

# User Manual

## SBTL9000 Series

Date: September 2021

Doc Version: 1.0

English

Thank you for choosing our product. Please read the instructions carefully before operation. Follow these instructions to ensure that the product is functioning properly. The images shown in this manual are for illustrative purposes only.



For further details, please visit our Company's website

[www.zkteco.com](http://www.zkteco.com).

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If there is any issue related to the product, please contact us.

## ZKTeco Headquarters

**Address**            ZKTeco Industrial Park, No. 32, Industrial Road,  
Tangxia Town, Dongguan, China.

**Phone**             +86 769 - 82109991

**Fax**                 +86 755 - 89602394

For business-related queries, please write to us at: [sales@zkteco.com](mailto:sales@zkteco.com).

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## About the Company

ZKTeco is one of the world's largest manufacturer of RFID and Biometric (Fingerprint, Facial, Finger-vein) readers. Product offerings include Access Control readers and panels, Near & Far-range Facial Recognition Cameras, Elevator/floor access controllers, Turnstiles, License Plate Recognition (LPR) gate controllers and Consumer products including battery-operated fingerprint and face-reader Door Locks. Our security solutions are multi-lingual and localized in over 18 different languages. At the ZKTeco state-of-the-art 700,000 square foot ISO9001-certified manufacturing facility, we control manufacturing, product design, component assembly, and logistics/shipping, all under one roof.

The founders of ZKTeco have been determined for independent research and development of biometric verification procedures and the productization of biometric verification SDK, which was initially widely applied in PC security and identity authentication fields. With the continuous enhancement of the development and plenty of market applications, the team has gradually constructed an identity authentication ecosystem and smart security ecosystem, which are based on biometric verification techniques. With years of experience in the industrialization of biometric verifications, ZKTeco was officially established in 2007 and now has been one of the globally leading enterprises in the biometric verification industry owning various patents and being selected as the National High-tech Enterprise for 6 consecutive years. Its products are protected by intellectual property rights.

## About the Manual

This manual introduces the operations of the **SBTL9000 Series**.

All figures displayed are for illustration purposes only. Figures in this manual may not be exactly consistent with the actual products.

## Document Conventions

Conventions used in this manual are listed below:

### GUI Conventions

For Software	
Convention	Description
<b>Bold font</b>	Used to identify software interface names e.g. <b>OK, Confirm, Cancel.</b>
>	Multi-level menus are separated by these brackets. For example, File > Create > Folder.
For Device	
Convention	Description
<>	Button or key names for devices. For example, press <OK>.
[ ]	Window names, menu items, data table, and field names are inside square brackets. For example, pop up the [New User] window.
/	Multi-level menus are separated by forwarding slashes. For example, [File/Create/Folder].

### Symbols

Convention	Description
	This represents a note that needs to pay more attention to.
	The general information which helps in performing the operations faster.
	The information which is significant.
	Care taken to avoid danger or mistakes.
	The statement or event that warns of something or that serves as a cautionary example.

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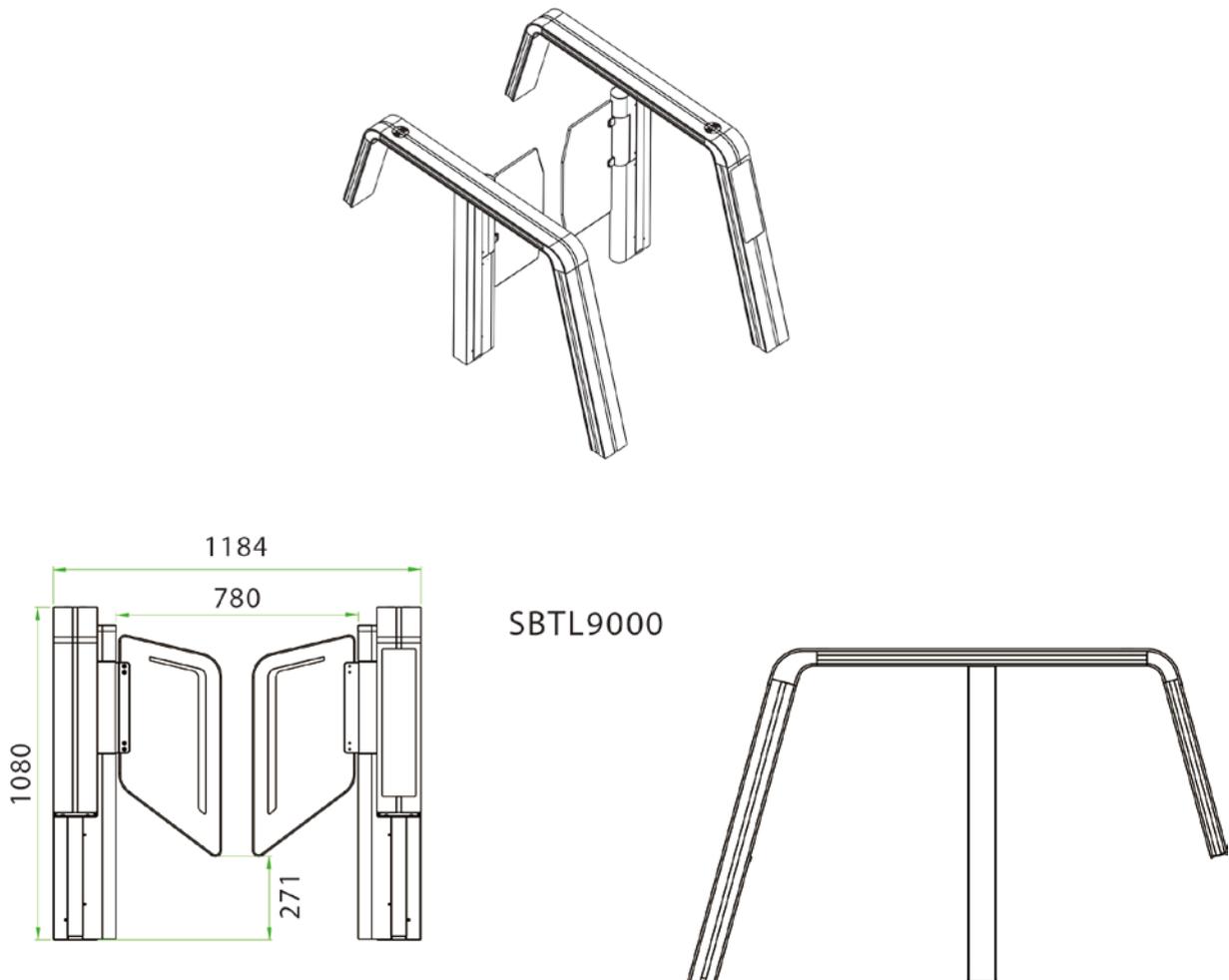
# 1 Overview

