Swing Turnstile

User’s Manual

V1.0.0

Foreword

General

This manual introduces the functions and operations of the swing turnstile.

Safety Instructions

The following categorized signal words with defined meaning might appear in the manual.

Signal Words	Meaning
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, lower performance, or unpredictable result.
TIPS	Provides methods to help you solve a problem or save you time.
NOTE	Provides additional information as the emphasis and supplement to the text.

Revision History

Version	Revision Content	Release Time
V1.0.0	First release.	January 2020

About the Manual

- The manual is for reference only. If there is inconsistency between the manual and the actual product, the actual product shall prevail.
- We are not liable for any loss caused by the operations that do not comply with the manual.
- The manual would be updated according to the latest laws and regulations of related regions. For detailed information, see the paper manual, CD-ROM, QR code or our official website. If there is inconsistency between paper manual and the electronic version, the electronic version shall prevail.
- All the designs and software are subject to change without prior written notice. The product updates might cause some differences between the actual product and the manual. Please contact the customer service for the latest program and supplementary documentation.
- There still might be deviation in technical data, functions and operations description, or errors in print. If there is any doubt or dispute, please refer to our final explanation.
- Upgrade the reader software or try other mainstream reader software if the manual (in PDF format) cannot be opened.
- All trademarks, registered trademarks and the company names in the manual are the properties of their respective owners.

- Please visit our website, contact the supplier or customer service if there is any problem occurred when using the device.
- If there is any uncertainty or controversy, please refer to our final explanation.

Important Safeguards and Warnings

This chapter describes the contents covering proper handling of the turnstile, hazard prevention, and prevention of property damage. Read these contents carefully before using the turnstile, comply with them when using, and keep them well for future reference.

WARNING

- Expectant mother, the elderly, and children must pass the turnstile under guard.
- If children shorter than 1 meter need to pass the turnstile, they need to be scooped by adults.
- Make sure that the system protection GND is correctly connected to prevent human injury.
- Do not user the turnstile when thunder occurs; otherwise the turnstile might be damaged.

- After the installation, remove the protective film and clean the cabinet.
- Maintain the turnstile regularly to ensure that the turnstile can work normally.
- If the turnstile is installed near places like swimming pool entrance, 50 km near the seaside, construction sites, and more, the stainless cabinet must be maintained more frequently.
- Do not use painting diluent or organic agent during maintenance.

Operation Requirement

- Do not place or install the turnstile in a place exposed to sunlight or near the heat source.
- Keep the turnstile away from dampness, dust or soot.
- Keep the turnstile installed horizontally on the stable place to prevent it from falling.
- Do not drop or splash liquid onto the turnstile, and make sure that there is no object filled with liquid on the turnstile to prevent liquid from flowing into the turnstile.
- Install the turnstile in a well-ventilated place, and do not block the ventilation of the turnstile.
- Operate the turnstile within the rated range of power input and output.
- Do not dissemble the turnstile.
- Transport, use and store the turnstile under the allowed humidity and temperature conditions.

Electrical Safety

- Improper battery use might result in fire, explosion, or inflammation.
- When replacing battery, make sure that the same model is used.
- Use the recommended power cables in the region and conform to the rated power specification.
- Use the power adapter provided with the turnstile; otherwise, it might result in people injury and device damage.
- The power source shall conform to the requirement of the Safety Extra Low Voltage (SELV) standard, and supply power with rated voltage which conforms to Limited power Source requirement according to IEC60950-1. Please note that the power supply requirement is

subject to the device label.

- Connect the device (I-type structure) to the power socket with protective earthing.
- The appliance coupler is a disconnection device. When using the coupler, keep the angle for easy operation.

Table of Contents

1 Overview

1.1 Introduction

Swing turnstile controls human passages of places like railway stations, factories, tourist resorts, libraries, and more. The turnstile controls passage with a control device.

1.2 Product Descriptions

Table 1-1 Product version description

Version	Description
Card unlock	Unlock with card to enter and exit from a place; an IC card reader and a two-door controller are provided.
One-way face unlock & two-way card unlock	Unlock with face and card to enter a place, unlock with card to exit from a place; an IC card reader and a face recognition access controller are provided.
Two-way face unlock & two-way card unlock	Unlock with face and card to enter and exit from a place; an IC card reader and two face recognition access controllers are provided.

1.3 Features

- Human-machine interactive parameter configuration.
- Barriers will be closed automatically if no one entered the turnstile after the identity is verified.
- Parameters can be restored to default settings.
- The lock and unlock of barriers can be controlled by remote controller (not provided)
- The motor module is waterproof when puddles are shallower than 18 cm.
- Five types of security settings.
- When receiving fire alarm signals, the turnstile will be normally open; and the turnstile can output alarm signals.
- Mechanical anti-pinch and IR anti-pinch.
- Anti-collision: The barriers cannot be broken even if they are violently kicked.
- Nine passing modes: Pass with identity verified, not allowed to pass, and pass without restrictions, and you can use the three modes in any combination.
- Four working modes: Normally open mode, normally closed mode, emergency mode, and maintenance mode.
- Unlock and lock speed, pass duration, and lock delay duration are adjustable.
- Second unlock: If a person tries to pass the turnstile without identity verification, alarms will be triggered; if the person stays there and get the identity verified, the barriers will be unlocked.
- Continuous identity verification: If identities of several people (255 people at most) have been verified continuously, these people can pass the turnstile continuously.
- The turnstile can judge unlock directions. You can only enter or exit from a place from where you swipe the card; otherwise the barrier will be locked until the person leaves the turnstile.

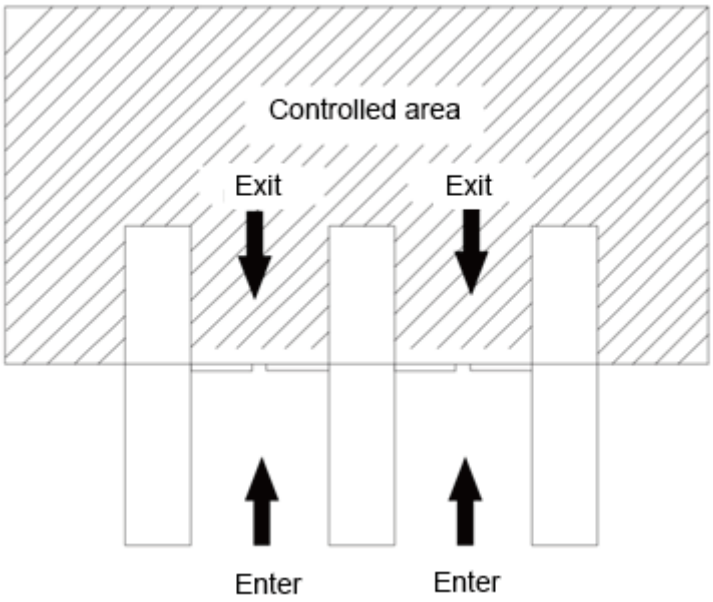
- Support intrusion alarm (entering and exiting), stay overtime alarm, trailing alarm, climbing turnstile alarm, unlock anomaly alarm, and more; when alarms are triggered, the indicator light will flash in red.

1.4 Passage Control Mode

Three Passage Control Modes

- Users can unlock and pass the turnstile after swiping cards.
- Users can pass the turnstile without identity verification (the IR sensor detects human and then unlock the turnstile).
- All users are not allowed to pass the turnstile.

Figure 1-1 Passage control mode



Nine Passing Modes

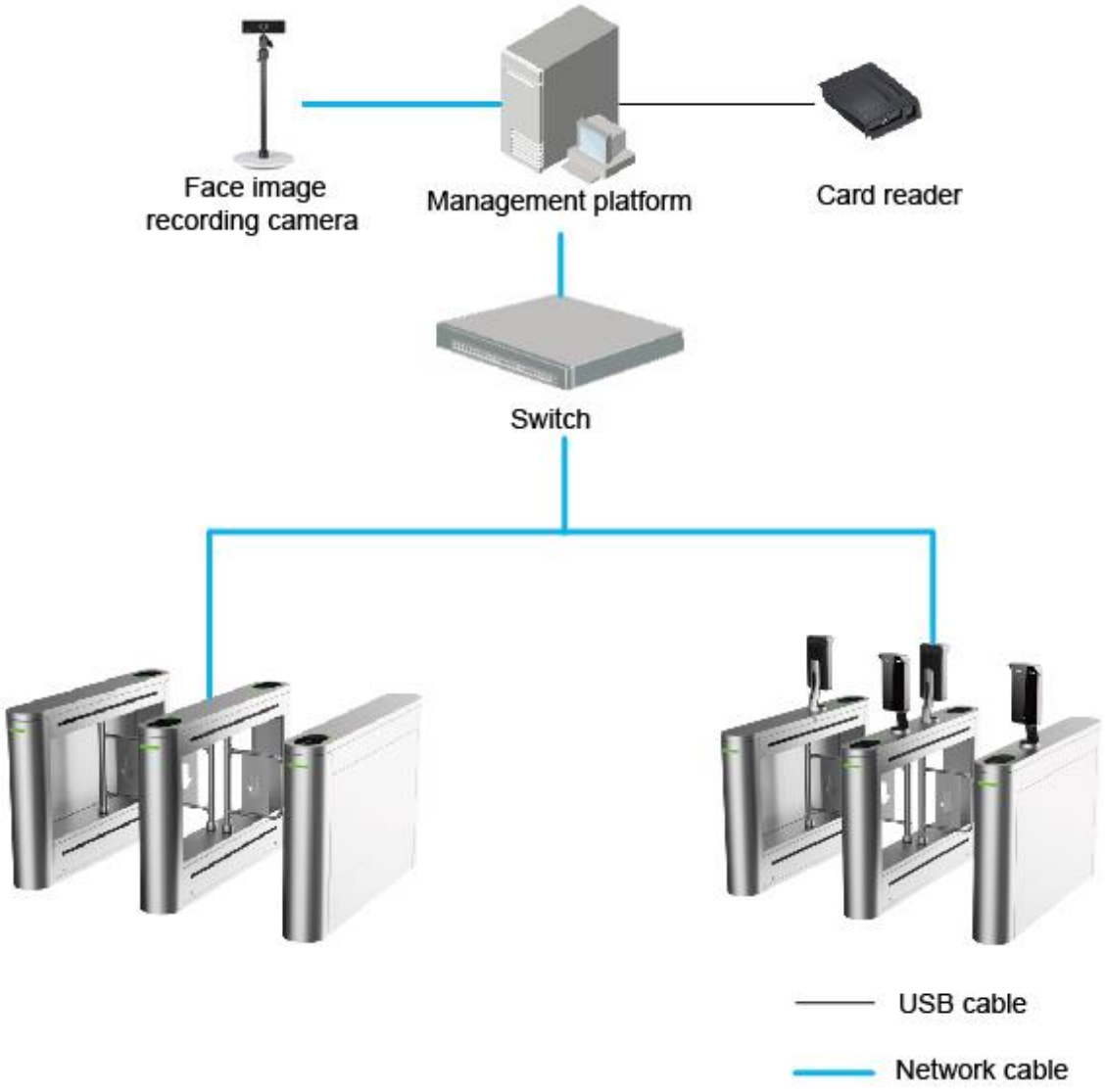
- Identity verification is needed when entering and exiting from a place.
- Identity verification is needed when entering a place; and identity verification is not needed when exiting from the place through the turnstile.
- Identity verification is needed when entering a place; and exiting from the place through the turnstile is not allowed.
- Identity verification is not needed when entering a place through the turnstile; and identity verification is needed when exiting from the place through the turnstile.
- Identity verification is not needed when entering and exiting from a place through the turnstile.
- Identity verification is not needed when entering a place through the turnstile; and exiting from the place through the turnstile is not allowed.
- Entering a place through the turnstile is not allowed; and identity verification is needed when exiting from the place.
- Entering a place through the turnstile is not allowed; and identity verification is not needed when exiting from the place.

