sending modules.

4.2 Terminal Description

The lane controller contains main lane controller and sub lane controller, which controls the IR beams, motor, and other components' work.

4.2.1 Main Lane Control Board Terminal Description

The main lane control board contains interconnecting interface, USB flash drive interface (reserved), access control board interface, fire input interface, exit button interface, 12 VDC output interface (reserved), 24 VDC input interface, fan interface, adaptor interface, encoder interface, power supply interface for motor, supercapacitor interface, IR adaptor interface and light bar interface.

The picture displayed below is the main lane control board diagram.
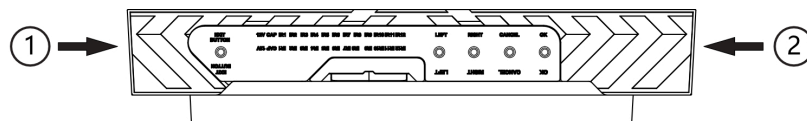
Main Lane Control Board
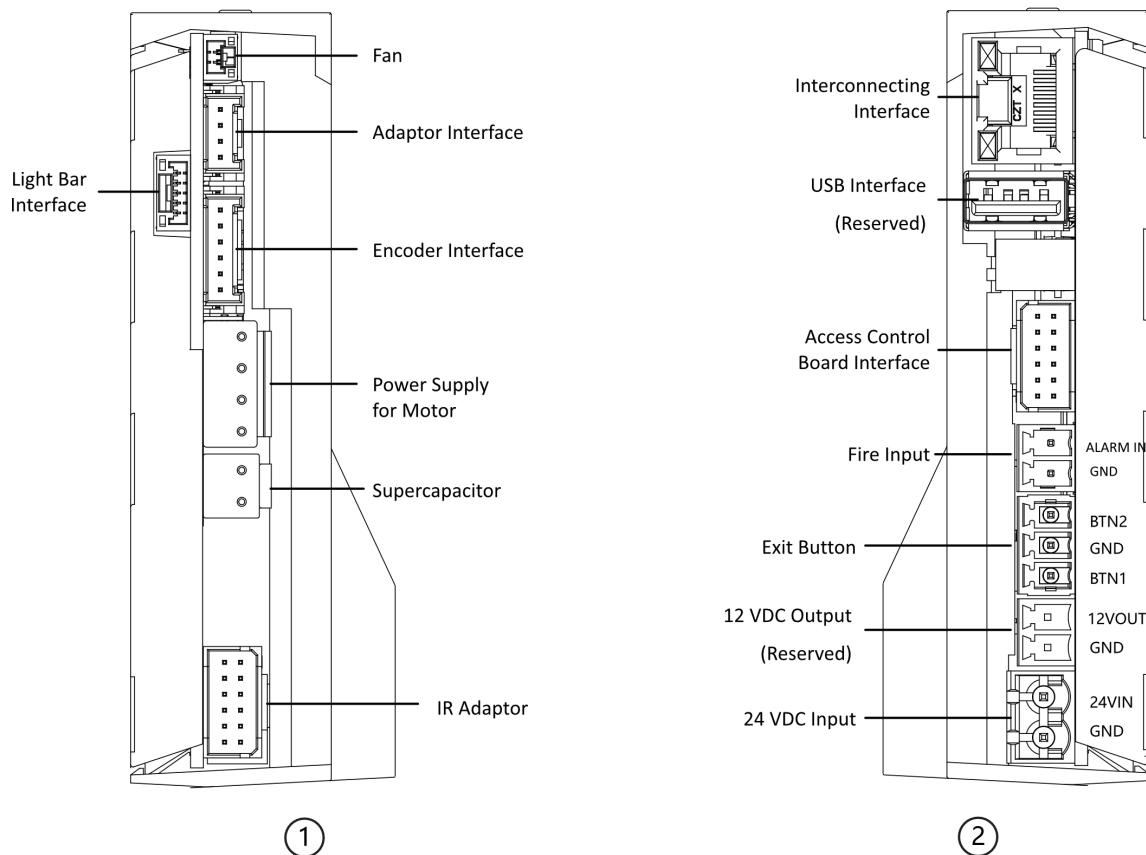
Figure 4-3 Main Lane Control Board Terminals

4.2.2 Sub Lane Control Board Terminal Description

The sub lane control board contains interconnecting interface, USB flash drive interface (reserved), access control board interface, exit button interface, 12 VDC power output interface (reserved), 24 VDC power input interface, fan interface, adaptor interface, encoder interface, power supply interface for motor, supercapacitor interface, IR adaptor interface and light bar interface.