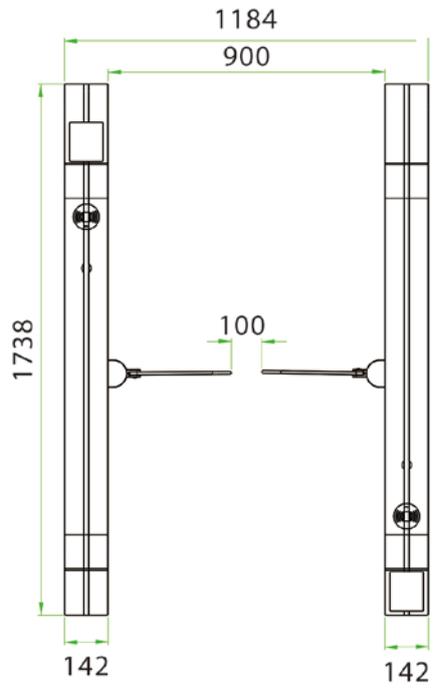
The SBTL9000 Series swing barrier turnstile is an elegant cost-effective entrance control system designed for high-traffic volume. The SBTL9000 Series barriers are normally held in a locked position, thus denying access to the secured side. Upon SBTL9000 Series's reader (RFID and/or fingerprint) positively recognizing a user's valid access card or fingerprint, its barriers swing automatically, thus allowing users passage to the secured side.

## 1.1 Chassis Design and Dimensions

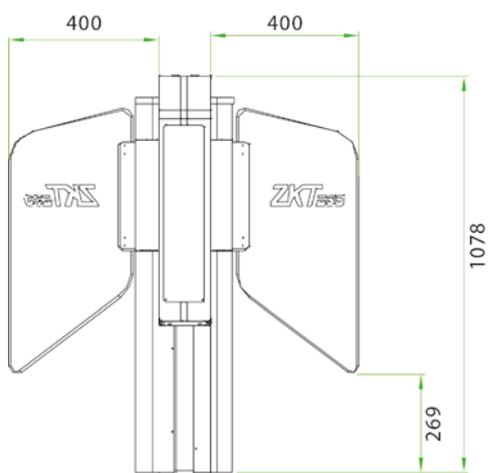
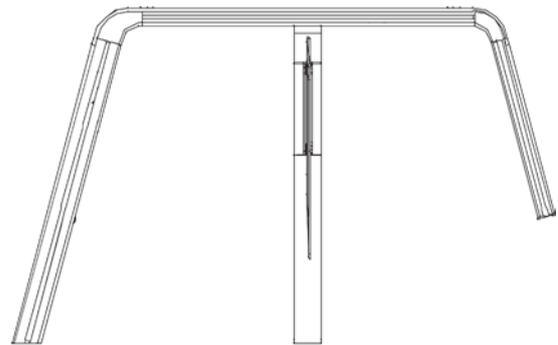
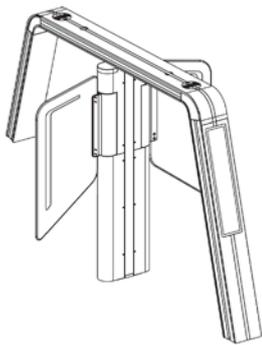
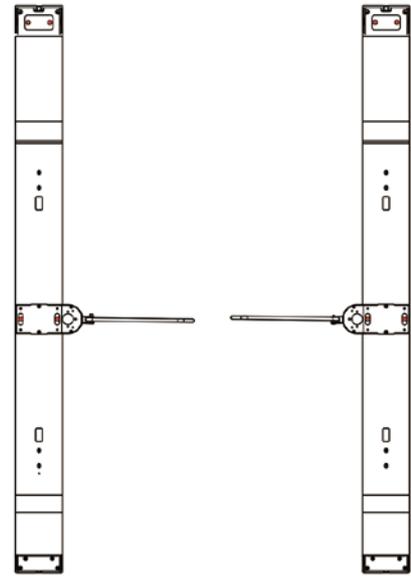
The SBTL9000 Series comes with Aluminum alloy housing, Acrylic panel which provides simple and beautiful design with corrosion protection. It provides orderly and civilized passage to the persons and restricts illegal personnel access. In case of emergencies, it ensures that evacuation passage runs smoothly and is convenient for personnel.

The appearance and dimensions of the SBTL9000 Series are shown in Figure 1-1.





SBTL9000



SBTL9200

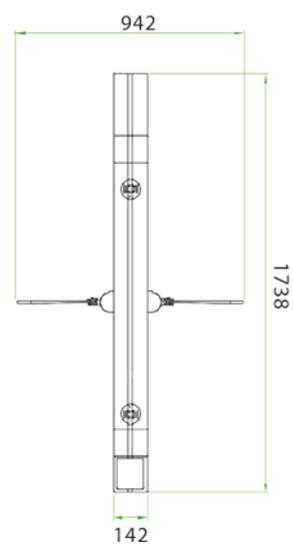


Figure 1-1

## 1.2 Mechanical System

The mechanical system of the Swing Barrier turnstile includes the chassis and the core component. The chassis is a carrier where the Direction indicator, Reader, Infrared sensor, and the Door lock are installed. The core component mainly consists of the Motor, Frame, Bearing, and Swing Arm.

## 1.3 Electronic Control System

The electronic control system of a swing barrier turnstile is mainly composed of the Reader, Master Control Panel, Infrared Sensor, Direction Indicator and Alarm.

**Reader:** The reader reads the data in the card and sends it to the Access Controller.

**Master Control Panel:** The Master Control panel is the system's control center that receives signals from the reader and the photoelectric switch performs logical calculation and processing of these signals and sends executive commands to the Direction indicator, electric motor and the alarm.

