

User Manual

TS1200 Pro Series Tripod Turnstile

Applicable Model(s): TS1200 Pro, TS1211 Pro, TS1222 Pro

Date: July 2023

Doc Version: 1.2

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.



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

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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 **TS1200 Pro Series Tripod Turnstile**.

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

Features and parameters with ★ are not available in all devices.

Document Conventions

Conventions used in this manual are listed below:

GUI Conventions

For Software	
Convention	Description
Bold font	Used to identify software interface names e.g. OK, Confirm, Cancel.
>	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.

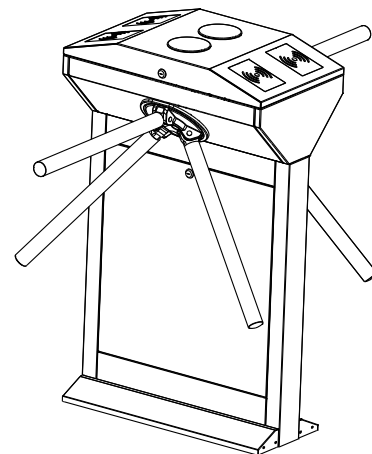
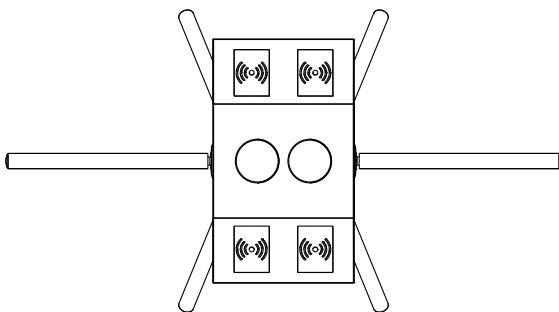
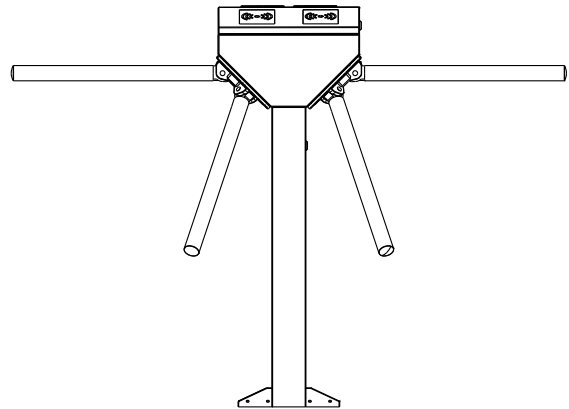
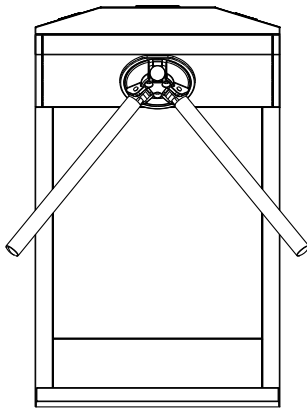
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1 Overview

The TS1200 Pro series is one kind of ZKTeco's innovative semi-automatic tripod turnstile series. The use of dual-core design, affordable and practical products. The shell is made of high quality 304 stainless steel, and the parts are treated with anti-corrosion to be durable. The top cover panel of the TS1200 Pro series integrated general access control is customizable according to different verification modes, can support controller★, RFID reader★ or fingerprint sensor★ as needed. The TS200 Pro series runs smoothly and quietly and consumes little power thanks to its small and compact body design.

Our Pro series tripod turnstiles represent classic and safe way to protect your premises. They are widely used in various indoor environment applications. They fit perfectly as an economical option into the office buildings and other related applications.