The picture displayed below is the sub lane control board diagram.

Sub Lane Control Board
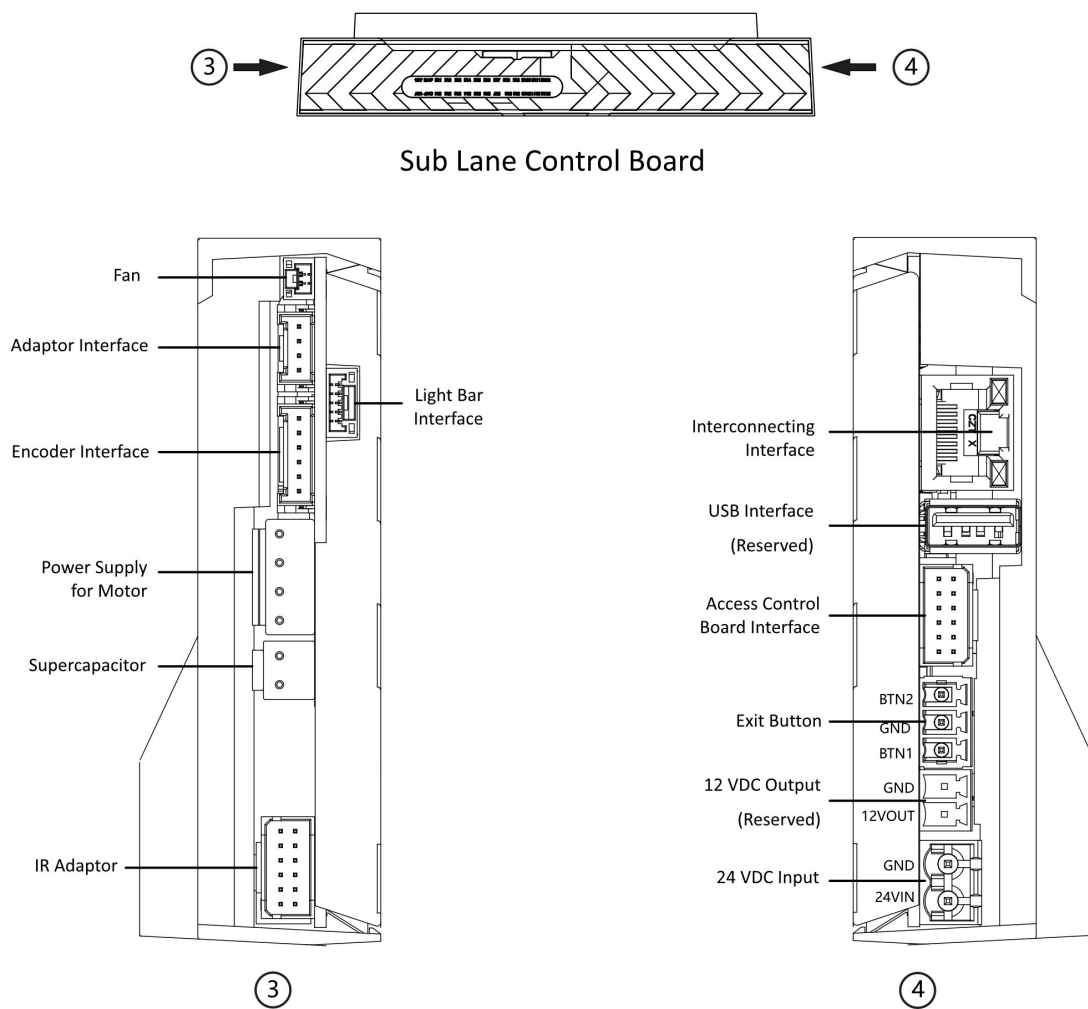
Figure 4-4 Sub Lane Control Board Terminals

4.2.3 Alarm Input Wiring

On the main lane control board, you can wire the fire alarm input interface.