- Entering and exiting from a place through the turnstile is not allowed.

2 Application

Information of cards and face images can be collected from turnstiles or be imported to turnstiles through network.

Figure 2-1 Application



3 Structure

3.1 Appearance

There are two types of turnstiles: one-motor module turnstiles and two-motor module turnstiles. The turnstile in the middle is one-motor module turnstile, and the others are two-motor module turnstiles.

Figure 3-1 Appearance (1)

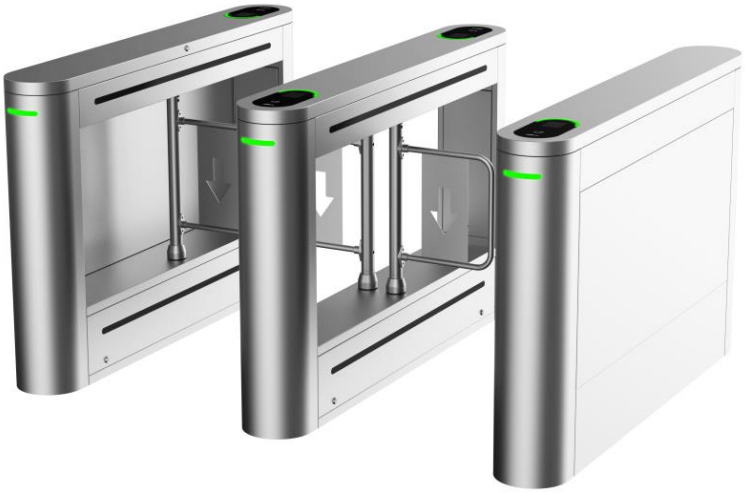
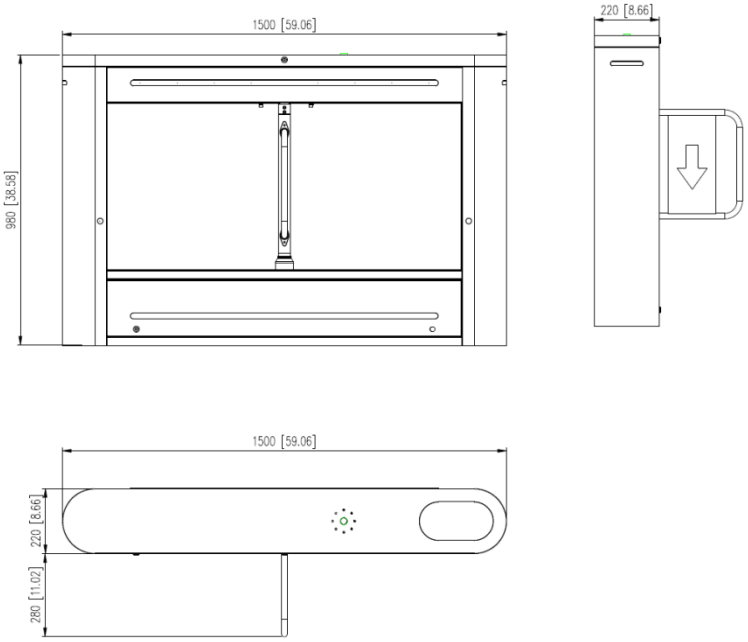


Figure 3-2 Appearance (2)

3.2 Dimensions

Figure 3-3 Dimensions (mm [inch])



3.3 Inner Components

Figure 3-4 Inner Components

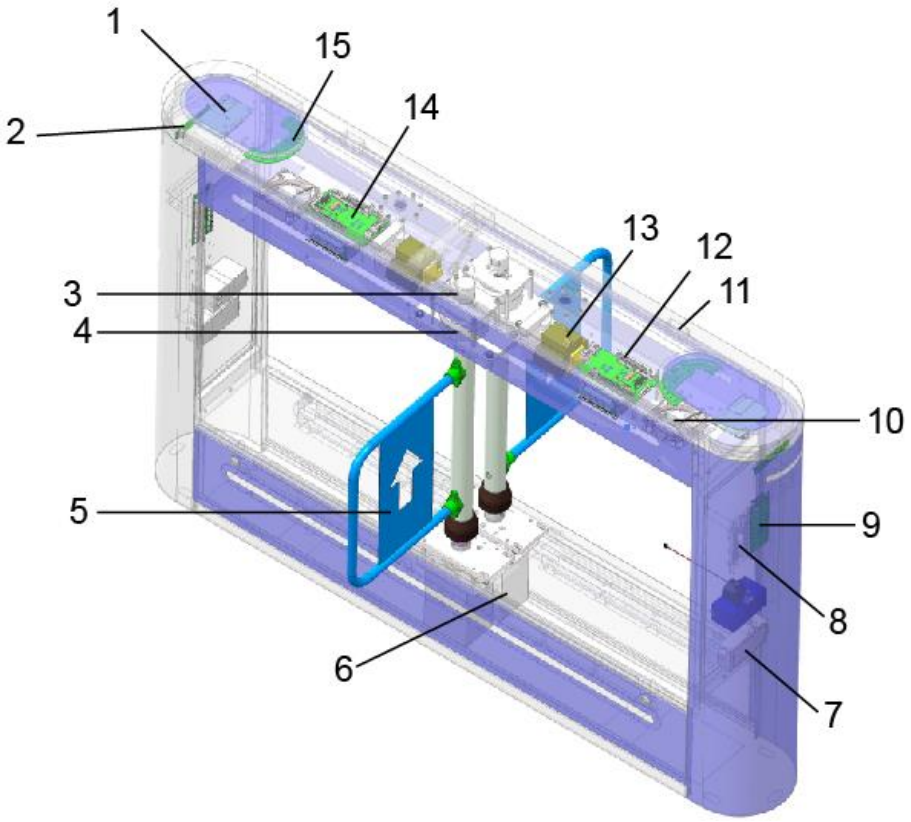


Table 3-1 Inner components description

No.	Name	Description
1	Data collection board	Reads card swiping signals.

No.	Name	Description
2	Turnstile indicator lights	Receives valid unlock signals, and then shows current status of the turnstile to guide passing of people.
3	Encoder	Encoder sends barrier angle and position signals to the turnstile control panel.
4	Clutch	Used for emergency braking of barriers.
5	Swing barrier	Locks and unlocks the turnstile.
6	Motor	Receives signals sent by the turnstile controller to control barriers.
7	Power adapter	Provides power for the access controller and data collection board.
8	Access controller	Processes card swiping signals. Once user identity is verified, the access controller will send signals to the turnstile to unlock the barrier.
9	IR status board	Connected to the IR sensor, and shows IR sensor status.
10	Fan	Ensures air circulation inside the turnstile cabinet to help heat dispassion for components.
11	IR Sensor	Detects human positions and sends human position signals to the turnstile control panel to prevent trailing and human injuries.
12	Power supply	Provides 24V DC power source for turnstile controllers.
13	Circuit breaker	If electric leakage and open circuit of electrical equipment occurs, circuit breaker will be switched automatically to disconnect the turnstile from 220V AC power.
14	Turnstile control panel	It is the turnstile control center. It receives, judges, and processes turnstile location synchronization signals and firefighting signals, and signals from access control main board, IR sensor, and encoder; and then sends orders to turnstile indicator lights, electric motors, alarm devices, and counters.
15	Passage indicator lights	Green means passage is allowed, and red means passage is not allowed.