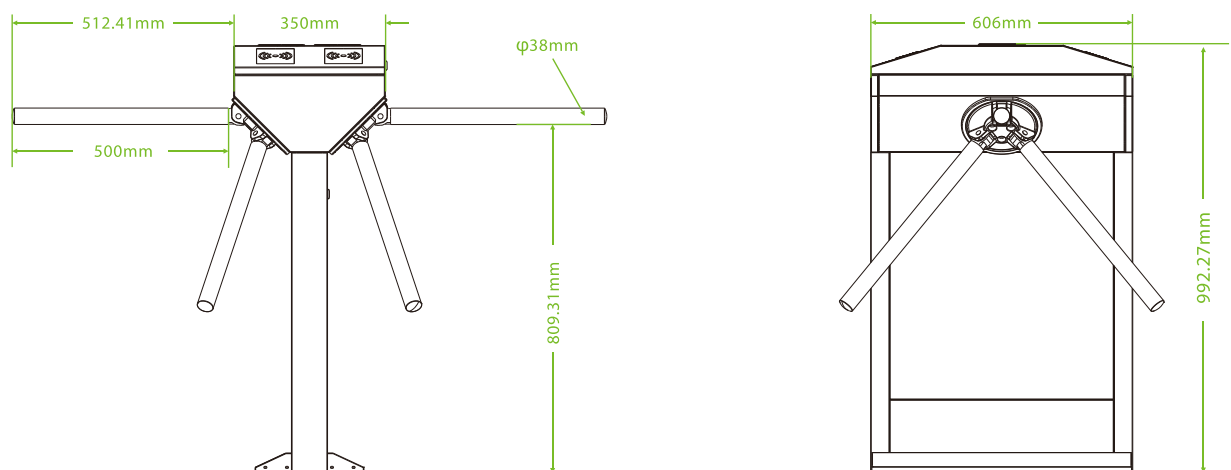
1.1 Features

- Long service life, measured open and close the gate more than 2 million times
- Drop arm automatically during power off
- Self-protection function to prevent strong intrusion, excessive current and other special circumstances, such as damage to the product, death, etc
- Support fire linkage, receive fire signal can drop arm in emergency and alarm prompt.
- SUS304 stainless steel housing
- LED pictograms for intuitive user experience and high throughput in both directions
- High quality at an affordable price
- Low power consumption
- Easy and simple installation process

1.2 Appearance and System Components

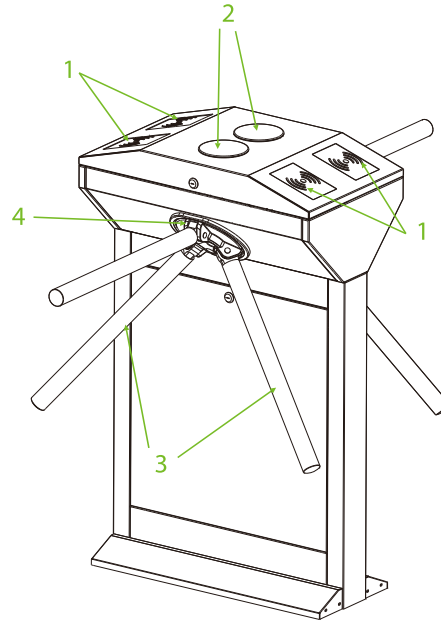
1.2.1 Appearance

The appearance and dimensions of the TS1200 Pro series are shown in the figure below:



1.2.2 System Components

The system components of the TS1200 Pro series are shown below:



1. Verification Units	2. Traffic Indicator
3. Arm	4. Disk Wheel

1.3 Model Number and Access Control

Model No.	Controller	RFID Reader	Fingerprint Sensor
TS1200 Pro			
TS1211 Pro	√	√	
TS1222 Pro	√	√	√

1.4 Mechanical System

The tripod turnstile mechanical system consists of the chassis and the core component. The chassis is a carrier where the Traffic Indicator, RFID Reader★, Fingerprint Reader★ and Door lock are installed.

1.5 Electronic Control System

The electronic control system of a tripod turnstile is mainly consists of the RFID Reader★ /Fingerprint sensor★, Turnstile control board and Traffic Indicator.

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

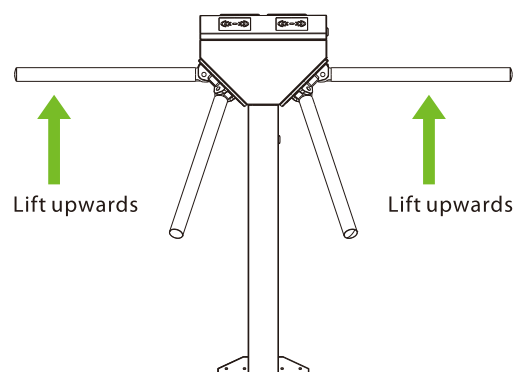
Fingerprint Reader★: The device compares the fingerprint that is being pressed onto the fingerprint sensor with all of the fingerprint data and sends it to the Access Controller.