Fire Alarm Module
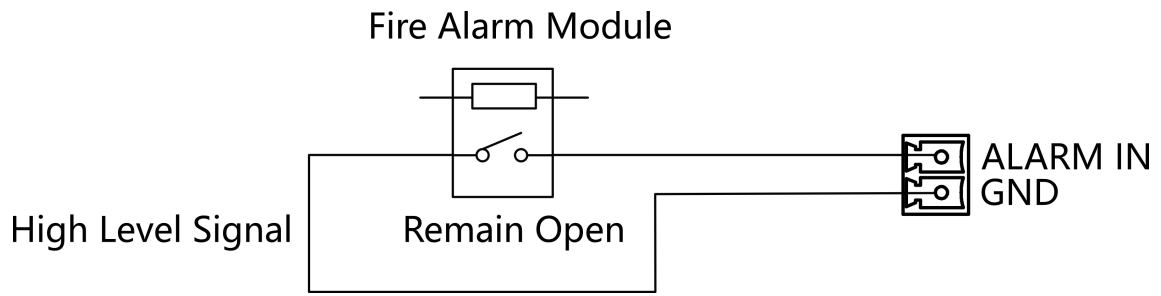
Figure 4-5 Remaining Open

Fire Alarm Module
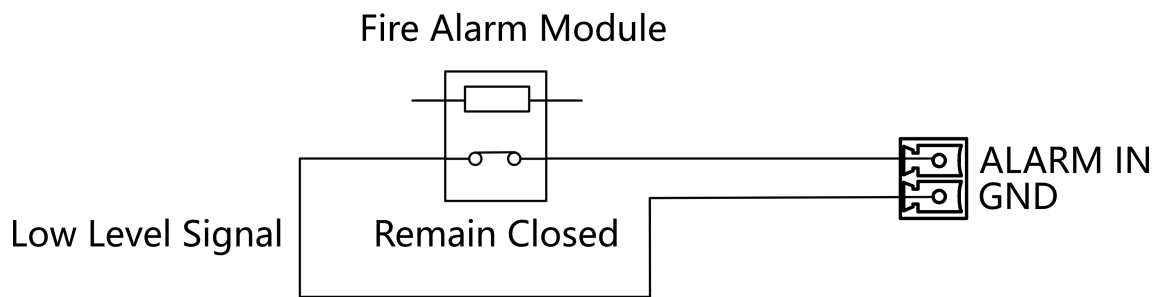
Figure 4-6 Remaining Closed

4.2.4 Exit Button Wiring

The main and sub lane control board each has 1 button interface, which can be connected to exit button or face recognition device.
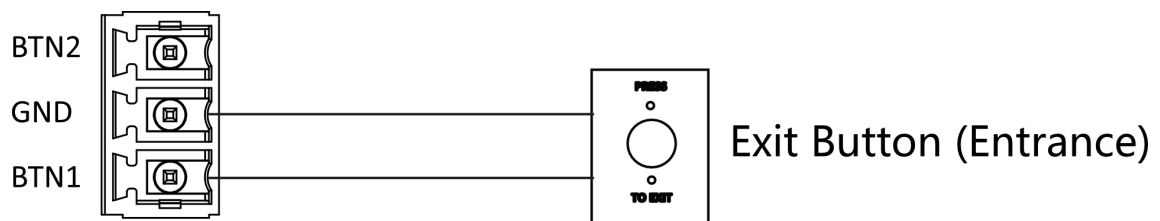
Figure 4-7 Exit Button Wiring (Entrance)
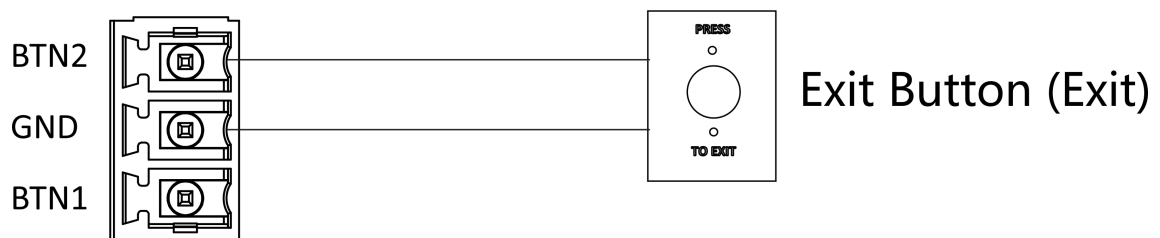
Figure 4-8 Exit Button Wiring (Exit)

Note

- The face recognition devices are powered via 12 VDC power output interface of the main and sub lane control board.
- Barrier open at the entrance: connect to BTN1 and GND.
- Barrier open at the exit: connect to BTN2 and GND.