4 Installation

4.1 Safety Instructions

WARNING

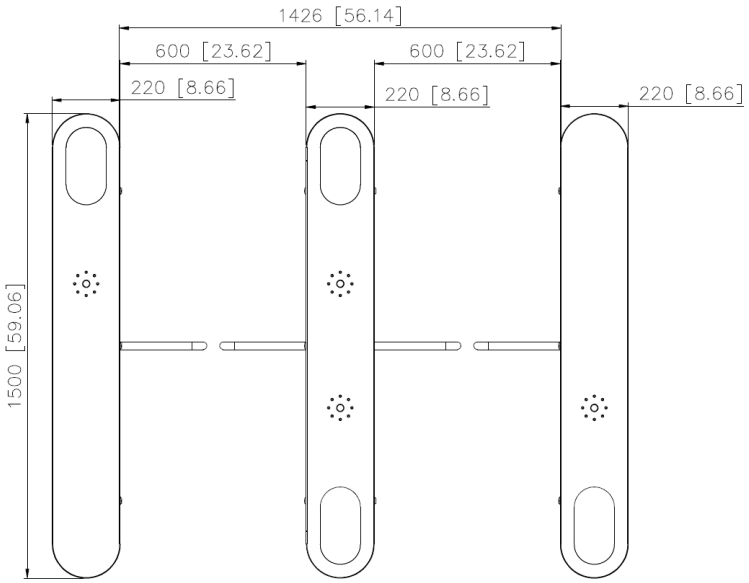
- You need to strictly confirm to requirements in the manual during installation; otherwise we shall not be responsible for any loss occurred.
- Incorrect installation and improper operation might bring damages to humans and objects.
- Security devices and control devices used must confirm to EN12978 standard.
- Before installing, wiring, and dismantling the turnstile, disconnect the turnstile from power source first.
- The turnstile consists of various mechanical and electrical devices, any neglect during installation might cause damage.
- If smoke, unpleasant odor, and strange noise come out, turn off the power, unplug the turnstile, and then contact the dealer or service center.
- Do not dismantle the turnstile cover unless necessary; otherwise human and property damage and loss might occur.

- Install the turnstile firmly.
- When connected to 220V AC power, ground cable must be correctly connected.
- Before operating the turnstile, make sure that owners and operators can all see the turnstile status.
- Humans are not allowed to stand between turnstiles to operate after the turnstile is powered on.

4.2 Before Installation

- Make sure that the ground where the turnstile is installed is flat.
- Build a concrete base (above 100 mm high) when the turnstile needs to be installed at places with high humidity or are easily water-logged. Apply silicone sealant to gaps between the ground and turnstile to prevent water and condensation.
- Make sure that the PVC pipe is buried more than 150 mm under the ground. Bend the PVC pipe end that get out of the ground to prevent water leakage. Keep the ground where the turnstile is installed dry.

Figure 4-1 Installation drawings (mm [inch])



4.2.1 Tools

Tools might vary according to installation surfaces.

- Cement ground
  Percussion drill, drill No. 16, marking pen, tape measure, levelling instrument, hammer, wrench, angle grinder, cutting machine, and screw driver.
- Marble and ceramic ground
  Due to fragileness of marble and ceramic ground, use pistol drill to drill holes on marble and ceramic ground, and then use percussion drill to make the holes deeper.

4.2.2 Cable Connection

- Before laying cables, check if cable labels are clear; otherwise, label cables.
- Make sure that AC power cable, communicating cable, and signal cable are separate (power cables with higher frequency, greater power and current and those with lower frequency, less power and current must not be placed in the same PVC pipe).
- Bury the PVC pipes deeper than 150 mm. The length of PVC pipe that on the ground should be longer than 50 mm.
- Thread PVC pipes through cable entry on the installation base.

Figure 4-2 PVC pipe layout (mm)

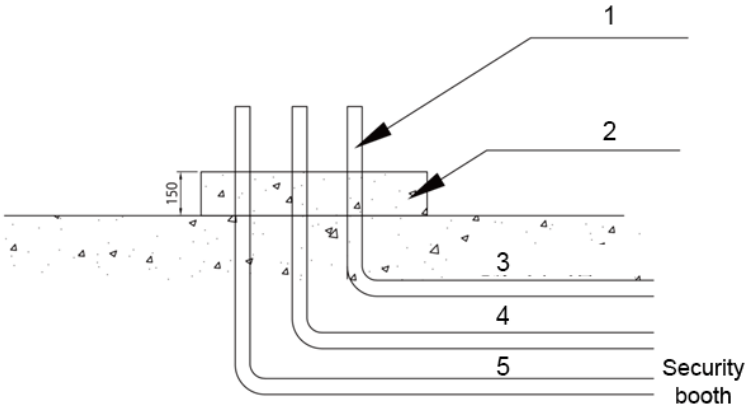


Table 4-1 PVC pipe layout description

No.	Name
1	3/4″PVC pipe
2	425# cement base
3	Power cable pipe
4	Signal cable pipe
5	Communication cable pipe

Figure 4-3 One-way card unlock and one-way face unlock cable connection

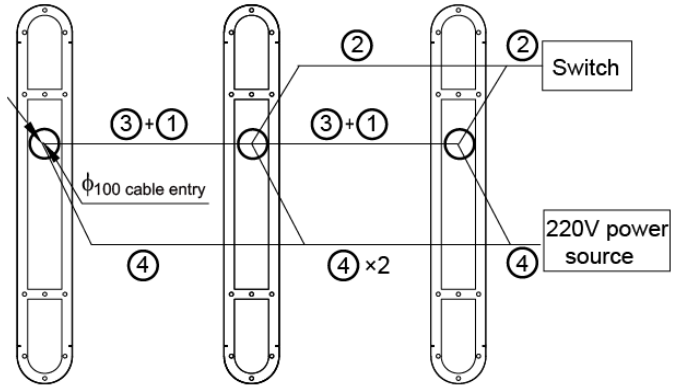


Figure 4-4 Two-way face unlock cable connection

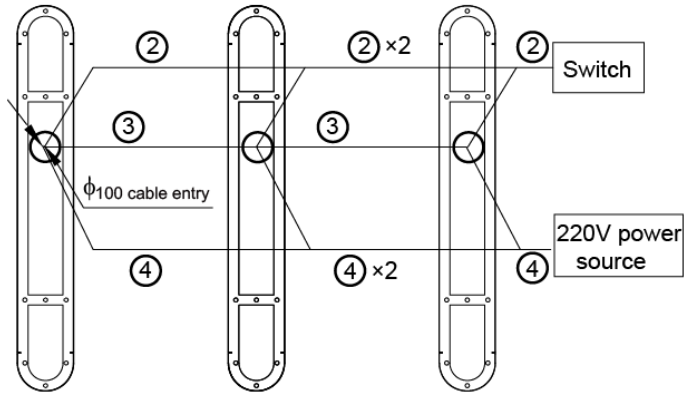


Table 4-2 Cable connection

Cable number	Cable type	Description
①	Card reader cable	● Card unlock turnstile. Connect 1 2-core cable for the turnstile on the right and the one in the middle respectively. Make sure that the cable outside the cable entry is 3 meters long. ● One-way face unlock turnstile. Connect 1 3-core cable for the turnstile on the right and the one in the middle. Make sure that the cable outside the cable entry is 3 meters long. ● Two-way face unlock does not need card reader cables. Card reader cables are provided.
②	Network cable (CAT5)	● Card unlock turnstile. Connect 1 network cable for the turnstile on the right and the one in the middle respectively. Make sure that the cable outside the cable entry is 3 meters long. ● One-way face unlock turnstile. Connect 1 network cable for the turnstile on the right and the one in the middle respectively. Make sure that the cable outside the cable entry is 3 meters long. ● Two-way face unlock turnstile. Connect 1 network cable for the turnstiles on the left and right respectively, and connect two network cables for the turnstile in the middle. Make sure that the cable outside the cable entry is 3 meters long.
③	Turnstile synchronization cable (CAN)	Connect the three turnstiles with 1 2-core CNA cables. Make sure that the cable outside the cable entry is 2 meters long. The synchronization cable is provided.
④	Power cable	Connect 1 network cable for the turnstiles on the left and right respectively, and connect two network cables for the turnstile in the middle. Make sure that the cable outside the cable entry is 3 meters long.

4.2.3 Cable Layout Diagram

For recommended cable layout, see Figure 4-5. If you lay cables incorrectly like Figure 4-6 does, the turnstile might not be firmly installed and cables might be broken when hammering expansion screws.

Figure 4-5 Recommended cable layout (mm [inch])

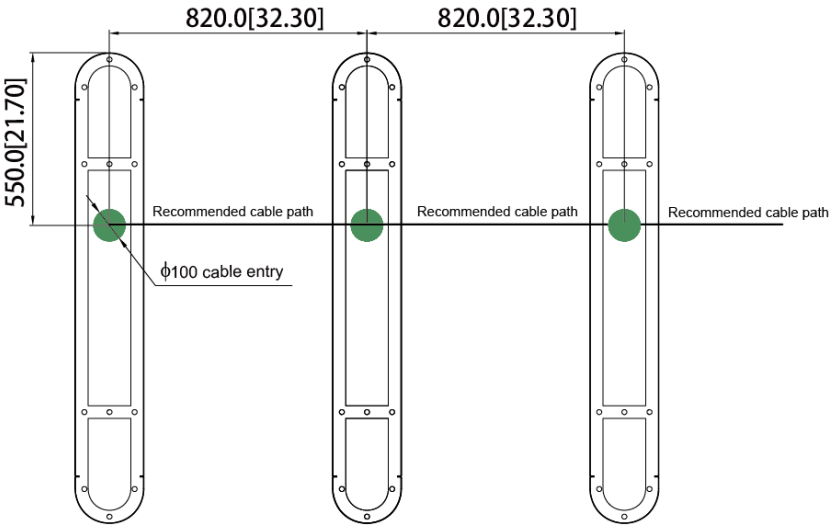
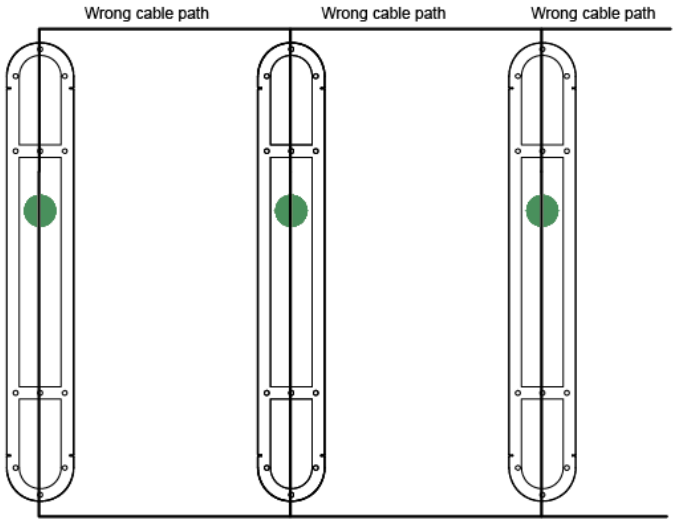


