

**DS-K3B220LX Series Swing Barrier** 

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### DS-K3B220LX Series Swing Barrier

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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

- 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.

<b>A</b>	$\Lambda$
	<b>Cautions:</b> 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 100% 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**

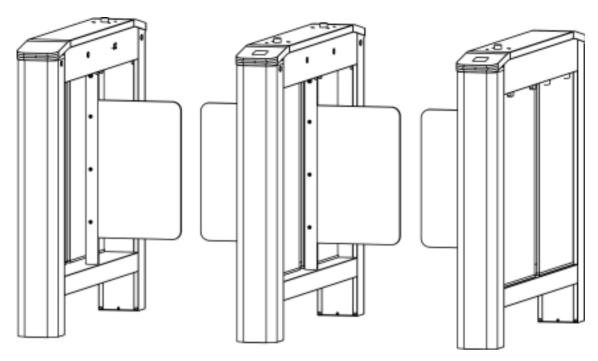
Product Name	Model	Description
Swing Barrier	DS-K3B220LX-L	Left Pedestal
	DS-K3B220LX-M	Middle Pedestal
	DS-K3B220LX-R	Right Pedestal

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# **Chapter 1 Overview**

#### 1.1 Introduction



The flap barrier with two barriers and 12 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

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- 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
- Remote barrier opening via keyfob and broadcasting via loudspeaker when the keyfob kit (optional) is installed.

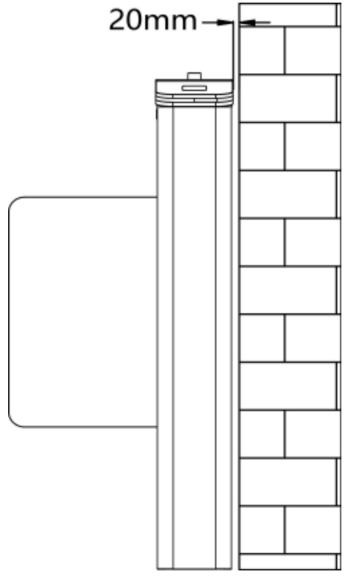
# **Chapter 2 System Wiring**

The preparation before installation and general wiring.

#### **Steps**



- 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.

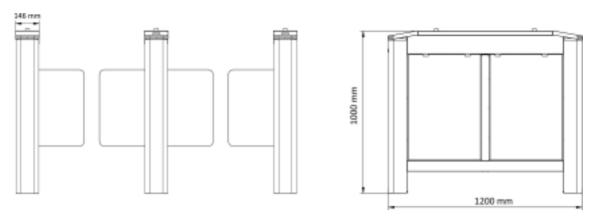


Figure 2-1 Dimension

- 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.



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.