4.3 Device Settings via Button

You can configure the device via button on the main lane control board.

| Function	Main Lane Control Board Only
Working Mode	
Normal/Study Mode	Configure via button (refer to *__Set Study Mode via Button__*)
keyfob Pairing	Not support
Passing Mode	Configure via button
Memory Mode	Configure via button
Parameter Settings	
Barrier Opening Speed	Configure via button
Barrier Closing Speed	Configure via button
Card Reading on the Alarm Area	Configure via button
Enter Duration	Configure via button
Exit Duration	Configure via button
IR Sensing Duration	Configure via button
Intrusion Duration	Configure via button
Overstay Duration	Configure via button
Delay Time for Barrier Closing	Configure via button
Authentication on Free Passing	Configure via button
Volume Adjustment	Configure via button
Barrier Material	Configure via button
Barrier Length	Configure via button
Light Brightness	Configure via button

Function	Main Lane Control Board Only
Restore to Default	Configure via button
Voice Prompt	
Climbing over Barrier	Not support
Reverse Passing	Not support
Exceeding Passing Duration	Not support
Intrusion Alarm	Not support
Tailgating Alarm	Not support
Overstaying Alarm	Not support
Motor Inspection	Configure via button
Self-check Voice Prompt	Not support
Study Mode Voice Prompt	Not support

Refer to **_Button Configuration Description_** for detailed information.

4.3.1 Configuration via Button

Button Description
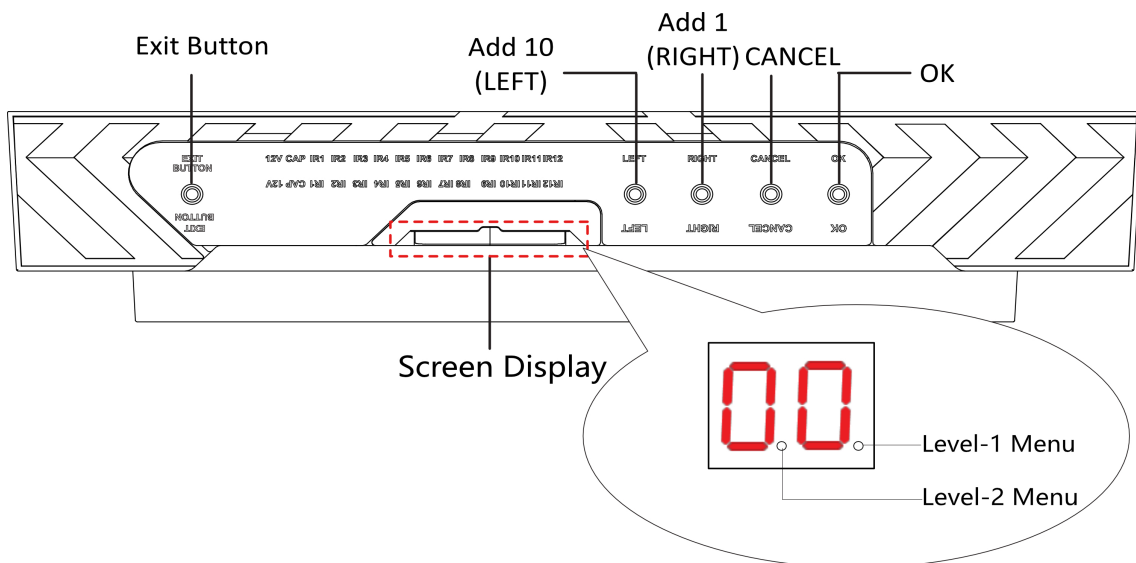
Figure 4-9 Button

Exit Button

- Press to open the barrier from the entrance position.
- Double press to open the barrier from the exit position.

Parameter Configuration Button

- LEFT: Press to add 10 to configuration data.
- RIGHT: Press to add 1 configuration data.
- CANCEL: Return to the Level-1 menu, or exit Level-1 menu.
- OK: Confirm the settings, or enter configuration mode, or enter the Level-2 menu.

Note

- Configuration No. is displayed by two digital tubes.
- Level-1 Menu: If the decimal point on the right is on, it indicates the Level-1 menu. The number represents the configuration No.
- Level-2 Menu: If the decimal point in the middle is on, it indicates the level-2 menu. The number represents the configuration No.