Figure 4-6 Wrong cable layout



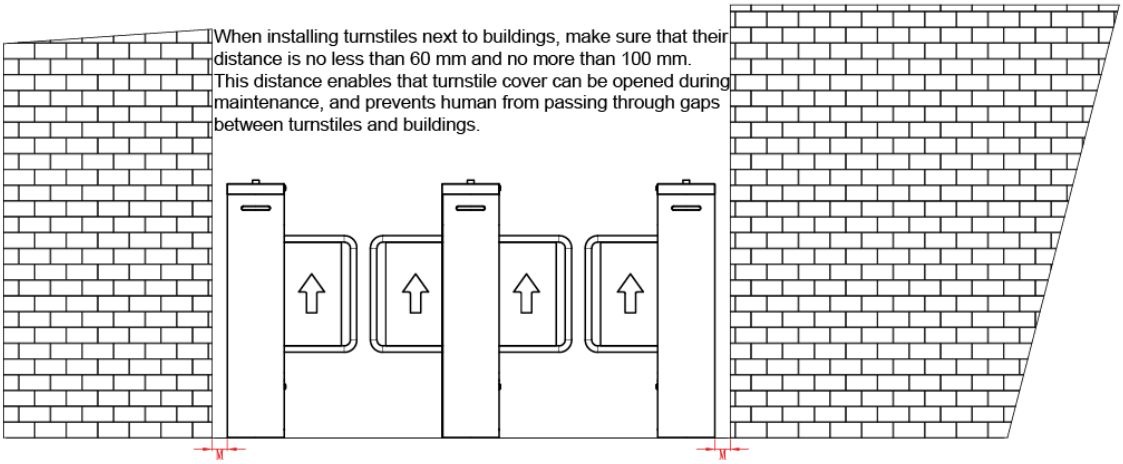
4.3 Installation Procedure

4.3.1 Drilling Holes

Before installing turnstiles next to buildings, leave some space between the turnstiles and buildings.

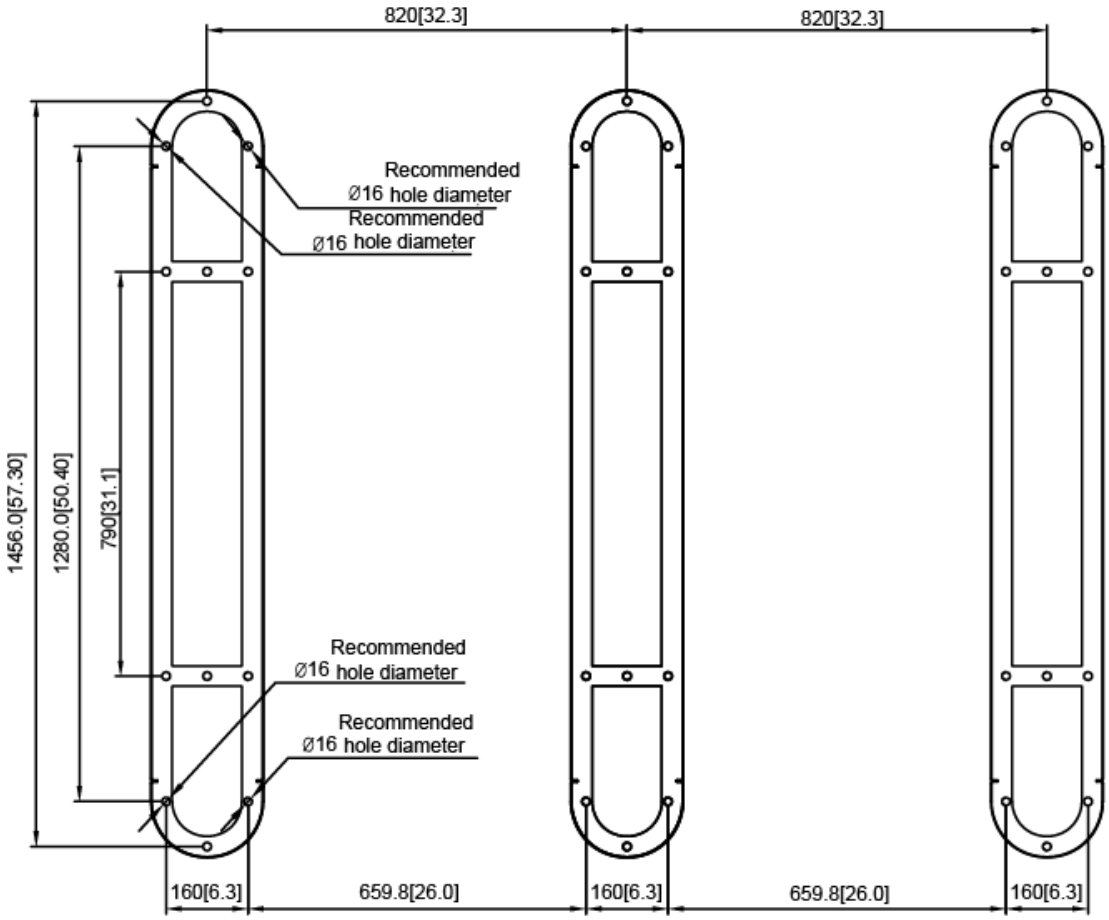
- Arrows on the inner cover of the turnstile must point to the same direction.
- When installing turnstiles next to buildings, make sure that their distance is no less than 60 mm and no more than 100 mm. This distance enables that turnstile cover can be opened during maintenance, and prevents human from passing through gaps between turnstiles and buildings.

Figure 4-7 Install turnstiles next to buildings



Step 1 Draw four turnstile installation holes. See Figure 4-8.

Figure 4-8 Hole drilling diagram(mm [inch])



Step 2 Drill holes in the installation surface (like cement). For hole diameters, hole depth, and anchor bolt diameters, see Table 4-3.

Table 4-3 Anchor bolt specification

Parameter	Dimensions
Anchor bolt specification	M12×120
Hole depth (mm)	95
Hole diameter (mm)	16

Step 3 Compress air to remove dust in the holes.

Step 4 Hammer the anchor bolt into the hole bottom.

Step 5 Tighten the nut of the anchor bolt with the wrench, and then hammer the bolt again.

4.3.2 Adjusting Turnstile Position

Step 1 Unlock the turnstile cabinet doors with keys.

Figure 4-9 Turnstile cabinet doors

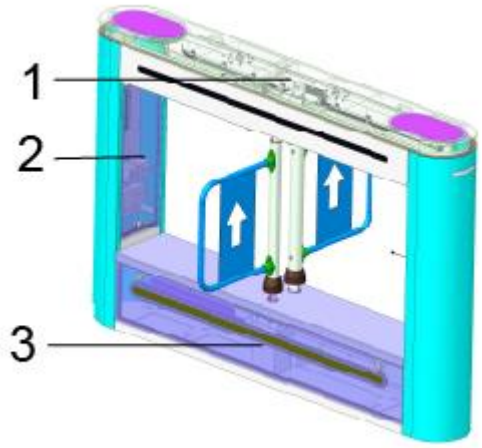
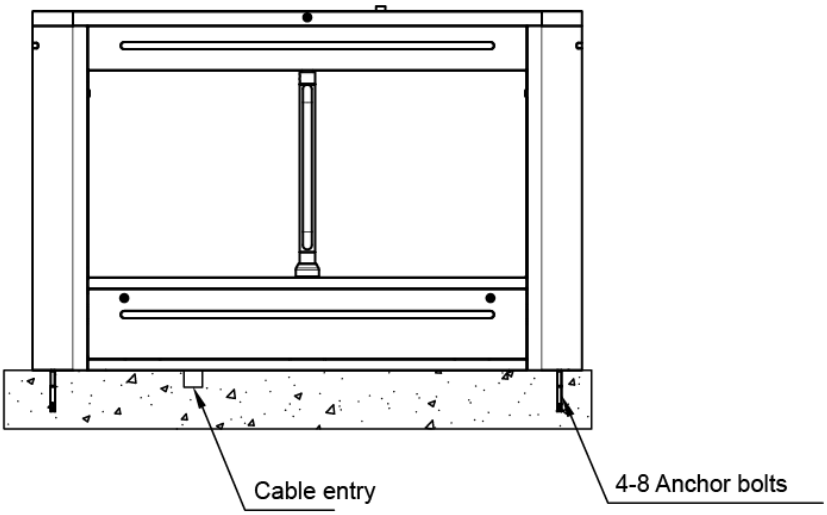


Table 4-4 Turnstile cabinet doors

No.	Name
1	Top door
2	Side door
3	Bottom door

Step 2 Thread cables through the turnstile cable entry, and keep them organized to avoid cable broken.

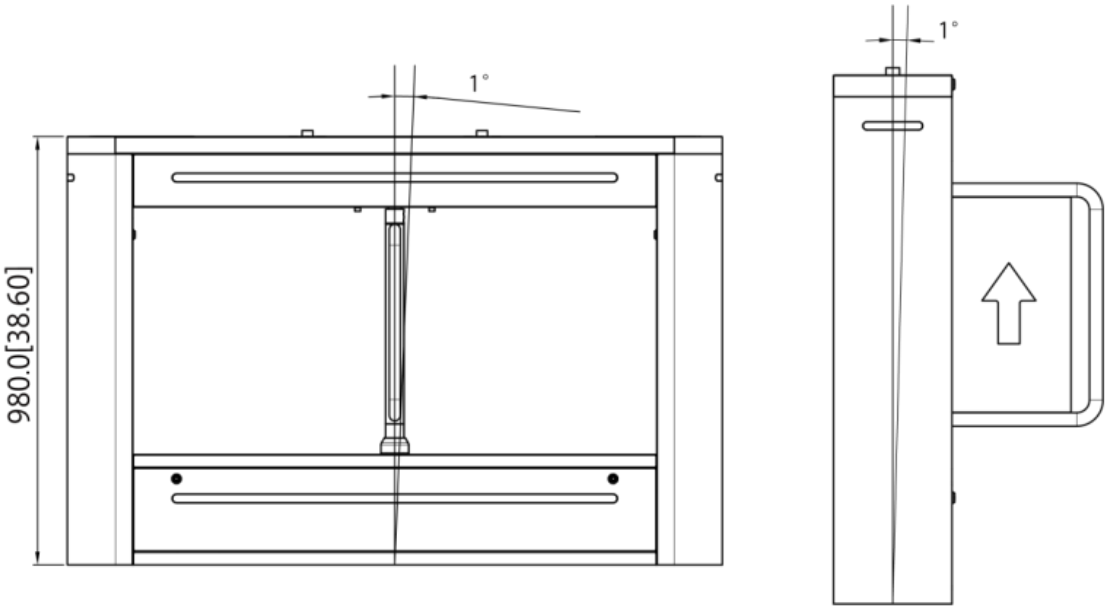
Figure 4-10 Cable entry



Step 3 Lift the turnstile, adjust its position, make the holes in the turnstile overlap with the anchor bolt, and then place the turnstile on the ground.