Turnstile Control Board: The turnstile control board is the system's control center that receives signals from the reader and the dry contact performs logical calculation and processing of these signals and sends executive commands to the traffic indicator and the arm.

Traffic Indicator: The system will light up the red indicator when the gate is closed. When someone passes the verification, the system will light up the green indicator.

1.6 Power-On Self-Test

1. Please make sure that the power requirements are strictly met to avoid permanent damage to the unit. Input voltage: AC 100~120V /200~240V. Note: The tripod turnstile must be connected to the ground (earth).
2. Power on and wait 30s for the tripod turnstile to finish the self-check program.
3. Lift the arms manually, as shown in the diagram below:



4. Check whether the tripod turnstile and the traffic indicators work properly. If there is any problem, please contact the supplier.

1.7 Status of Traffic Indicator

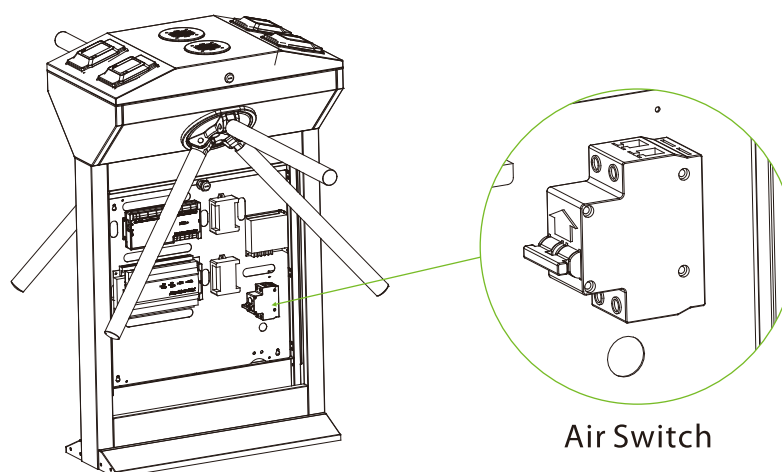
The tripod turnstile is in working state after power-on self-test. The traffic indicators gives pedestrians the corresponding indication of passage.

Standby: ✖

Pass-through (In/Out): ↑

1.8 Working Principle

1. When the device is connected to the power, the system performs the Power-On Self-Test. The device will operate normally if no problem is detected.



2. When a valid Card★/Fingerprint★ is detected, the traffic indicator will send a green indicator to the pedestrian to indicate that the verification is successful. 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 turnstile control board sends valid control signals to the solenoid.
4. Pedestrians should follow the traffic indicator and gently push the unlocked arm; the arm will automatically rotate till the pedestrian passes through the channel.
5. If a pedestrian enters the passage but fails to verify identification, or if the pedestrian's card★/fingerprint★ is invalid, the system does not allow the pedestrian to pass. Only once a valid card★/fingerprint★ is successfully confirmed can the pedestrian pass through the passage.

Note: Make sure the ground wire of the system is reliably connected to avoid personal injuries or other accidents.