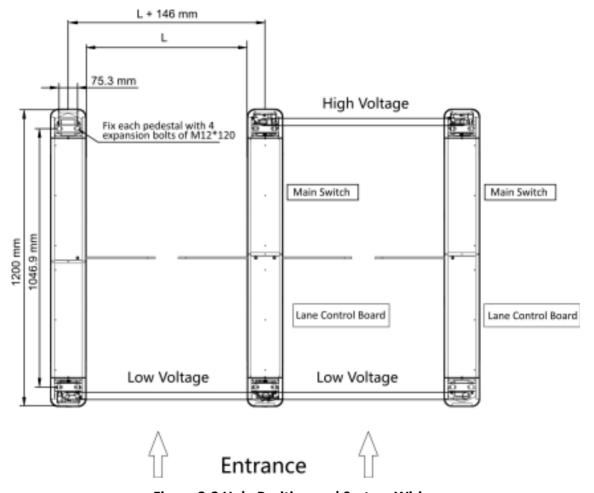


Figure 2-2 Hole Position and System Wiring

**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.

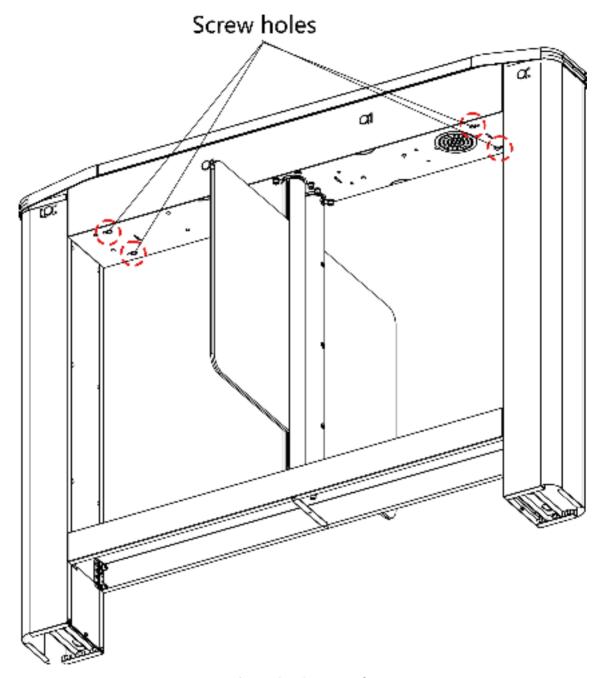


Figure 3-1 Screw Hole

- 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.

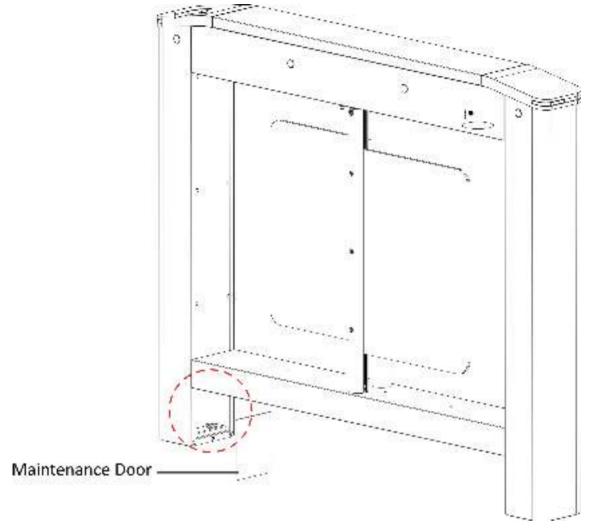


Figure 3-2 Maintenance Door

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.

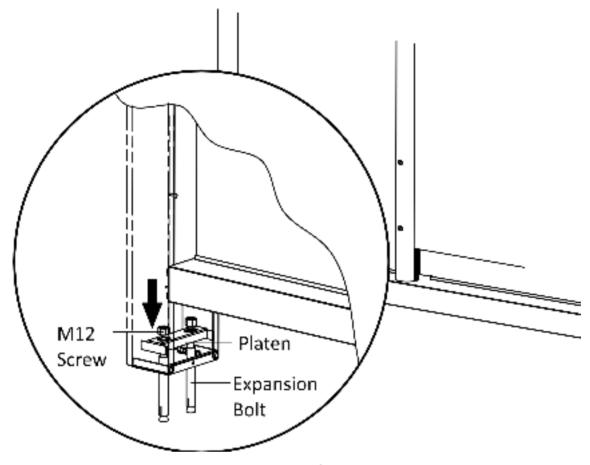


Figure 3-3 Platen

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

Scan the QR Code to view the side board installation guide video.



# **Chapter 4 General Wiring**

# | i Note

- 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.

### 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.

the whole system's power supply.	
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.	
Note	

The diagram is for reference only.