Step 4 Use a gradienter to measure angles of inclination of the ground where the turnstile is installed. For appropriate flatness tolerance, see Figure 4-11.

Figure 4-11 Ground flatness tolerance (mm[inch])



Step 5 Repeat Step 1–Step 4 to install other turnstiles.

Arrows on the inner cover of the turnstile must point to the same direction.

Make sure that height difference and parallelity difference of turnstiles are within the appropriate range. See Figure 4-12 and Figure 4-13.

Figure 4-12 Height difference (mm[inch])

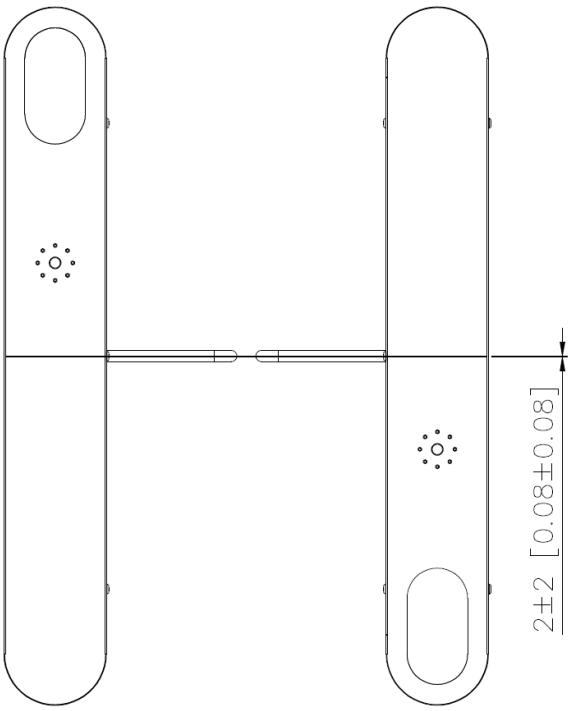
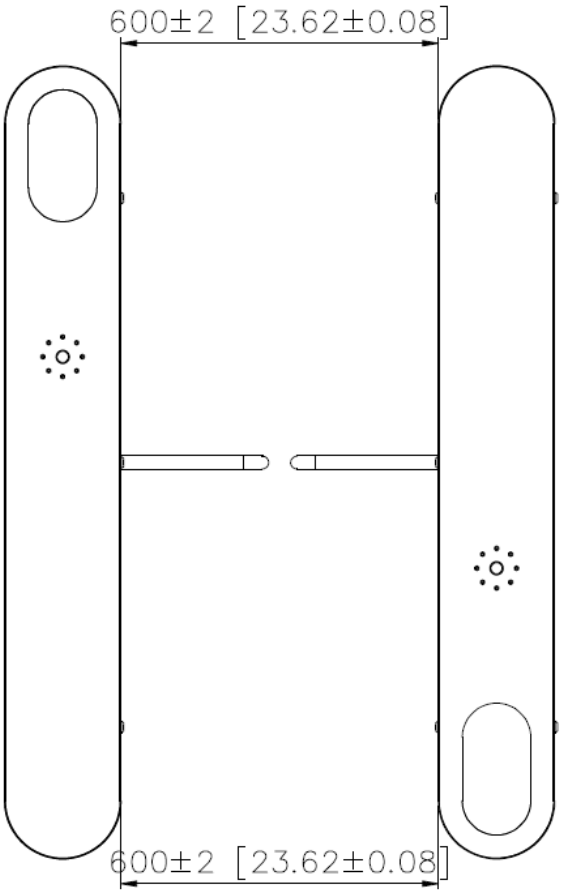


Figure 4-13 Parallelity difference (mm[inch])



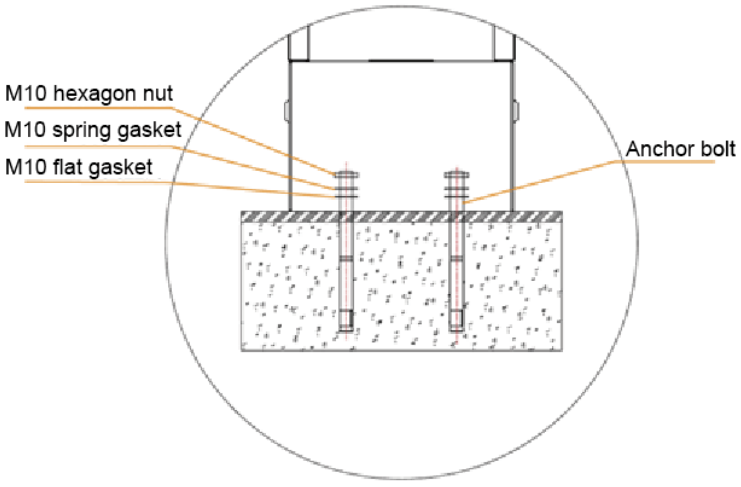
4.3.3 Fixing Turnstiles

Step 1 After adjustment, put M10 surface gasket, M10 spring gasket, and M10 nut on the anchor bolt, and then tighten the nut manually. See Figure 4-14.

Step 2 Tighten all nuts with the wrench.

Step 3 Apply silicone sealant to gaps between the turnstile and the ground to avoid water leakage.