1.9 Technical Specifications

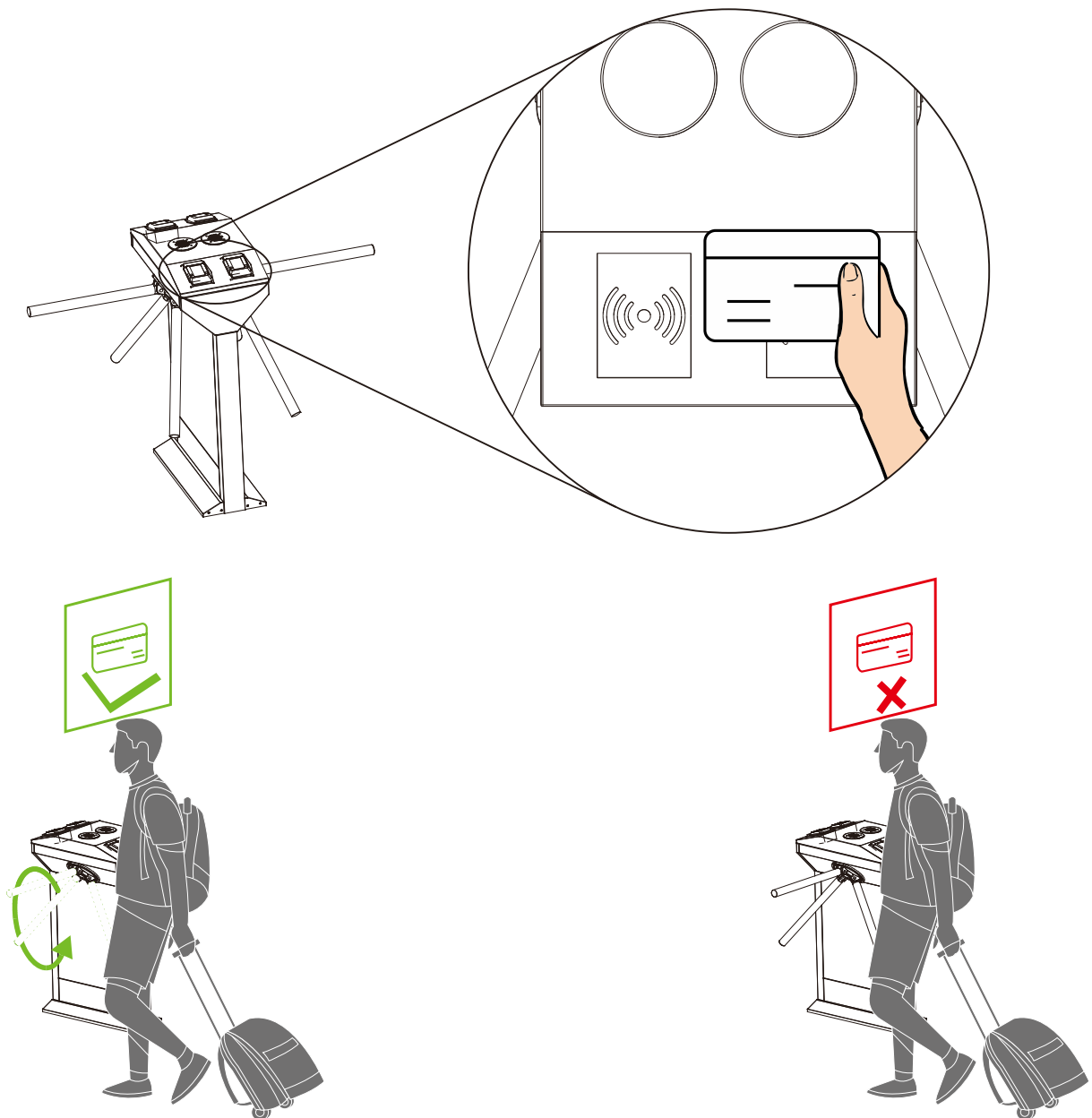
Feature	Specification
Communication	TCP/IP, RS485, 4G/WIFI
Input Voltage	AC110V/240V, 50/60Hz
Input Control Signal	Dry contact
Output Voltage	DC 12V
Protection Level	IPX4
Time of Gate Opening/Closing	NA
Operating Humidity	5% to 85%
Operating Temperature	-28°C to 70°C
Flow Rate	Normally Close: Maximum 25/minute Normally Open: Maximum 30/minute
Working Environment	Indoor and outdoor (shelter)
MCBF	2 million
Dimension (mm) (L*W*H)	606*350*992.27
Package (mm) (L*W*H)	730*450*1080
Weight	Net Weight: 55Kg Gross Weight: 63Kg
Noise	<60dB
Certifications	CE and FCC

2 Function Introduction

2.1 Card Verification ★

The Card Verification mode compares the card number in the card induction area with all of the card number data registered in the device and sends it to the Access Controller.