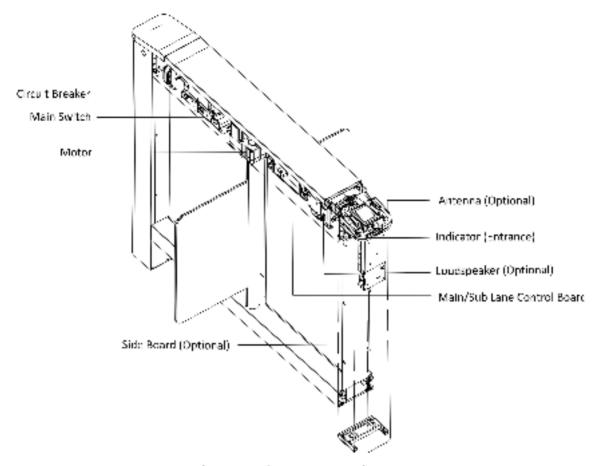


Figure 4-1 Components Diagram

The picture displayed below describes the IR sending/receiving module and their corresponding number on the pedestal.

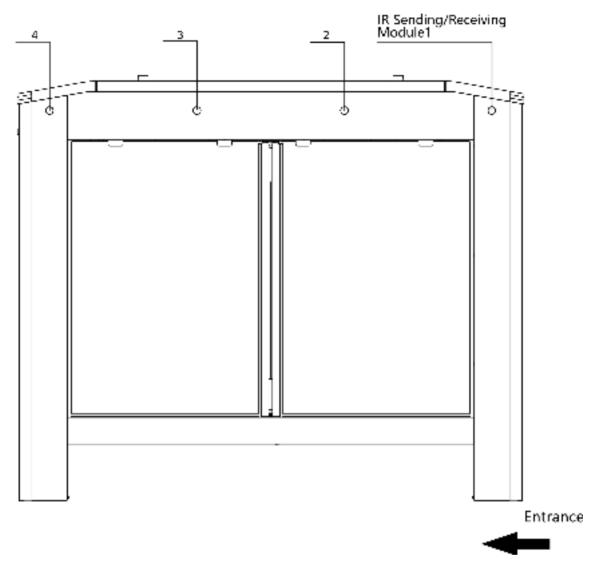


Figure 4-2 IR Sending/Receiving Module Position



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 Wiring

Scan the QR code to view the wiring guide video of peripheral devices.