Button Configuration Procedure
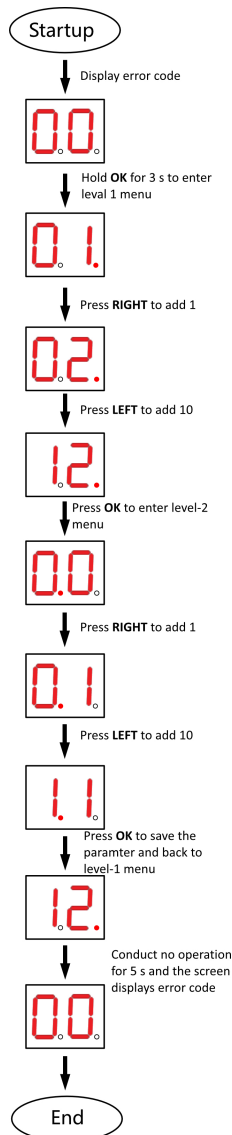
Figure 4-10 Procedure

Steps:

1. Hold **OK** button for 3 s until one beep occurs. The device enter the configuration mode. Level 1 menu lights up. The display screen displays the configuration No. **1**.

2. In the Level-1 menu, press **LEFT** (plus 10) and **RIGHT** (plus 1) to set the configuration No. Press **OK** to save settings and the enter the level-2 menu. Press **CANCEL** to exit the current menu, or conduct no operation for 5 s to cancel configuration and exit the current menu.

3. After enter the level 2 menu, press **LEFT** (plus 10) and **RIGHT** (plus 1) to set the parameters at your needs. Press **OK** to save the settings or press **CANCEL** to exit the current menu, or conduct no operation for 5 s to cancel configuration and exit the current menu.

ℹ️Note

- The configuration No. will display in a cycle.
- Each configuration No. refers to a function. For details about the configuration No. and its related function, see **_Button Configuration Description_** .

Example

If you want to pair keyfobs via the button. Hold **OK** for 3 s until you hear one beep. The device enters the configuration mode and the level 1 decimal point lights up. The display screen will display the No. **1**.

In the Level-1 menu, press **Right** (plus 1) to adjust the configuration No. to **2**. Press **OK** to save the settings and enter the Level-2 menu.

Press **Right** (plus 1) to adjust the configuration No. to **2**. Press **OK** to save the settings.

4.3.2 Set Study Mode via Button

Enter the study mode through button configuration to set the closed position of the device barrier.

Steps

ℹ️Note

- For details about button's operation, see **_Configuration via Button_** .
- For details about the configuration No. and its related function, see **_Button Configuration Description_** .

1. Enter the study mode.
    1) Enter the configuration mode.
    2) Set the configuration No. in Level-1 to **1**. The device will enter the study mode.
    3) Set the configuration No. in the Level-2 menu to **2**. The device will enter the study mode.
2. Power off the device and swing the barrier until it is vertical to the pedestal.
3. Power on the device.
   The device will remember the current position automatically.
4. Reboot the device when you hear **Study accomplished. Please reboot.**

Appendix A. Event and Alarm Type

Event	Alarm Type
Tailgating	Visual and Audible
Reverse Passing	Visual and Audible
Force Accessing	None
Climb over Barrier	Visual and Audible
Overstay	Visual and Audible
Passing Timeout	None
Intrusion	Visual and Audible
Free Passing Authentication Failed	Visual and Audible
Barrier Obstructed	None

Appendix B. Table of Audio Index Related Content

Index	Content
1	Climbing over the barrier.
2	Reverse passing.
3	Passing timeout.
4	Intrusion.
5	Tailgating.
6	Overstay.

Appendix C. Error Code Description

The swing barrier will display the error code on the seven-segment display if error occurred. Refer to the table below to find the description of each number.

Error Reason	Code	Error Reason	Code
The First IR Beam Triggered	01	Not Studying	54
The Second IR Beam Triggered	02	Obstruction	55
The Third IR Beam Triggered	03	Exceeding Studying Range	56
The Fourth IR Beam Triggered	04	Encoder Exception	57
Loudspeaker Offline (If the kit is not installed, the error code of "49" will appear but the device functions normally)	49	Motor Exception	58
Interconnecting Exception	53		

Appendix D. Button Configuration Description

Refer to the table below for device configuration via button on the main lane control board.