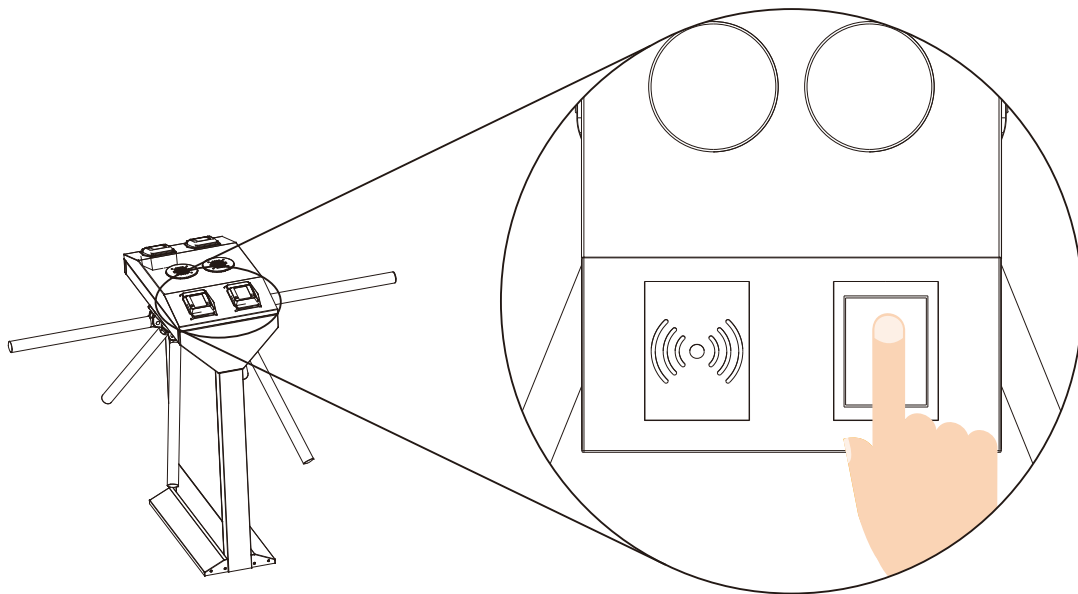
When a user presses his / her card on the card reading area, the device enters card authentication mode.



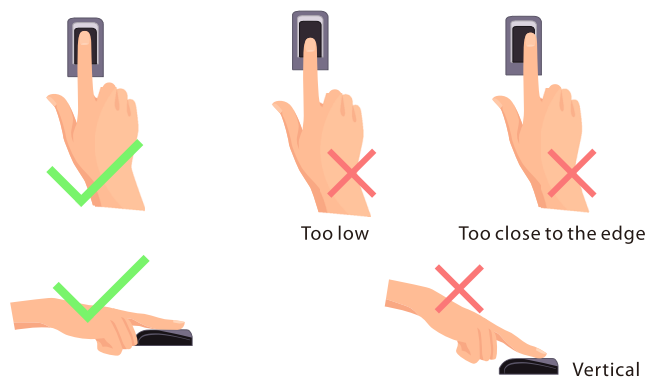
2.2 Fingerprint Verification★

In this verification mode, the device compares the fingerprint that is being pressed onto the fingerprint reader with all the fingerprint data sends it to the Access Controller.

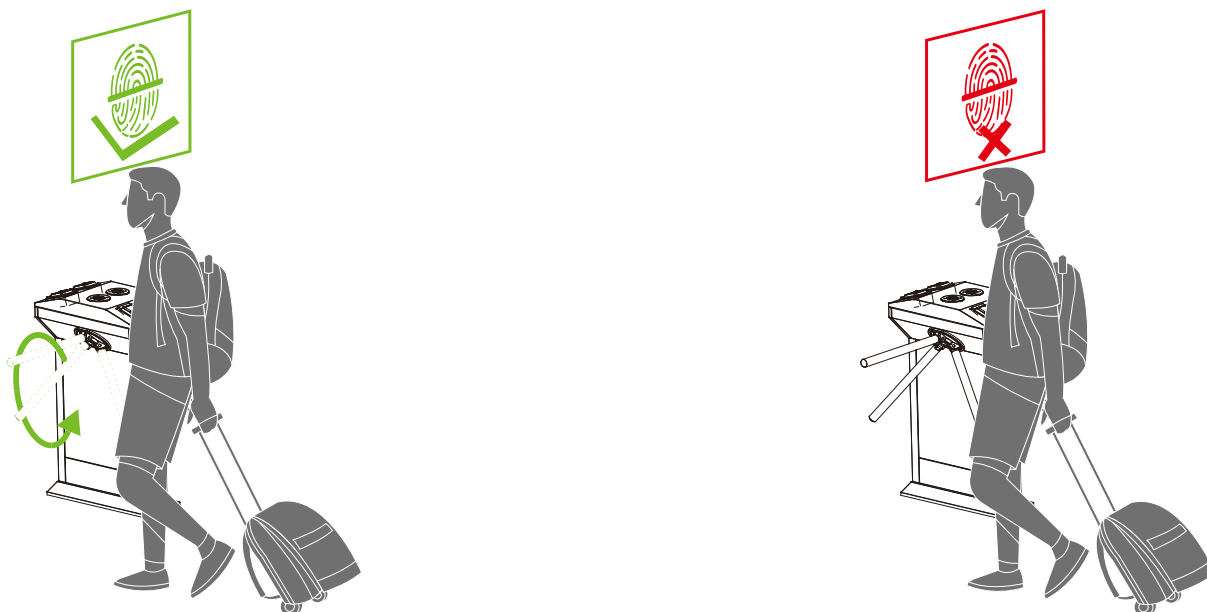
The device enters the fingerprint authentication mode when a user presses his/her finger onto the fingerprint scanner.