Figure 4-14 Fixing turnstiles



5 Cable Connection

5.1 Turnstile Control Panel Port Description

Figure 5-1 Turnstile control panel port

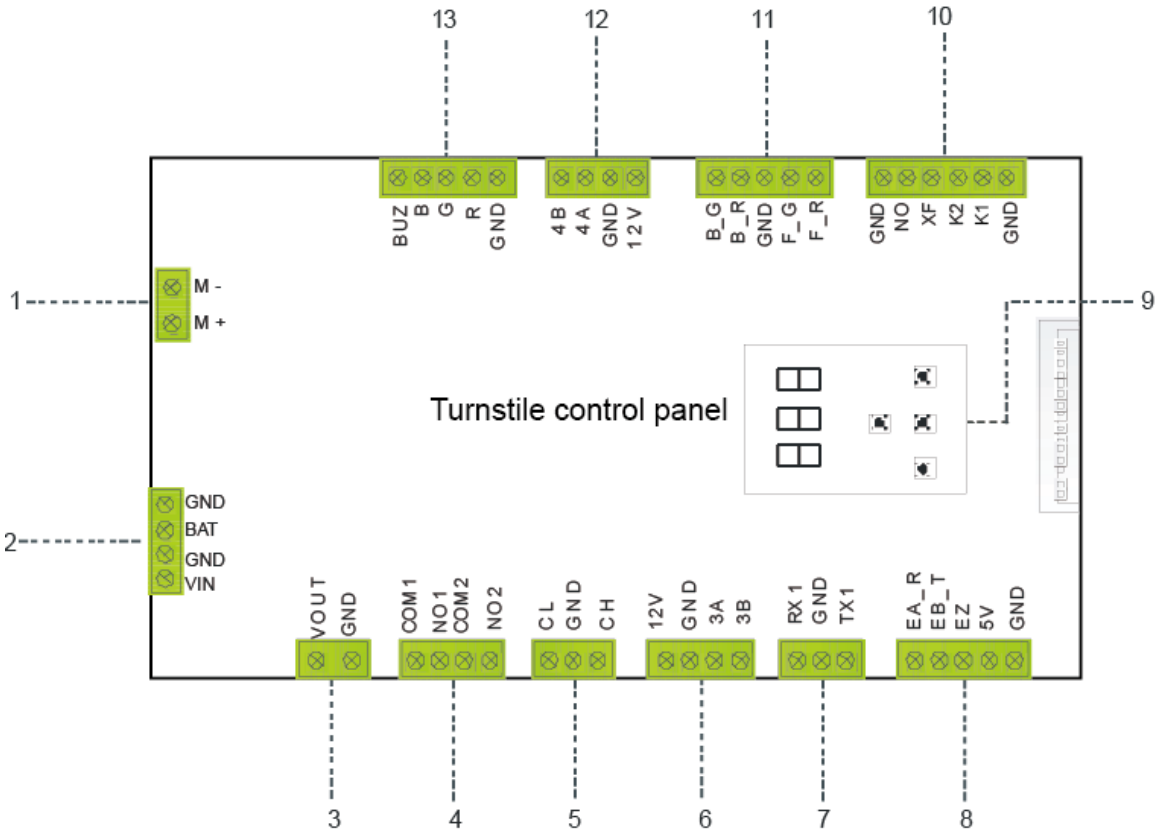


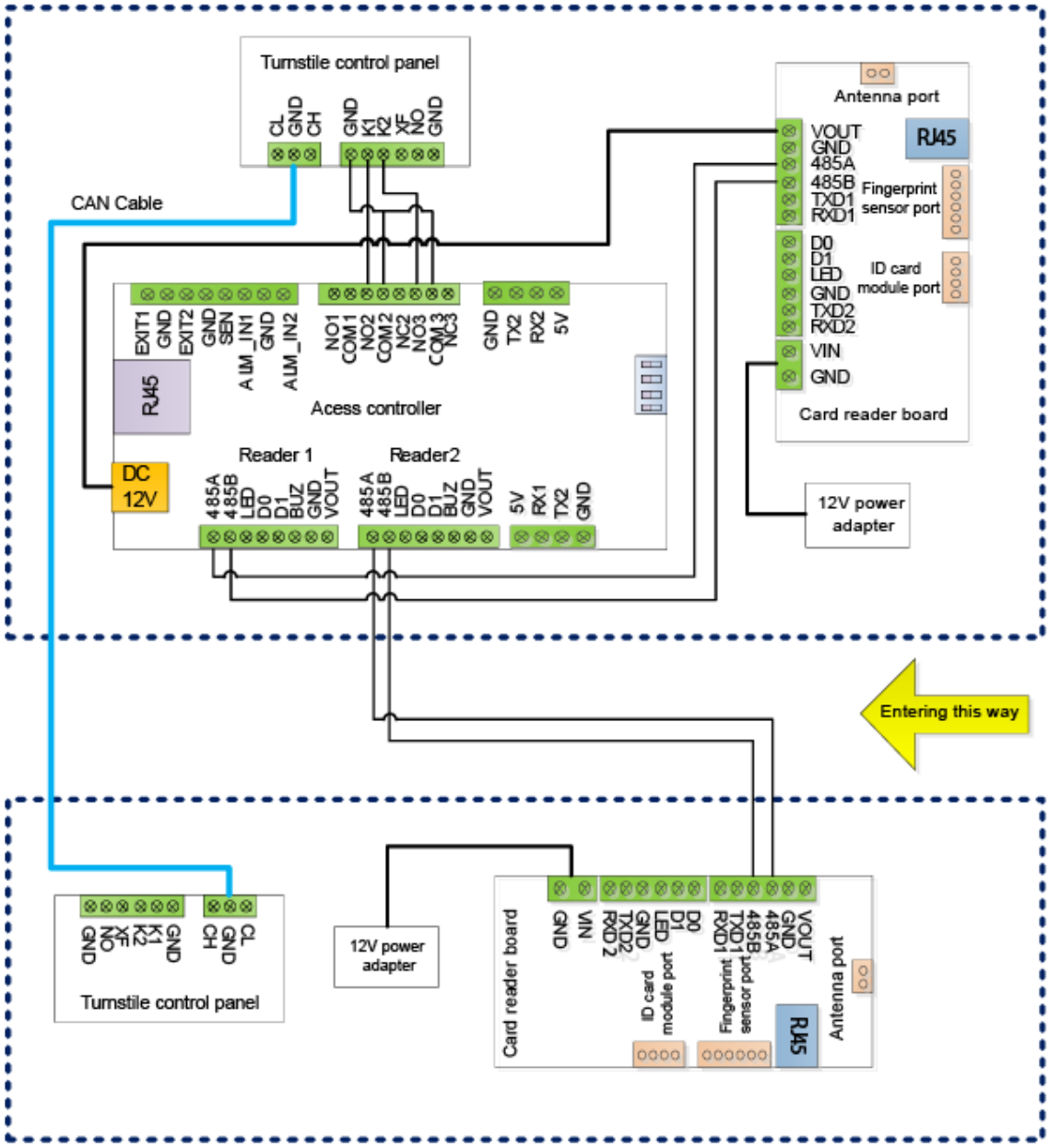
Table 5-1 Turnstile control panel port description

Port No.	Description
1	Connected to positive polarity and negative polarity of the motor.
2	● GND, +24V: Inputs 24V/4.5A DC power source for the control panel. ● GND, BAT: Connected to storage batteries; when AC power is disconnected, storage batteries start to work.
3	GND, MG1: Clutch port.
4	COM1/NO1 receives entering signals and COM2/NO2 receives exiting signals. The two relays can be configured to output alarm signals or population volume signals.
5	Connect two swaying barriers with synchronization cable to synchronize their movements.
6	Preserved.
7	Preserved.
8	● GND, 5V: Ground port of the power supply and 5V power input port. ● EA_R, EB_T, EZ: Encoder port.
9	Display module, for turnstile local configuration.

Port No.	Description
10	● K2, GND: Receives exiting unlock signals from turnstile control panel or face recognition terminals. ● K1, GND: Receives entering unlock signals from turnstile control panel or face recognition terminals. ● NO: Input port of signals from the normally open button. The barriers keep unlocked until the normally open signal disappears (if the normally open permission is restricted, you need to swipe cards; otherwise if you pass the turnstile, alarms will be triggered). ● XF: Firefighting signal input port. The barriers will keep unlocked until firefighting signals disappear.
11	F_R, F_G, GND: Connected to turnstile indicator lights at the entering direction. B_R, B_G, GND: Connected to turnstile indicator lights at the exiting direction. The GND is a shared one.
12	● GND, 12V: Ground port of the power supply and 5V power input port. ● A4, 4B: Encoder port.
13	GND, R, G, B, BUZ: Connected to turnstile indicator lights and buzzer.

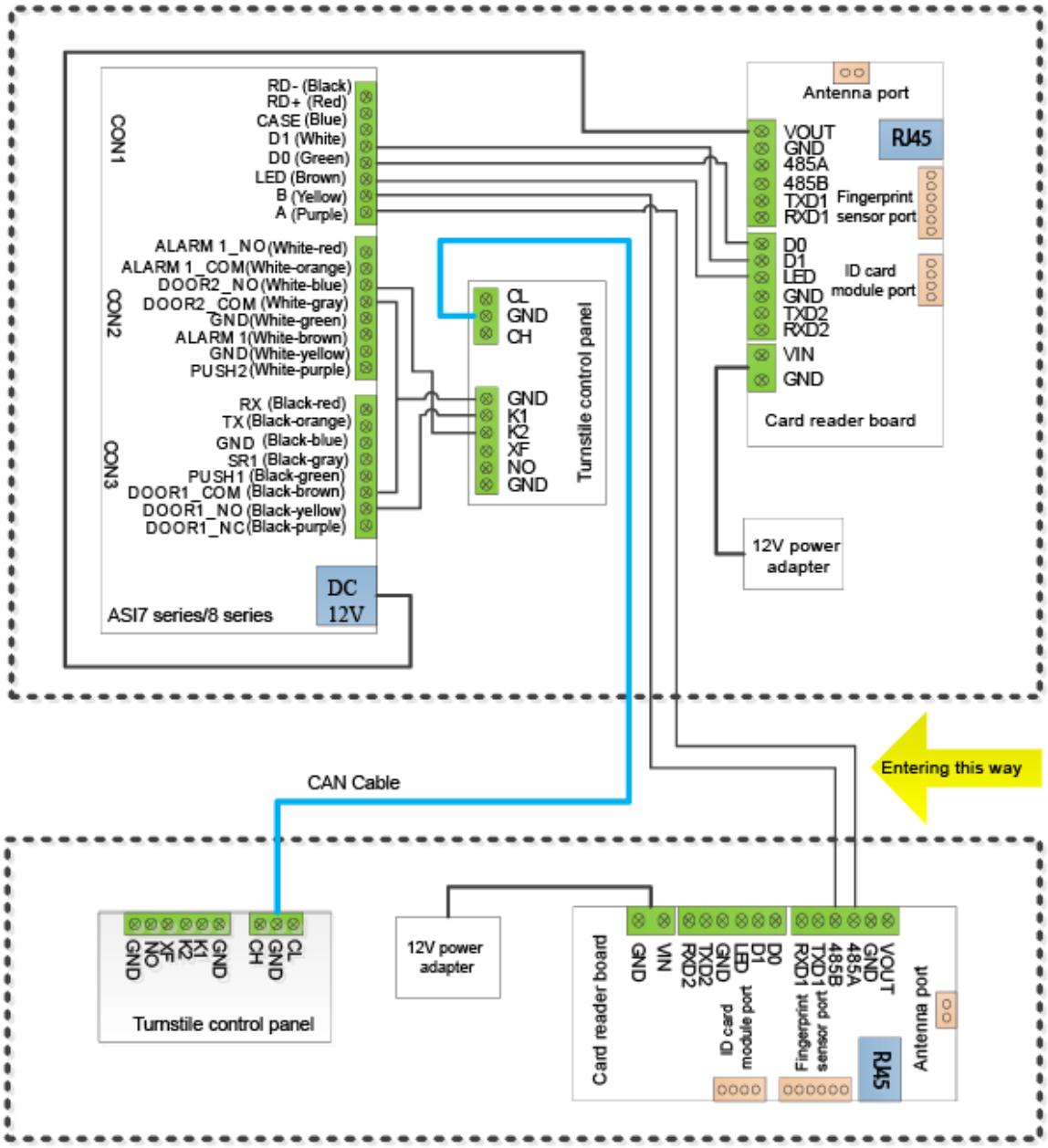
5.2 Access Controller (Two-Way Card Unlock)