**Infrared Sensor:** It detects the position of the pedestrian and plays the role of safety protection.

**Direction Indicator:** This indicator displays the pedestrian passage path and directs them to pass through the lane in a safe and orderly manner.

**Alarm:** The alarm gives an alarm voice if the system detects any unauthorized entry to the passage.

## 1.4 Working Principle

1. After supplying power to the device, the system performs Power-On Self-Test. The device starts normally if no failure is detected. If a failure is detected, the system displays related messages on the LCD display screen so that the user can have a quick knowledge of the technical issue and solve the problem.
2. When the reader detects a valid card/fingerprint, the buzzer will give a positive audible prompt to the pedestrian, indicating that the card is being read successfully or "fingerprint successfully verified". And then, the reader sends signals to the access controller to request permission to pass through the passage. The access controller will send the signal to the master control panel.
3. After receiving the signal from the access controller, the master control panel sends valid control signals to the direction indicator and the electric motor. At last the direction arrow turns green.
4. Pedestrians passes through the passage according to the direction indicator signs. Infrared sensors keep on detecting the pedestrian during the whole process, and continue to send

signal to the master control board until the pedestrian passes completely through the passage.

5. If the pedestrian enters the passage but forgets to flash the card, or if the card held by the pedestrian is invalid, the system will prompt an audible alarm to stop and retreat the pedestrian from the passage. The pedestrian can pass through the passage only after a valid card is read by the card reader.

## 1.5 System Composition

The single-lane management system is composed of two single-core swing barriers. The multi-lane management system is composed of two single-core barriers and multiple dual-core barriers.

### Working modes of the system

To make the product more versatile, this system provides multiple working modes for the user, including Normal working mode, Normally open mode, Normally close mode and Testing mode.

**Normal Working Mode:** In this working mode, the turnstile works normally.

**Normal Open Mode:** In this working mode, the turnstile is always open.

**Normal Close Mode:** In this working mode, the turnstile is always closed.

**Testing Mode:** In this working mode, the turnstile performs Power-on Self-Test.

After supplying power to the device, the LCD screen on control board will display a default state, which displays current work mode.

## 1.6 Technical Specifications

Feature	Specification
<b>Power Requirements</b>	AC 100 to 120V/200 to 240V, 50/60Hz
<b>Working Temperature</b>	-28°C to 60°C
<b>Working Humidity</b>	20% to 95% (Non-condensing)
<b>Working Environment</b>	Indoor
<b>Max. Speed of Throughput</b>	35 people per minute
<b>Lane Width (mm)</b>	780
<b>Infrared Sensor</b>	12 pairs
<b>Dimension (mm)</b>	L=1738, W=142, H=1080

<b>Dimension with Packing (mm)</b>	L=1850, W=400, H=1130
<b>Cabinet Material</b>	Aluminium Alloy
<b>Lid Material</b>	Aluminium Alloy
<b>Barrier Material</b>	Acrylic
<b>Barrier Movement</b>	Swing
<b>Emergency Mode</b>	Supports
<b>Security Level</b>	Medium
<b>Screen Size</b>	15.2 inches
<b>Pixel Format</b>	1280 * 307 Pixels

## 2 Installation

### 2.1 Installation Requirements

- 1) It is recommended that the swing barrier must be installed on a horizontal solid platform with a height of 50mm to 100mm.
- 2) It is also recommended that the swing barrier turnstile should not be used in the corrosive environment.
- 3) Make sure the ground wire of the system is reliably connected to avoid personal injuries or other accidents.
- 4) After installation, check if the connection is done correctly at the connecting points of the ground wire, at the connector assemblies and wiring points of the circuits, as well as at each movable part of the swing barrier turnstile. Any loose nuts, screws and other fasteners should be tightened in time to avoid any failures caused by long-time operations.

### 2.2 Installation Position

The installation position of the swing barrier turnstile depends on its size. A distance of 100mm between the swing barrier turnstile and the wall needs to be reserved for ease of opening the top cover of the machine to perform maintenance and adjustment. The reference figure is shown below:

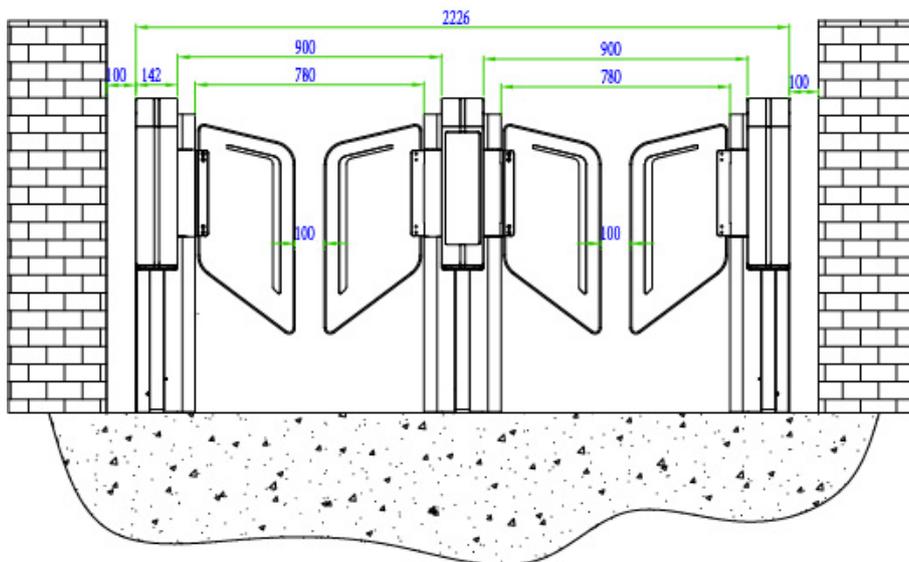


Figure 2-1 The SBTL9000 Series Dual-lane

## 2.3 Cables Installation and Fixing

For the outlets of the concealed cables, please refer the below diagram indicating the mounting holes. The input voltage for this swing barrier turnstile is **AC100V-120V/200V-240V** and its master and slave are connected by an **8-core cable (signal)** and a **2-core cable (power)**. When installing the swing barrier turnstile, the user only needs to connect it to the corresponding ports. Note that the PVC conduits are laid **100mm** under the ground, with the height of the exposed part not exceeding **100mm**. In addition, the conduit outlet is bent back to prevent the ingress of water into the conduit.