Recommended fingers: It is recommended to use index, middle, or ring finger for registration and avoid using the thumb or little finger, as they are difficult to accurately press onto the fingerprint reader.

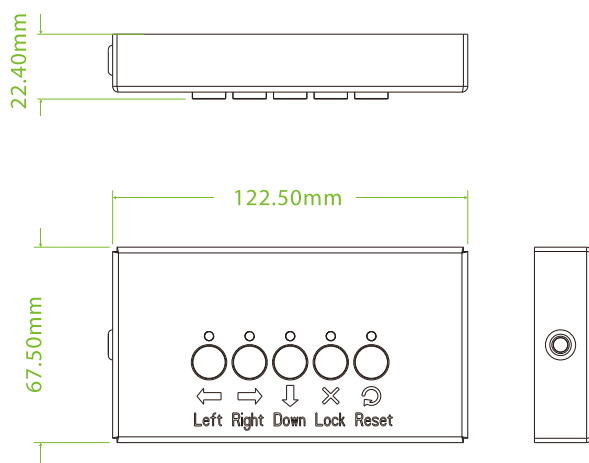


Note: Please use the correct method when pressing your fingers onto the fingerprint reader for registration and identification. Our company will assume no liability for recognition issues that may result from incorrect usage of the product. We reserve the right of final interpretation and modification concerning this point.




2.3 Wired Remote Control★





The wired remote control has five buttons: the Left button, Right button, Down button, Lock button, and Reset button. These five independent buttons have individual functions as well as combined functions. Pressing two buttons within the specified time interval can call up a predefined mode.















The following tables describe the modes of different button press actions:

1. Independent functions:

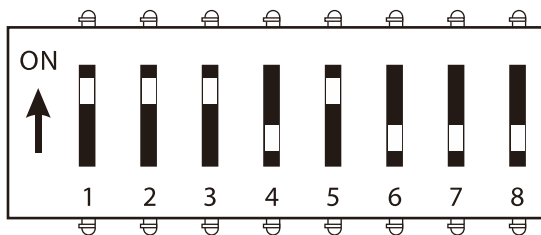
Buttons	Description
	Press the button once to open the tripod turnstile and can pass by identity verification from the inbound.

	Press the button once to open the tripod turnstile and can pass by identity verification from the outbound.
	In emergency mode, press the button once to fall the arm lever. Then the inbound and outbound sides get open and can pass freely without identity verification.
	Press the button once to raise the arm lever. Then the inbound and outbound sides are controlled by the tripod turnstile. The identity verification becomes invalid, and no pass is allowed.
	Press a button once to restore the default inbound and outbound identity verification pass mode of the arm.

2. Combined functions:

Status	Description
Inbound free, Outbound control	Press "  " twice to open the tripod turnstile on both sides. The inbound side is free to pass without identity verification and can pass by identity verification from the outbound.
Inbound control, Outbound free	Press "  " twice to open the tripod turnstile on both sides. The outbound side is free to pass without identity verification and can pass by identity verification from the inbound.
Inbound free, Outbound free	Press "  " and "  " at the same time to open the tripod turnstile on both sides and both inbound and outbound sides can pass freely without identity verification.
Inbound forbidden, Outbound free	First press "  " once, and then press "  " once, then the inbound side is forbidden to pass, and the outbound side is free to pass without identity verification.
Inbound free, Outbound forbidden	First press "  " once, and then press "  " once, then the outbound side is forbidden to pass, and the inbound side is free to pass without identity verification.
Inbound control, Outbound forbidden	First press "  " once, and then press "  " once, then the outbound side is forbidden to pass, and the inbound side needs to identity verification to pass.
Inbound forbidden, Outbound control	First press "  " once, and then press "  " once, then the inbound side is forbidden to pass, and the outbound side needs to identity verification to pass.

The wired remote control is connected to the controller, then set the controller's code pairing mode to complete the wired remote control's setup.