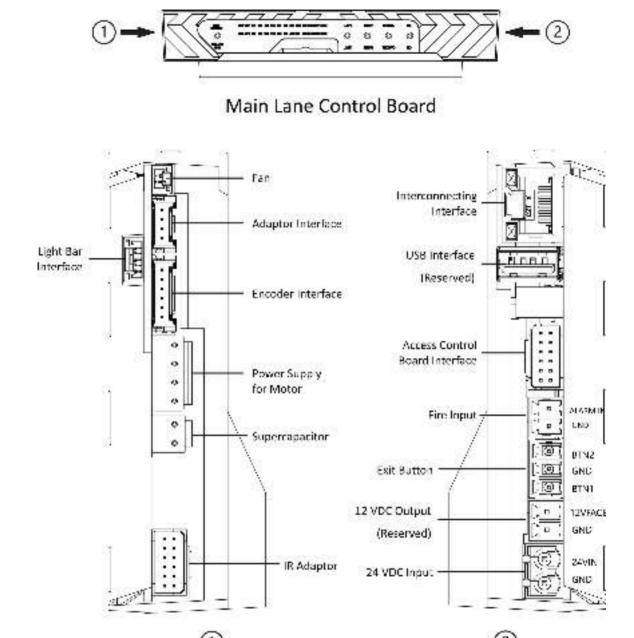
### 4.3 Terminal Description

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

### 4.3.1 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.



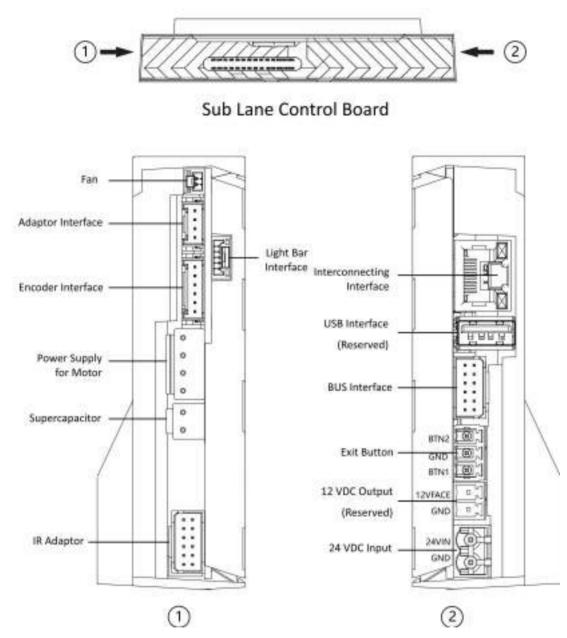
**Figure 4-3 Main Lane Control Board Terminals** 

### 4.3.2 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.

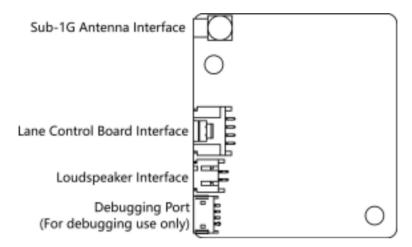
The picture displayed below is the sub lane control board diagram.



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

### 4.3.3 Loudspeaker Board Terminal Description (Optional)

The loudspeaker board contains the sub-1G antenna interface, lane control board interface, loudspeaker interface and debugging port.



**Figure 4-5 Loudspeaker Board Terminal** 

### 4.3.4 Alarm Input Wiring

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

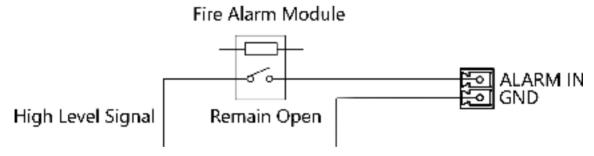
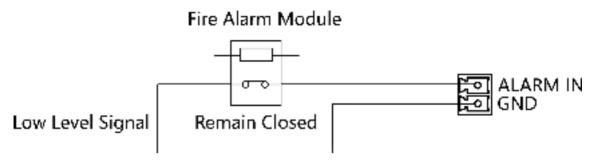


Figure 4-6 Remaining Open



**Figure 4-7 Remaining Closed** 

### 4.3.5 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.

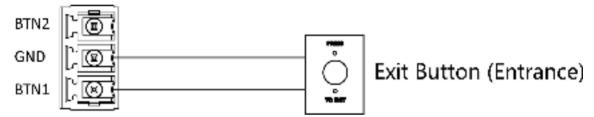


Figure 4-8 Exit Button Wiring (Entrance)

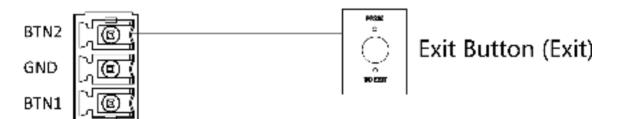


Figure 4-9 Exit Button Wiring (Exit)



- 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.

# 4.4 Device Settings via Button

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

Function	Main Lane Control Board Only	Main Lane Control Board & Loudspeaker (Optional)			
Working Mode					
Normal/Study Mode	Configure via button (refer to Set Study Mode via Button )	Configure via button (refer to <u>Set Study Mode via Button</u> )  Voice prompt (can be disabled)			
keyfob Pairing	Configure via button (refer to Pair Keyfob via Button )	Configure via button (refer to Pair Keyfob via Button )			
Passing Mode	Configure via button	Configure via button			
Memory Mode	Configure via button	Configure via button			
Parameter Settings					
Barrier Opening Speed	Configure via button	Configure via button			
Barrier Closing Speed	Configure via button	Configure via button			
Card Reading on the Alarm Area	Configure via button	Configure via button			
Enter Duration	Configure via button	Configure via button			
Exit Duration	Configure via button	Configure via button			
IR Sensing Duration	Configure via button	Configure via button			
Intrusion Duration	Configure via button	Configure via button			
Overstay Duration	Configure via button	Configure via button			
Delay Time for Barrier Closing	Configure via button	Configure via button			
Authentication on Free Passing	Configure via button	Configure via button			
Volume Adjustment	Configure via button	Configure via button			
Barrier Material	Configure via button	Configure via button			
Barrier Length	Configure via button	Configure via button			
Light Brightness	Configure via button	Configure via button			
Restore to Default	Configure via button	Configure via button			
Voice Prompt					