Figure 5-2 Access controller (two-way card unlock) cable connection



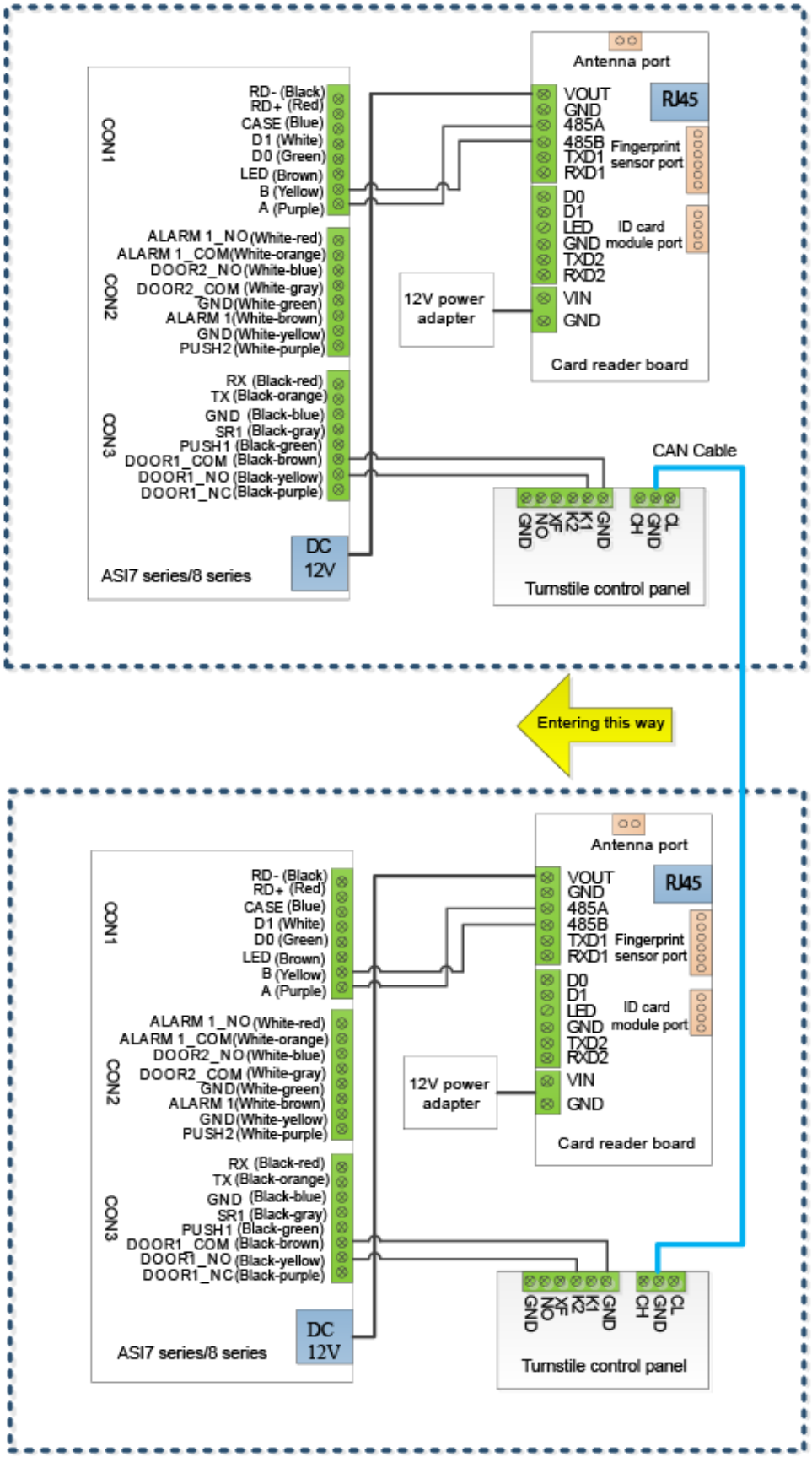
5.3 Face Recognition Terminal of ASI7/8 Series (One-way Face Unlock & Two-way Card Unlock)

Figure 5-3 Face recognition terminal of ASI7/8 series cable connection (1)



5.4 Face Recognition Terminal of ASI7/8 Series (Two-way Face Unlock & Two-way Card Unlock)

Figure 5-4 Face recognition terminal of ASI7/8 series cable connection (2)



6 Configuration and Commissioning

Parameters can be configured through the three-digit numeric display and four buttons on the turnstile. Parameters configured on each turnstile can be synchronized (except barrier origin).

6.1 Numeric Display Operation

Figure 6-1 Numeric display and buttons

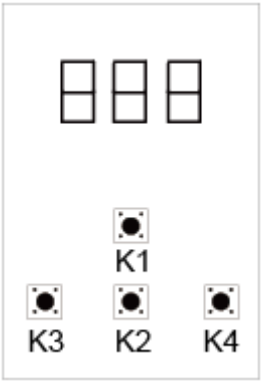


Table 6-1 Button description

Button Name	Description
K1: Minus	Press the button to decrease numbers.
K2: Plus	Press the button to increase numbers.
K3: Exit	Press the button to exit the menu. If you did not press the **Menu** button to confirm the configuration, the parameter configured will not be saved.
K4: Menu	Press the button to enter the menu and press the button to confirm parameters. When no operations has been done to the numeric display, "---" will be displayed. When "---" is displayed, the buttons cannot be operated.

After entering the menu, press the **Plus** or **Minus** button to select a function code, and then press **Menu** to configure numbers for each digit.

6.1.1 Function Code and Function

Table 6-2 Function code and function

Function Code	Function
F00	Working mode
F01	Passage control mode
F02	Passing duration
F03	Lock delay
F04	Security level
F05	Second unlock

Function Code	Function
F06	Continuous identity verification
F07	Unlock and lock speed
F08	Preserved
F09	Preserved
F10	Origin adjustment
F11	Anti-collision mode
F12	Restored to default settings
F13	Passage width

6.1.2 Working Mode

The turnstile supports four working modes: Normally open mode, normally closed mode, emergency mode, and maintenance mode.

- Normally open mode

When there will be a great number of people passing the turnstile in a certain period, you can select normally open mode.

- Normally closed mode

When normally closed mode is selected, the turnstile cannot be unlocked by anyone.

- Emergency mode

When the turnstile receives firefighting signals, emergency mode will be automatically selected, and the barrier will be unlocked. The turnstile will return to normal working mode until no firefighting signals are received.

When emergency mode is enabled, other control instructions will not be influenced; when emergency mode is disabled, the turnstile will work normally.

- Maintenance mode

The turnstile goes to maintenance mode automatically after the power is disconnected. In the maintenance mode, people can push the barrier manually.

Table 6-3 Working mode setting

Code	Working mode
001	Normally closed mode (default)
002	Normally open mode

6.1.3 Passage Control Mode

Table 6-4 Passage control mode setting

Code	Passage control mode
001	Identity verification is needed when entering and exiting from a place (default mode).
002	Identity verification is needed when entering a place, and identity verification is not needed when exiting from the place.

Code	Passage control mode
003	Identity verification is needed when entering a place, and exiting from the place is not allowed.
004	Identity verification is not needed when entering a place, and identity verification is needed when exiting from the place.
005	Identity verification is not needed when entering and exiting a place.
006	Identity verification is not needed when entering a place, and exiting from the place is not allowed.
007	Entering a place is not allowed, and identity verification is needed when exiting from the place.
008	Entering a place is not allowed, and identity verification is not needed when exiting from the place.
009	Entering and exiting from a place are not allowed.

6.1.4 Passing Duration Settings

Passing duration is the maximum duration allowed for passengers to pass the turnstile after identity verification. Passengers need to pass the turnstile within the passing duration; otherwise the stay overtime alarm will be triggered.

Table 6-5 Passing duration settings

Code	Passing Duration
001	2s
002	5s
003	10s (default)
004	15s
005	20s
006	30s
007	45s
008	60s

6.1.5 Lock Delay Settings

Lock barriers a certain period later than the passing duration.

Table 6-6 Lock delay settings

Code	Lock delay duration
001	0s (default)
002	1s
003	3s
004	5s
005	8s
006	15s
007	30s
008	60s

6.1.6 Security Level Settings

- Level 1: Trailing others and exiting through the turnstile when others are entering are allowed and sound and light alarm will not be triggered. The barrier will not be locked in both normally open mode and normally closed mode.
- Level 2: Trailing and exiting through the turnstile when others are entering are not allowed and sound and light alarm will be triggered. The barrier will not be locked in both normally open mode and normally closed mode.
- Level 3: Trailing and exiting through the turnstile when others are entering are not allowed.
  - ◇ When visitors with permission have passed the turnstile, sound and light alarm will be triggered before trailing people and people try to take the chance to exit through the turnstile entered the anti-pinch area (IR sensor can detect humans before they enter the anti-pinch area). The barriers will be locked in both normally open mode and normally closed mode.
  - ◇ When visitors with permission and people try to take the chance to exit through the turnstile have not entered the anti-pinch area, the barrier will be locked.
  - ◇ When trailing people and people try to take the chance to exit through the turnstile entered the anti-pinch area, sound and light alarm will be triggered. The barrier will not be locked in both normally open mode and normally closed mode. The barriers will be locked after trailing people and people try to take the chance to exit through the turnstile have passed the turnstile.
- Level 4: Trailing others and exiting through the turnstile when other people are entering a place are not allowed. When visitors with permission have passed the turnstile, sound and light alarm will be triggered wherever the trailing people and people try to take the chance to exit through the turnstile are. The barrier will be locked in both normally open mode and normally closed mode.
- Level 5: Trailing others and exiting through the turnstile when other people are entering a place are not allowed. Sound and light alarm will be triggered wherever the trailing people and people try to take the chance to exit through the turnstile are. The barrier will be locked in both normally open mode and normally closed mode.

Table 6-7 Security level settings

Code	Security level
001	Level 1
002	Level 2 (default)
003	Level 3
004	Level 4
005	Level 5

- When "002" is selected for F13, only Level 1 and Level 2 are supported. Other security levels are invalid.
- Intrusion alarm, stay overtime alarm, unlock anomaly alarm, and climbing turnstile alarm are independent of security levels. That means, intrusion alarm, stay overtime alarm, unlock anomaly alarm, and climbing turnstile alarm are not subject to security levels

6.1.7 Second Unlock Settings

After people entered the passing area and triggered alarms, they do not need to step backwards and can get their identity verified directly.

Table 6-8 Second unlock settings

Code	Second unlock on/off
001	On (default)
002	Off

6.1.8 Memory Mode Settings

After swiping card once, more than one person can pass the turnstile.

Table 6-9 Memory mode settings

Code	Memory mode on/off
001	Off (default)
002	On

- If several people are permitted to pass the turnstile, and one of them did not start to pass the turnstile in 5 seconds, or the one did not pass the turnstile within specified duration and stay overtime between the turnstiles, the swing barriers will be locked. At this time, you need to swipe cards several times to allow several people pass the turnstile continuously.
- In the memory mode, if card swiping interval exceeds single person passing duration, the memory function will not be triggered.
- The interval between two identity verifications must be longer than the unlock duration of the access controller or the face recognition access controller; otherwise, only one identity verification will be counted. The recommended identity verification is 2 s to 5 s.
- In the memory mode, at most 255 people can pass the turnstile continuously.

6.1.9 Unlock and Lock Speed Settings

Table 6-10 Unlock and lock speed settings

Code	Speed
001	The slowest
002	–
003	–
004	–
005	–
006	(Default)
007	–
008	The fastest

The speed increases from 001 to 008.

6.1.10 Original Position Settings

The turnstile supports three types of operating mode: Normal mode, original position adjustment mode, and test mode.