The SBTL9000 Series installation holes and cabling positions is shown in Figure 2-2:

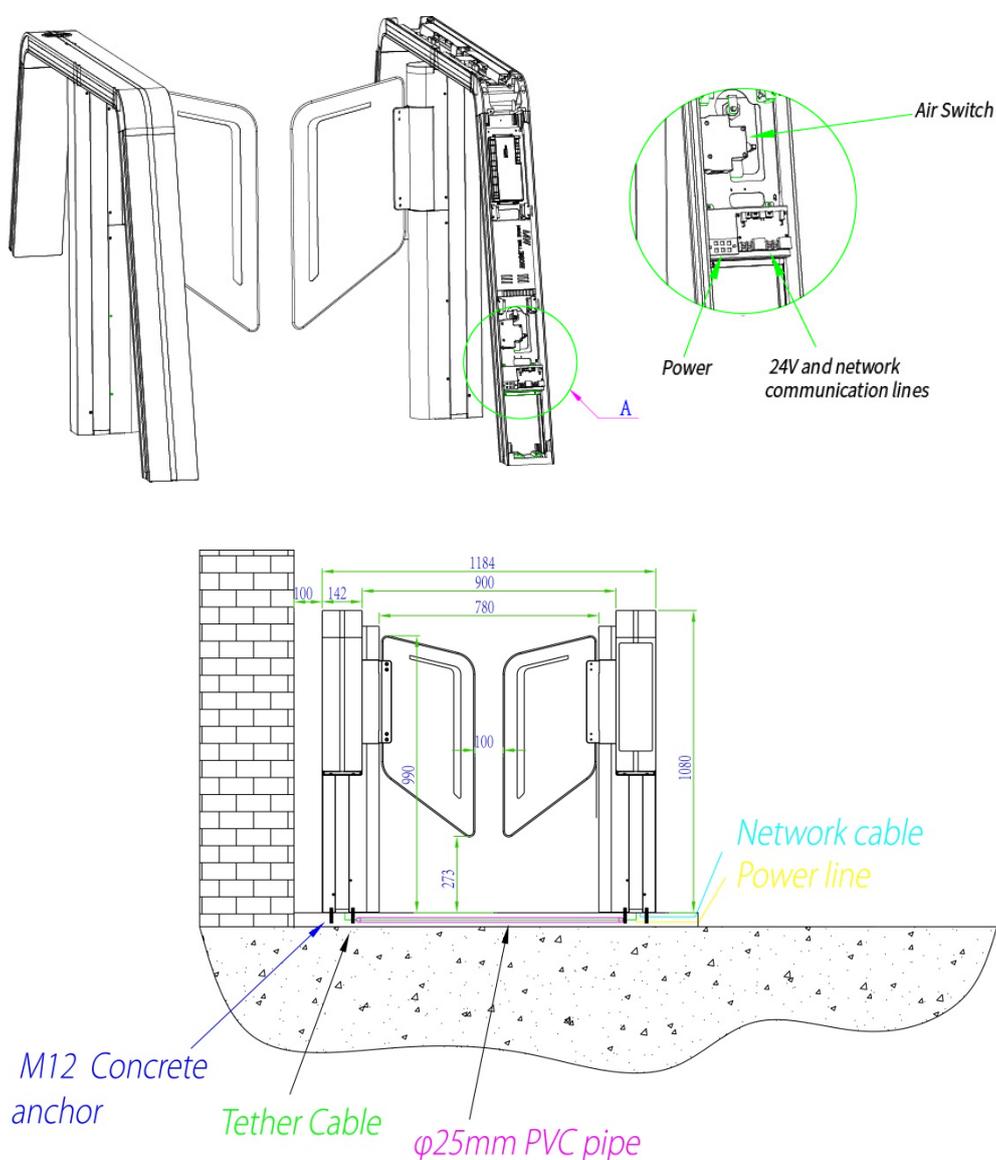


Figure 2-2

- Mark the screw hole at the centre of the stand, and the edge of the chassis base on the ground according to the sizes as shown on the Figure 2-2.
- Drill the holes and embed M12 anchor bolts or expansion bolts.
- Place the swing barrier turnstile according to the sizes and positions as shown in the figure before installation and fixing.
- Connect the online cables and perform the power-on test.
- If the test is OK, tighten the screws.
- It is recommended that a warning line be marked on the ground after installing the device, so as to prompt the pedestrian to stand behind the warning line when swiping the card, as shown in Figure 2-3:

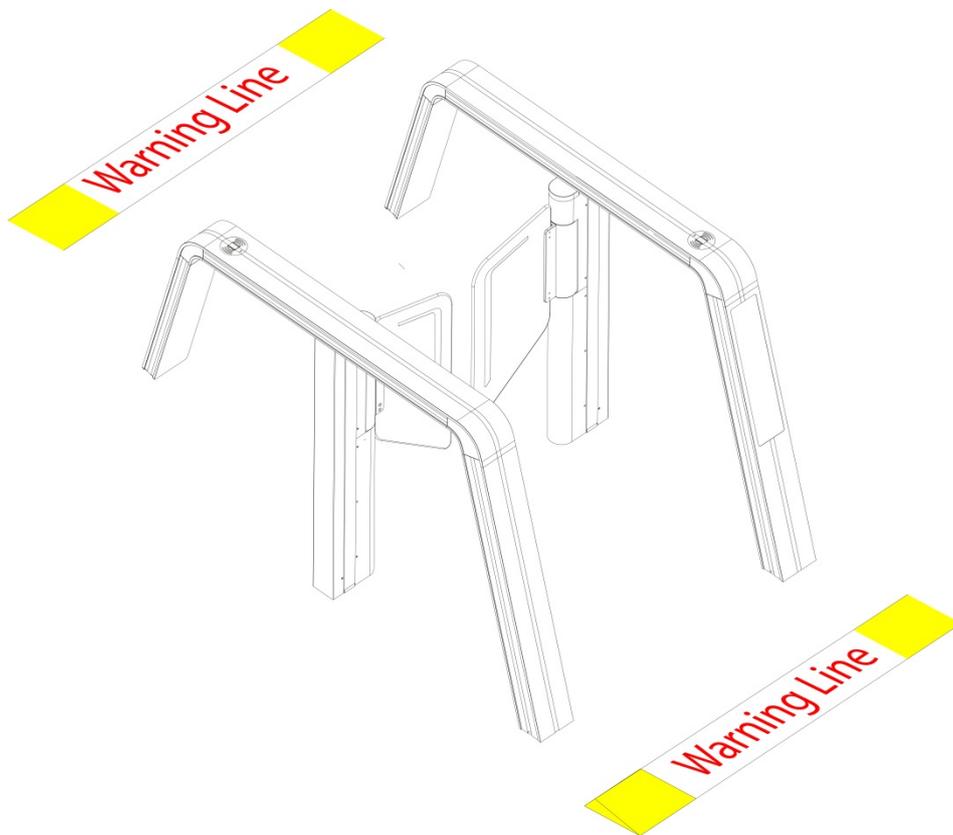


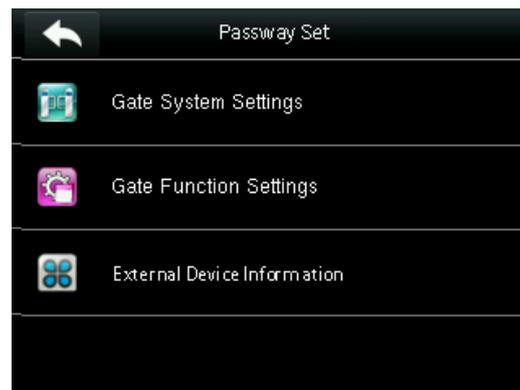
Figure 2-3

## 3 Menu Introduction

### 3.1 Passage Settings

On the **Main Menu** interface, tap on **Passage Settings** to go to the interface.

On this interface, one can set the parameters like Gate Passage Mode and the opening and closing speed of the barrier on the connected gates.



#### 3.1.1 Gate System Settings

On the **Passage Settings** interface, tap on **Gate System Setting** to set the Gate System.

These functions are available in Gate System Settings: -

- **Motor Driver Board Type**

The motor drive type is automatically matched and subitems cannot be modified as an information reference.

- **Gate Opening Speed**

Sets the speed to open the gate. The smaller the number is set, the faster the speed, and the value can be set between 1 to 100 seconds.

- **Gate Closing Speed**

Sets the speed to close the gate. The smaller the number is set, the faster the speed, and the value can be set between 1 to 100 seconds.

- **Brake Distance**

The opening angle of the arm which is pushed unauthorizedly, and the valid value is 1 to 100.

- **Limit Adjustment**  
You can set the adjustment of the right open limit, the left open limit and the closing limit of the gate.
- **Swing Arm Type**  
Sets the swing arm type. The types are Ordinary Swing Door and Extra Wide Swing Door.
- **Infrared Expansion Board**  
Enable or disable infrared expansion board as per the requirement.
- **IR Quantity**  
Emission range infrared supported by the device, and the valid value is 1 to 65535.
- **Ambient Light Settings**  
Control the blue LED light on the gate.
- **Offline Using**  
Enable or disable offline using as per the requirement.
- **Clear Running Times**  
Clears all the running records.
- **Test Mode**  
Test the left opening, right opening and closing of the gate.

### 3.1.2 Gate Function Settings

On the Passage Settings interface, tap on **Gate Function Setting** to set the Gate Function.

These functions are available in **Gate Function Settings**:

- **Passing Mode**  
You can set any of the passing mode among these:
  1. **Two-way Control:** Verification is required for both entry and exit.
  2. **In Control, Out Free:** Verification is required only for entry.

3. **In Free, Out Control:** No verification is needed during entry, but verification is required for exit.
  4. **Two-way Free:** No verification is required for entry and exit.
  5. **In Control, Out Forbidden:** Verification is required for entry, but exit is forbidden.
  6. **In Forbidden, Out Control:** Entry is forbidden, but verification is required for exit.
  7. **In Free, Out Forbidden:** No verification is needed for entry but exit is forbidden.
  8. **In Forbidden, Out Free:** Entry is forbidden, and no verification is required for exit.
  9. **Two-way Forbidden:** Both entry and exit are forbidden.
  10. **Two-way Normally Open:** During entry and exit, the gate/flap will close only after successful verification.
- **Clutch Alarm Setting**

The way to unlock the gate which is pushed in an unauthorized way and the clutch is locked automatically. It can be set as Automatic release or Authorized release.
  - **Anti-pinch Area Setting**

If a person/object is detected in the anti-pinch area, the wings will stop automatically. Anti-pinch Area Setting can be set as, **Anti-pinch in the Channel** or **No Anti-pinch at Head and Tail**.
  - **Anti-pinch Action Setting**

When swing barrier has obstacle to work, the machine will stop automatically. Anti-pinch Action Setting can be set as **Anti-pinch to Stop**, **Anti-pinch to Open Gate** or **Disabled**.
  - **False Direction Entry**

When the turnstile opens to the left, but a person enters in the opposite direction, it is known as False Direction Entry. It can be set as **Reverse Break-in to Close Gate**, **Not Close Gate** or **Disabled**.
  - **Anti-tailgate Setting**

Anti-Tailgating refers to restricting an unauthorized person from gaining access through a turnstile after an authorized person has already gained access. Anti-tailgate Setting can be set as **Anti-tailgate to Close Gate**, **Not Close Gate** or **Disabled**.

- **Verification Mode**

You can set the verification mode as **Allow verification in Channel**, or **No verification allowed in Channel**.

- **Memory Function**

When more than two legal access signals are given at the same time (including the same direction and the opposite direction), the system will remember all pass requests and complete each pass in turn.

- **Stay Duration Time**

You can set the duration of stay in the channel after successful verification, with a valid value of 0-60 seconds.

- **Open Duration Time**

Open duration time refers to the period of time from opening to closing once the turnstile receives an open signal. You can set the unattended time or Open Duration Time, with a valid value of 2 to 60 seconds.

- **Gate Closing Delay Time**

After pedestrian passes through the last infrared sensor, the gates will keep opening the time what you set, then close immediately. You can set the Gate Closing Delay Time, with a valid value of 0-60 seconds.

- **Fire Mode**

According to the external fire equipment, select the corresponding type of trigger mode. You can set Fire Mode as **Entry Opening**, **Exit Opening** or **Disabled**.