No.	Description	Default Value	Parameters	Notes
1	Normal/Study Mode	1	1-Normal Mode 2-Study Mode	
2	keyfob Pairing	1	1-Normal Mode 2-Pairing Mode	
3	Passing Mode	1	1-Both sides under control 2-Entrance under control; exit prohibited 3-Entrance under control; exit on inductive mode 4-Both sides on inductive mode 5-Entrance on inductive mode; exit under control 6-Entrance on inductive mode; exit prohibited 7-Both sides prohibited 8-Entrance prohibited; exit under control 9-Entrance prohibited; exit on inductive mode	
4	Memory Mode	2	1-Disable 2-Enable	
5	keyfob Remote Control	2	1-one to one	

No.	Description	Default Value	Parameters	Notes
			1-one to multiple	
6	Barrier Opening Speed	5	1-1, 2-2, …10-10	
7	Barrier Closing Speed	5	1-1, 2-2, …10-10	
8	Card Reading on the Alarm Area	2	1-Do not open 2-Open	
9	Enter Duration	5	5-5s, 6-6s, 7-7s, …, 60-60s	
10	Exit Duration	5	5-5s, 6-6s, 7-7s, …, 60-60s	
11	IR Sensing Duration	0	0-0s, 1-1s, 2-2s,…, 25-25s	
12	Intrusion Duration	0	0-0s, 1-1s, 2-2s,…, 20-20s	
13	Overstay Duration	0	0-0s, 1-1s, 2-2s,…, 20-20s	
14	Delay Time for Barrier Closing	0	0-0s, 1-1s, 2-2s, 3-3s, 4-4s, 5-5s	
15	Control Mode	1	1-Button Configuration 2-DIP Switch on Access Control Board	Unable to change
16	Authentication on Free Passing	1	1-Disable 2-Enable	
17	IR Configuration for Closing in Advance	1	1-1, 2-2, …, N-N	Unable to change
18	Swing Barrier Quantity	1	1-Dual Lanes 2-Single Lane	Unable to change
19	Motor Rotation	1	1-Clockwise 2-Anticlockwise	Unable to change

No.	Description	Default Value	Parameters	Notes
20	Motor Type	1	1-Dunker Motor 2-Control Motor	Unable to change
21	Volume	2	1-0, 2-1, 3-2, 4-3, 5-4	The device will be muted when set to "1".
22	Authenticated Passing	1	1-Disable 2-Enable	Unable to change
23	Invalid Card No.	1	1-Disable 2-Enable	Unable to change
24	Fingerprint Unmatched	1	1-Disable 2-Enable	Unable to change
25	Climbing over Barrier	1	1-Disable 2-Enable	
26	Reverse Passing	1	1-Disable 2-Enable	
27	Exceeding Passing Duration	1	1-Disable 2-Enable	
28	Intrusion Alarm	1	1-Disable 2-Enable	
29	Forced Passing	1	1-Disable 2-Enable	Unable to change
30	Tailgating Alarm	1	1-Disable 2-Enable	
31	Unauthorized Passing	1	1-Disable 2-Enable	Unable to change
32	Exceeding Authentication Duration	1	1-Disable 2-Enable	Unable to change
33	Failed Authentication	1	1-Disable 2-Enable	Unable to change
34	Expired Certificate	1	1-Disable	Unable to change

No.	Description	Default Value	Parameters	Notes
			2-Enable	
35	Overstaying Alarm	1	1-Disable 2-Enable	
36	Barrier Material	1	Acrylic	
37	Barrier Length	8	1-550 2-600 3-650 4-700 5-750 6-800 7-850 8-900	
38	Motor Inspection	1	1-Disable 2-Enable on Main Lane 3-Enable on Sub Lane	
39	Brightness of Light	3	0-0, 1-1, 2-2, … , 10-10	The higher the value is, the brighter the light will be.
40	Self-check Voice Prompt	2	1-Disable 2-Enable	Voice prompt of self-check at startup and motor inspection
41	Study Mode Voice Prompt	2	1-Disable 2-Enable	Voice prompt of study mode
99	Restore to Default	1	1- Default 2- Start	The device will reboot.

Appendix E. Communication Matrix and Device Command

Communication Matrix

Scan the following QR code to get the device communication matrix.
Note that the matrix contains all communication ports of Hikvision access control and video intercom devices.

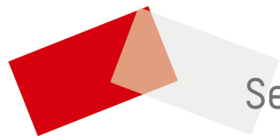**Figure E-1 QR Code of Communication Matrix**

Device Command

Scan the following QR code to get the device common serial port commands.
Note that the command list contains all commonly used serial ports commands for all Hikvision access control and video intercom devices.

Figure E-2 Device Command

See Far, Go Further