Table 6-11 Mode setting

Code	Mode
001	Normal mode
002	Original position adjustment mode
003	Test mode Test mode is indented for developers, and non-developers are prohibited to use this mode.

Before leaving factories, original positions of barriers have been set. On some occasions, barrier positions need to be adjusted. Original positions of barriers need to be set separately.

Step 1 Switch the function code to F10, set "002" as the code, and then press Menu to go to the setting interface.

Step 2 "---" is flashing on the numeric display, push the barrier to the position where the barrier is vertical to the turnstile, press the Menu button, the barrier will start to swing automatically, the barrier returns to the origin, and then F10 is displayed on the numeric display, the origin adjustment of barrier is completed.

6.1.11 Anti-Collision Settings

When unauthorized people try to hit the barrier to pass the turnstile, the clutch will be locked automatically to stop unauthorized people. If barriers are hit to places away from the original position, duration for the barrier to return to the origin can be set.

Table 6-12 Anti-collision settings

Code	Returning to origin duration
001	2 seconds (default)
002	5 seconds

6.1.12 Restoring Turnstiles to Default Settings

Turnstile parameters can be restored to default settings, and parameters of each turnstiles can be synchronized.

Table 6-13 Restoring to default settings

Code	Whether to restore turnstiles to default settings.
001	No (default)
002	Yes

6.1.13 Passage Width Settings

Passage width range is 600 mm–1100 mm. You need to adjust the width according to barrier length. For passenger safety, if the passage width is ≥ 900 mm, security level cannot be set.

Great torque is needed for wide passage, as a result, the quicker the unlock speed is, the greater influence there will be on the motor module. The default unlock speed is recommended.

Table 6-14 Passage width settings

Code	Passage width
001	Narrow passage (default)
002	Wide passage (≥ 900 mm and ≤ 1100 mm)

6.2 Power-On Test

All turnstiles must be connected to power source.

- Check whether all components of the turnstile work normally. The turnstile has been tested but the component connection might still be slightly different.
- Check whether there is loose cable connection.
- Check whether the synchronization cable is connected, and make sure that control panel cable connections of the turnstile in the middle are correct.
- To make each turnstile be installed at correct positions, you need to cover the IR sensors on purpose. If the buzzer beeps and power-on self-test error code "E01" is displayed on the numeric display, it means that the turnstiles are installed correctly.
- After you have confirmed that you have installed turnstiles at correct positions, disconnect the turnstiles from power source and then restart the turnstiles. After the restart, the power-on self-test starts. During the power-on self-test, the swing barriers will move. After the swing barrier movement, if the buzzer does not beep, the power-on self-test succeeds.
- Set passage control mode for the turnstile: Identity verification is not needed when entering and exiting from a place. Observe barrier movements and positions when unlocking and lock the turnstile.
- After registering cards and assigning face unlock permissions, you can set passage control mode as identity verification is needed when entering and exiting from a place."

6.3 Power-On Self-Test

Each time the turnstile is disconnected from power source and connected to power again, the turnstile will do power-on self-test. After the power-on self-test, the turnstile will go to normal working status. If the power-on self-test failed, the buzzer beeps and the power-on self-test error code will be displayed on the numeric display.

- During power-on self-test, passengers are not allowed to pass the turnstile, IR sensors

cannot be blocked, and barrier movements cannot be interfered.

- If power-on self-test failed, you need to find out reasons, and make the turnstile do power-on self-test again.

Table 6-15 Self-test error type

Code	Self-test error type
E01	IR detector anomaly
E02	Communication anomaly
E03	Motor module anomaly

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1. After the turnstile is plugged in, power indicator light will not be on.

1) Check whether the power adapter works normally.
2) Check whether the codes of air switch are correct.

2. After the power-on self-test failed, the buzzer beeps and the power-on self-test error code "E01" is displayed on the numeric display.

1) Check whether IR sensors are blocked during power-on self-test.
2) Check whether all turnstiles are connected to power source.
3) Open the side door of the turnstiles, and then check whether the indicator light on the IR sensor board is red. If the indicator light is red, it means IR sensors are blocked or are not aligned.
4) IR sensors are broken. Contact technical support to change new IR sensors.

3. After the power-on self-test failed, the buzzer beeps and the power-on self-test error code "E02" is displayed on the numeric display.

Check whether communication cables of all turnstiles are correctly connected.

4. After power-on self-test failed, the buzzer beeps and the power-on self-test error code "E03" is displayed on the numeric display.

1) Check whether the barrier movements were interfered during the power-on self-test.
2) If the barrier movements were not interfered during the power-on self-test, contact the technical support.

5. The turnstile is disconnected from power source, swing barriers cannot be unlocked.

1) Check whether the battery cable is correctly connected.
2) Check whether the battery voltage is normal. The normal battery voltage is 12 V.

6. After a visitor has swiped an authorized card, the barrier still cannot be unlocked.

1) Check whether the card is a valid card.
2) Check whether cable connection between data collection board and access controller are correct.

7. After a visitor has passed the turnstile with the identity verified, the turnstile barriers cannot lock themselves.

Adjust the lock delay duration.

8. Trailing alarm will be triggered if a visitor has passed the turnstile with the luggage, and the indicator light flashes in red.

There are gaps between the visitor and the luggage. It is normal that trailing alarm being triggered.

9. Turnstile indicator lights cannot be on.

Check whether cable connection between passing direction indicator lights and passage indicator lights are correct.

10. Barriers cannot be locked or unlocked during days with heavy rains and passage indicator lights flash in red.

Dry rain drops on the acrylic plate, especially acrylic plate outside the IR sensors.

Appendix 1 Maintenance

Maintain the turnstile regularly; otherwise its lifespan or performance will be influenced.

Turnstile Exterior

- Maintenance cycle
  - ◇ Outdoor, once every half month or after each raining day.
  - ◇ Indoor, once every two months.
- Maintenance content: Clean the turnstile cabinet and swing barriers.
  - ◇ Dip a piece of soft cloth in a neutral detergent or clean water, clean the cabinet surface.
  - ◇ High salinity and humidity environment, acid rain, sweat will corrode the stainless cabinet surface. Use scouring pad to clean the rust (you can also use rust remover), and then dip a piece of soft cloth in a neutral detergent or clean water to clean the cabinet surface.

Turnstile Interior

Clean the power supply and circuit board. Do not use water to clean the interior to avoid short circuit.

- Maintain the turnstile once every three months.
- Maintenance content
  - ◇ Disconnect the turnstile from power source, open the turnstile cover, and then clean the dust inside.
  - ◇ Make sure that the motor, bearing, fastening device, screws, and more are tightened.
  - ◇ Apply lubricants to radius rods and gears.
  - ◇ Check whether there is loose cable connection. If there is loose connection, organize and cover bare cables, and then tighten screws. If there are aged cables, replace them.

Appendix 2 Maintenance of the Stainless Cabinet Surface

Appendix 2.1 Rust Protection and Adhesive Failure

Stainless steel will not get rusty unless it is used inappropriately in harsh environments.

Rust Protection

Do not make the turnstile be close to rust inducing substances; otherwise the turnstile might be more likely to get rusty.

- Ions, sulfur oxide, acidic substances that contains HCL and H_2SO_4, or substances that produce acidic substances (contain SO_4, salts, and HCLO) after dissolving in water.
- Substances like soot and dust will impede the stainless steel producing protection film.
- Metal with iron powder will produce adhesive rust on the stainless steel.

Adhesive Failure Protection

After sticking protective film on the stainless steel, avoid UV rays (direct sunlight), heat, pressure, and more to avoid adhesive failure.

Appendix 2.2 Removing Dirt and Rust

Remove Protective Film Mark

Use sponge or cloth to dip mixed solutions of ethyl alcohol, naphtha, banana oil, methylbenzene, and acetonehunheye to clean the film mark. Clean solutions on the stainless steel surface with clean cloth. You must use clean water to clean the surface at last.

Clean Dirt and Fingerprints

Generally, neutral detergent or soap can remove dirt and fingerprints; otherwise, use organic solutions (ethyl alcohol and naphtha). After you have used organic solutions to clean the surface, you should clean the solutions on the surface immediately. Stainless steel cleaner is recommended.

Clean Less Rust

Use stainless steel cleaner to clean less rust.

Clean More Rust

If adhesive rust on the stainless steel was not cleaned in time, the stainless steel will get rusty itself. As time goes by, thick tawny rust or red rust is hard to remove.

Appendix 2.3 Precautions

Cleaning Requirement

- Cut off power supply before cleaning the turnstile. Do not wet components inside the turnstile.
- Make sure that the detergent you use does not contain abradant graininess; otherwise the turnstile surface will be damaged.
- Clean the surface along lines on the surface.
- Dry the surface after using detergent and clean water.

Detergent Requirement

- Do not use acidoid especially sulphuric acid, sulphurous acid, acids that contain chlorine or nitrogen.
- If there is adhesive failure, use organic solutions that are without oxidability. Ethyl alcohol, dimethylbenzene, acetone are normally used.
- For stainless steel whose surface has been processed (mirror surface or titanium surface), make sure that the detergent does not contain abradant graininess.

Appendix 3 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 on how to create a more secured security system.

Mandatory actions to be taken for basic equipment 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 equipment (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 equipment 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 equipment network security:

1. **Physical Protection**

   We suggest that you perform physical protection to equipment, especially storage devices. For example, place the equipment 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 equipment (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 equipment 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. **Enable HTTPS**

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

7. **Enable Whitelist**

   We suggest you to enable whitelist function to prevent everyone, except those with specified IP addresses, from accessing the system. Therefore, please be sure to add your computer's IP address and the accompanying equipment's IP address to the whitelist.

8. **MAC Address Binding**

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

9. **Assign Accounts and Privileges Reasonably**

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

10. **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.

11. **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.

12. **Secure Auditing**

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

13. **Network Log**

    Due to the limited storage capacity of the equipment, 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.

14. **Construct a Safe Network Environment**

    In order to better ensure the safety of equipment 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.
- It is recommended that you enable your device's firewall or blacklist and whitelist feature to reduce the risk that your device might be attacked.