- **Volume Setting**

You can adjust the volume of the device, with a valid value of 0-100.

- **Alarm Tone Setting**

You can enable or disable the alarm tone.

- **In/Out Exchange**

You can switch the direction of the entrance and exit.

- **Reset Counter**

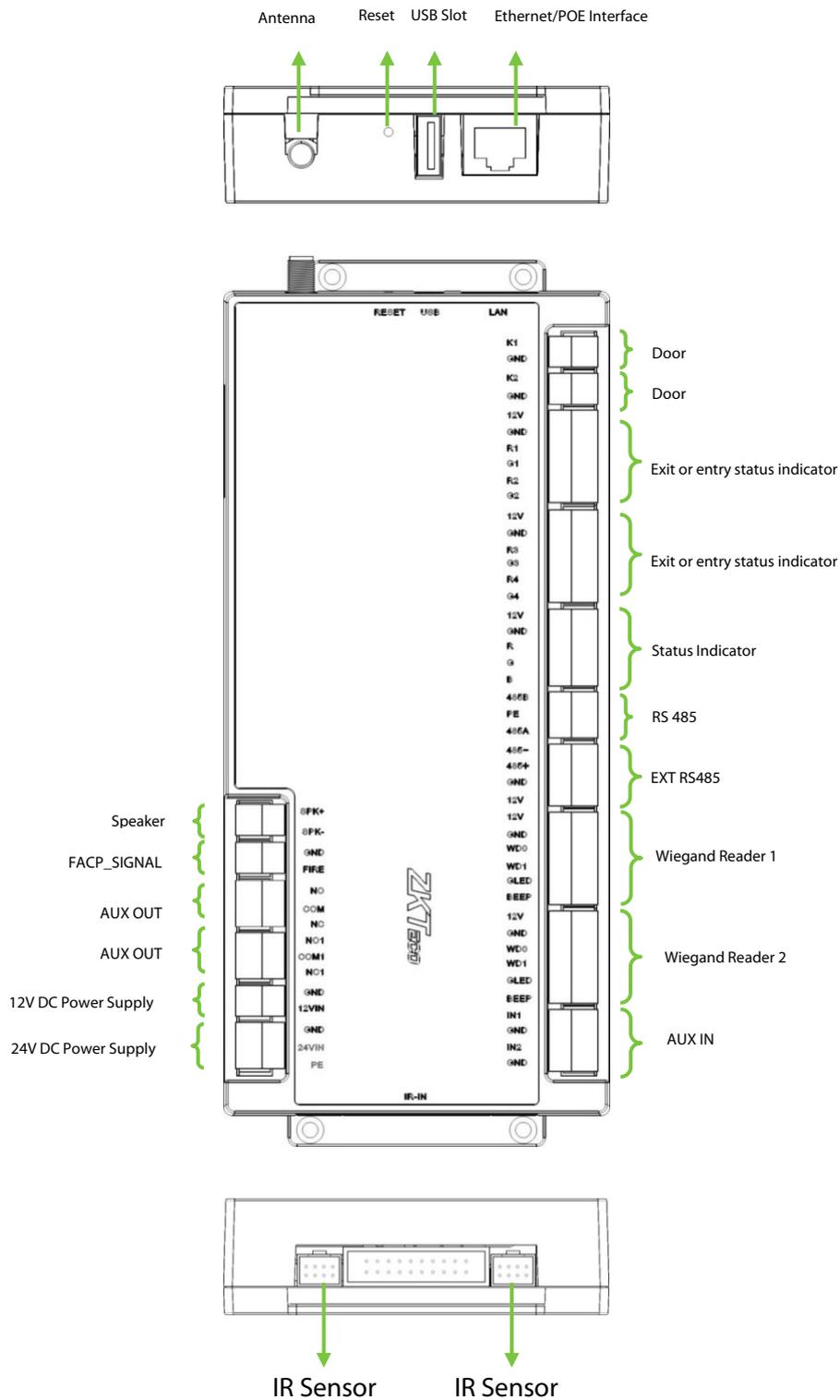
It can be set as **Clear all counters**, **Clear the entry counter**, **Clear the exit counter** or **Clear the alarm counter**.