Function	Main Lane Control Board Only	Main Lane Control Board & Loudspeaker (Optional)
Climbing over Barrier	Not support	Enable or disable via button
Reverse Passing	Not support	Enable or disable via button
Exceeding Passing Duration	Not support	Enable or disable via button
Intrusion Alarm	Not support	Enable or disable via button
Tailgating Alarm	Not support	Enable or disable via button
Overstaying Alarm	Not support	Enable or disable via button
Motor Inspection	Configure via button	Configure via button and voice prompt via loudspeaker
Self-check Voice Prompt	Not support	Enable or disable via button
Study Mode Voice Prompt	Not support	Enable or disable via button

Refer to **Button Configuration Description** for detailed information.

## 4.4.1 Configuration via Button

## **Button Description**

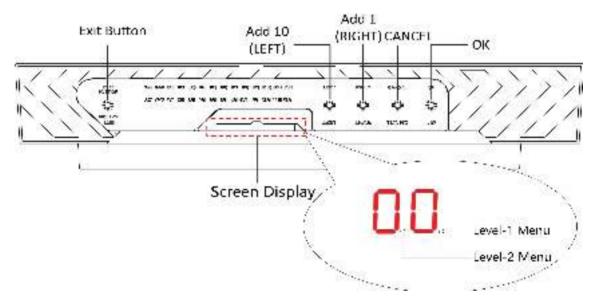


Figure 4-10 Button

#### **Exit Button**

- Single 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 ten to configuration data
- RIGHT: Press to add one configuration data
- CANCEL: Return to the level-1 menu, or exit the configuration from the level-1 menu
- OK: Confirm the data, or enter configuration mode, or enter the submenu

# Note

- Configuration data 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 item number.
- Level-2 Menu: if the decimal point in the middle is on, it indicates the level -2 menu. The number represents the parameters of a configuration item.

### **Button Configuration Procedure**



Figure 4-11 Procedure

#### Steps:

- 1. Enter the configuration mode. The number of 1 will show up on the right side of the screen and the device is ready for configuration.
- 2. Press **LEFT** and **RIGHT** to set the configuration No. Press **OK** to enter the level-2 menu and view the parameters. Press **CANCEL**, or conduct no operation for 5 s to cancel configuration.
- 3. Press **LEFT** and **RIGHT** to set the parameters at your needs. Press **OK** to save the changes or press **CANCEL** back to configuration No. setting without saving changes. Conduct no operations for 5 s to cancel configuration.

### 4.4.2 Set Study Mode via Button

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

#### **Steps**

- **1.** Set the configuration No. to "1" and the parameter to "2". The device enters 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."

### 4.4.3 Pair Keyfob via Button

Pair the remote control to the device via button to open/close the barrier remotely.

#### **Steps**

- **1.** Set the configuration No. to "2" and the parameter to "2". The device enters the keyfob pairing mode.
- 2. Hold the Close button for more than 10 seconds.

The keyfob's indicator of the will flash twice if the pairing is completed.

- **3.** Set the configuration No. to "2" and the parameter to "1". The device enters the normal mode.
- 4. Reboot the device to take effect.

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

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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	Voice prompt of
			2-Enable	self-check at startup and motor inspection
41	Study Mode Voice Prompt	2	1-Disable	Voice prompt of
			2-Enable	study mode
99	Restore to Default	1	1- Default	The device will
			2- Start	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** 