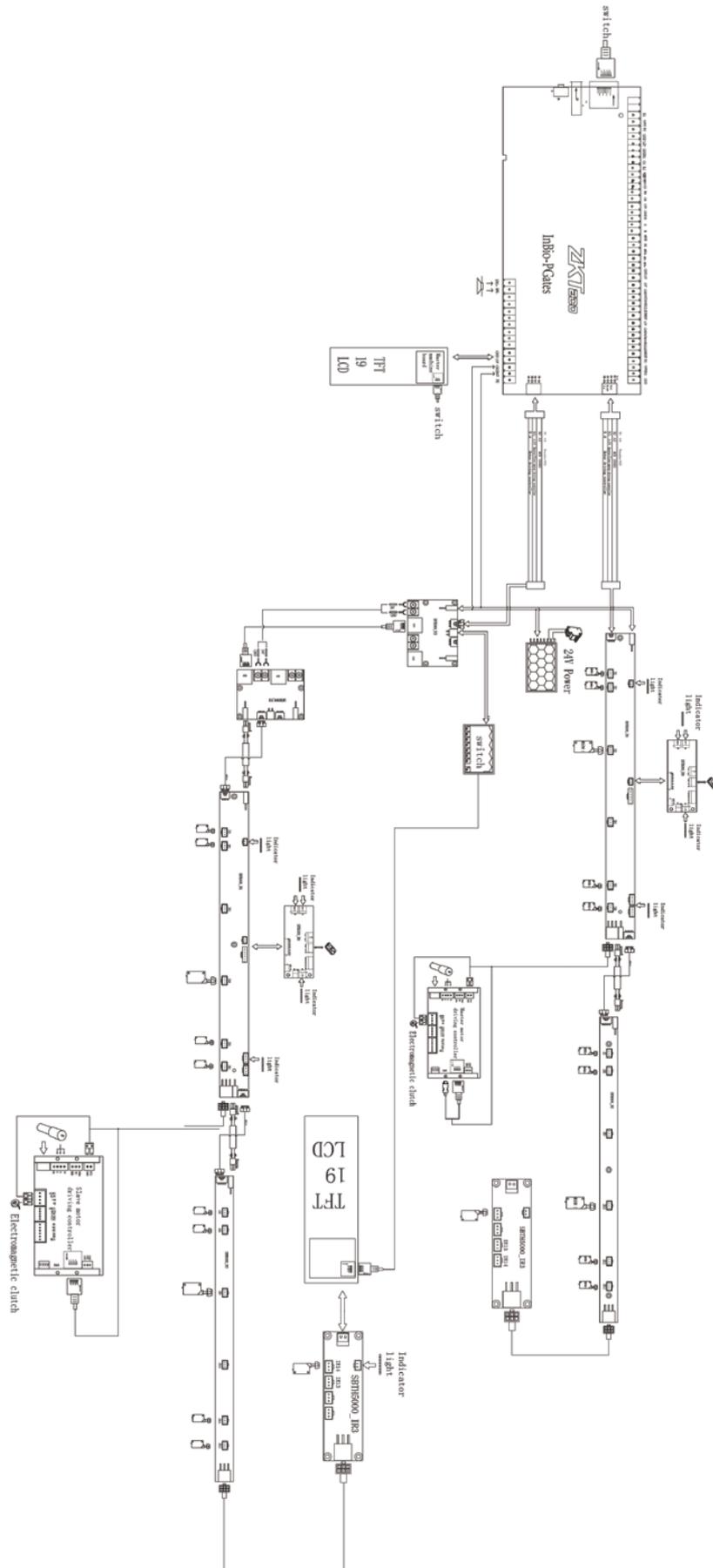
### 3.1.3 External Device Information

You can enable/disable the direction infrared function to manage the external devices.

States	Description
<b>ON</b>	When enable, it will display the entry and exit directions information of the LCD screen.
<b>OFF</b>	When disable, it will display the reader entry and exit, you can set to close, or choose to connect Wiegand reader or 485 reader.

### 3.2 Wiring and Terminal





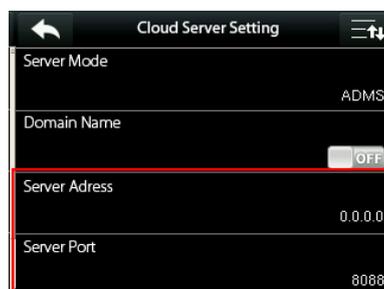
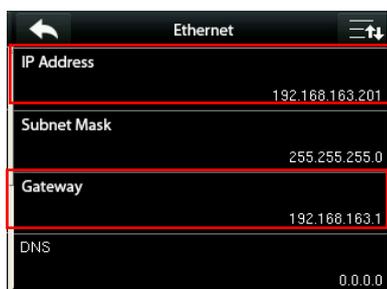
## 4 Connect to ZKBioSecurity

Through the remote management of pedestrian channel products by ZKBioSecurity software, the users can do real-time monitoring, set the parameters of the channel products, set the automatic alarm, unified management, and more to achieve efficient, convenient and quick management.

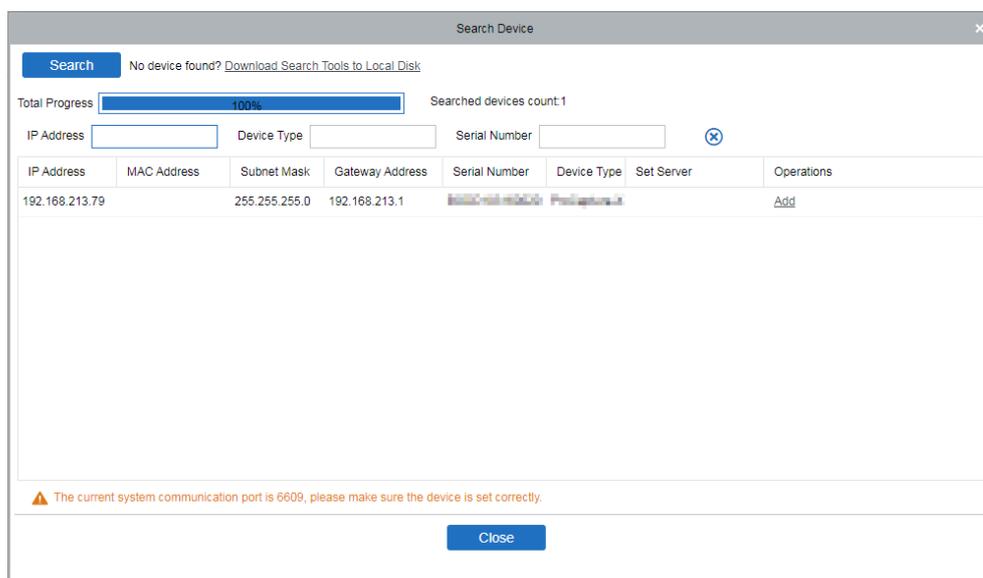
1. On the Main Menu, tap on **COMM > Ethernet** to set the Device IP address and Gateway.  
 (**Note:** The IP address should be able to communicate with the ZKBioSecurity server, preferably in the same network segment with the server address)
2. On the Main Menu interface, tap on **COMM > Cloud Server** to set the server address and server port.

**Server address:** Set the IP address of ZKBioSecurity server.

**Server port:** Set the server port of ZKBioSecurity (The default is 8088).



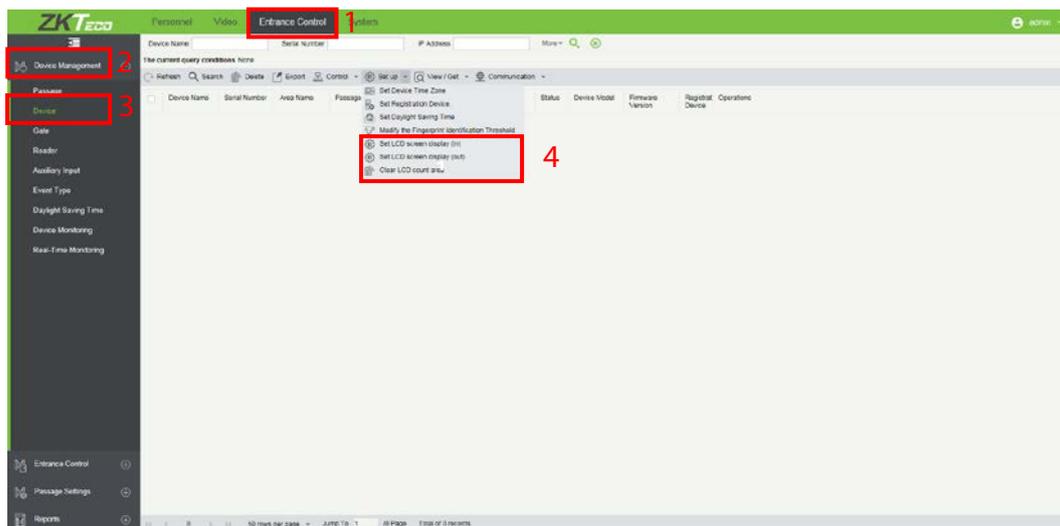
3. Login to ZKBioSecurity software.
4. Click **Access Control > Device > Search Device**, to open the Search interface.
5. Click **Search**, and it will prompt [**Searching.....**].
6. After searching, the list and total number of connected access controllers will be displayed.



## 5 LCD Screen Settings

The display of the LCD screen can be set through ZKBioSecurity software, including the import, replacement of playing videos, delete or replace the page background and icon functions, and the people counting parameters (can be cleared), etc.

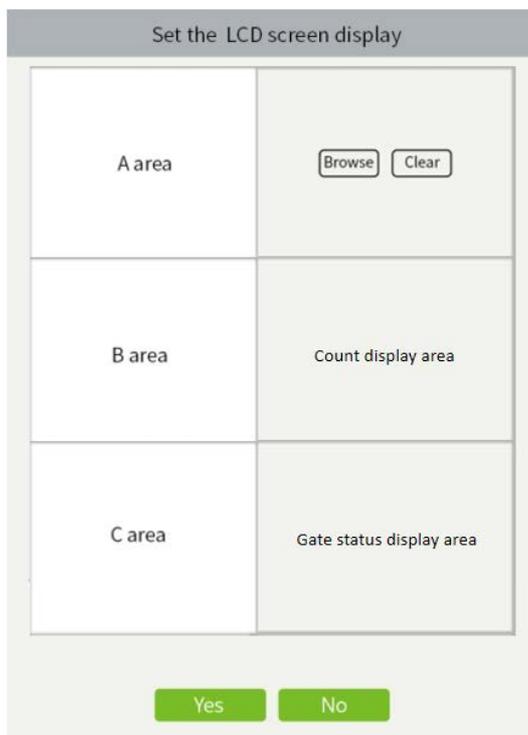




Click [Entrance Control] > [Device Management] > [Device] > [ Device Control] to set the LCD screen.

### 5.1 Set the LCD Screen Display

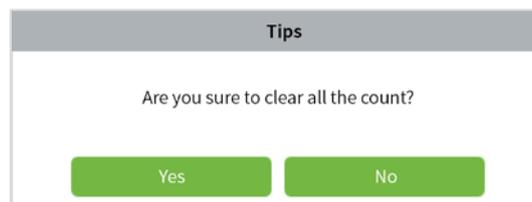
To set the LCD screen display, take the pixel 360\*1920 as a template. You can set one zone among three zones where each zone displays different content.



Zones	Description
<b>A Area</b>	It is used for setting the video display. You can browse and clear the video. It supports MP4 format (360*640 pixel), and its video area occupies 1/3 of the entire LCD screen.
<b>B Area</b>	It is used for setting the count display. The counting icon is in jpg format, and the count area occupies 2/9 of the entire LCD screen.
<b>C Area</b>	It is used for setting the gate status display. The gate status icon is in jpg format, and the gate status area occupies 4/9 of the entire LCD screen.

## 5.2 Clear all the People Counts

You can clear all the people count log and restart counting.



## 6 Maintenance

### 6.1 Chassis Maintenance

The chassis is made up of aluminum 6061. If it is used for substantial period, then there may be rust stains on its surface. Regularly sand the surface with a sandpaper carefully. Coat the surface with anti-rust oil and do not cover the infrared sensor.

### 6.2 Movement Maintenance

Switch off the power supply before maintenance. Open the door, clean surface dust, and apply lubricant for smooth movement.

### 6.3 Power Supply Maintenance

- Switch off the power supply before maintenance.
- Check the power plug connection, if found loose, fix it properly.
- Do not change any connection position randomly.
- Check the external power supply insulation periodically.
- Do periodic check for any kind of leakage.
- Check if the technical parameters of interface are normal.
- Check the service life of the electronic components and replace accordingly.

**Caution:** All of the above mentioned maintenance methods for swing barrier must be carried out by a professional technician, especially the movement and the electric control part. For ensuring operational safety, first switch off the power supply when the barrier is not in use.

## 7 Troubleshooting

No.	Failure Description	Cause and Solution
1	No response from direction indicator or indication is not correct.	<p><b>Cause:</b> It may be due to if connection of the roof lamp is not correct.</p> <p><b>Solution:</b> Check whether the connection of the roof lamp is correct or not.</p>
2	After swiping the card, there exists only swing arm action.	<p><b>Cause:</b> It may be due to if there exist any problem in the master and slave machine type setting.</p> <p><b>Solution:</b> Check the master and slave machine type setting and the 8-core, 2-core connection line.</p>
3	Delay in barrier opening or it doesn't close.	<p><b>Cause:</b> It may be due to if the time of the barrier opening is set as too long.</p> <p><b>Solution:</b> Check whether the time of the opening is too long, or the IR sensor is covered.</p>
4	Motor doesn't rotate, the resistance is much, or the bearing is loose.	<p><b>Cause:</b> It may be due to if the motor 's rotation angle is not set properly.</p> <p><b>Solution:</b> The motor works properly, but the rotated angle is not sufficient, so it may cause loosening of bearing.</p>
5	When powered ON, the swing doesn't return to the initial position.	<p><b>Cause:</b> It may be due to if any obstacle lies in the sensing area.</p> <p><b>Solution:</b> Ensure that no obstacle is in the sensing area, then restart the equipment.</p>

ZKTeco Industrial Park, No. 32, Industrial Road,

Tangxia Town, Dongguan, China.

Phone : +86 769 - 82109991

Fax : +86 755 - 89602394

[www.zkteco.com](http://www.zkteco.com)