PIN	1	2	3	4	5	6	7	8
Function Setting	Opening Duration			Direction Indication		Continue Passing Function		Alarm
Default	1	1	1	0	1	0	0	0

• **Setting the Turnstile Opening Duration**

Opening duration refers to the period of time from opening to closing once the turnstile receives an open signal. In the DIP switch, number 1, 2, and 3 are used for duration setting. It can be set to different values from 5s to 60s according to the following chart.

Bit Setting	Duration	Bit Setting	Duration
111	5s	011	30s
110	10s	010	40s
101	15s	001	50s
100	20s	000	60s

Note: The turnstile opening duration is set to 5s by default.

• **Direction Indicator**

It is to indicate whether the passage allows people to pass. The green arrow means passing is allowed while the red "X" means passing is prohibited. The indicator status can be set through number 4 and 5 in the DIP switch. The description of the bit settings are as follows:

11 = One-way traffic, left passing is allowed.

10 = One-way traffic, right passing is allowed.

01 = Passing is allowed in both directions.

- **Continue Passing Function**

With the Continue Passing function, the turnstile could remember at most 20 swipes of one card at one time and allows up to 20 people to pass so they don't have to swipe card each time, this function can be enabled or disabled through number 6 in the DIP switch. The description of the bit settings are as follows:

In the DIP switch, number 6 is used to enabled or disabled the **Continue Passing Function**, number 7 is used to set the initial value of Continue Passing Function.

Number 6	Number 7	Function	Opening Duration
0	Disabled	Disabled Continue Passing Function	Please consult Setting the Turnstile Opening Duration
1	1	Enabled Continue Passing Function	The initial value is 16s, and the Opening Duration = $16 + (N - 1) * 6$
	0		The initial value is 8s, and the Opening Duration = $8 + (N - 1) * 6$

- **Alarm Function (Optional)**

In the DIP K1 switch, number 8 is used to enabled or disabled the **Alarm Function**.

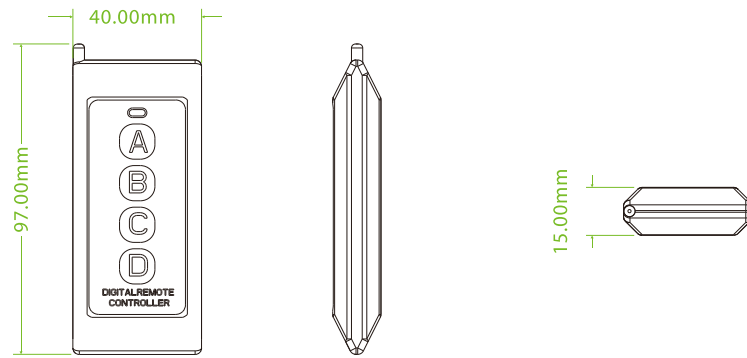
1 = enabled

0 = disabled

Note: Please set to 0 when working normally, that is to say that **Alarm Function** is disabled.

2.4 Wireless Remote Control★

The tripod turnstile's wireless remote control is an intelligent device that remotely controls the entrance and exit. It is designed for the administrator to control the tripod turnstile manually. The wireless remote control contains four buttons: A, B, C, and D, which correspond to the options open entrance gate, open exit gate, emergency mode open-bar pass, and alarm lock.



Buttons	Description
A	Press the button once to open the tripod turnstile on the inbound and can pass by identity verification from the inbound.
B	Press the button once to open the tripod turnstile on the outbound and can allow people to pass after their identity verification from the outbound.
C	In emergency mode, press the button once to fall the arm lever. Then the inbound and outbound sides get open and can pass freely without identity verification.
D	Press the button once to raise the arm lever. Then the inbound and outbound sides are controlled by the tripod turnstile. The identity verification becomes invalid, and no pass is allowed.

The wireless remote control is not in communication with the controller when the controller is turned on. Press and hold the controller's DIP switch to enter code pairing mode and operate the remote control using the controller's eight DIP switch codes.

Pair code:

1. First, power the controller of the tripod turnstile.
2. Short press the learning button on the controller, and a light corresponding to the button will flash slowly. Then press any switch on the remote control for acquiring the information. After the successful operation, the light turns off.

Clear code:

Long press the learning button on the three roller gate controller for 3 seconds. The learning light stays on for a while then turns off indicating the code is cleared successfully. The original learning remote control cannot be used again and can only be remote-controlled by the code again.

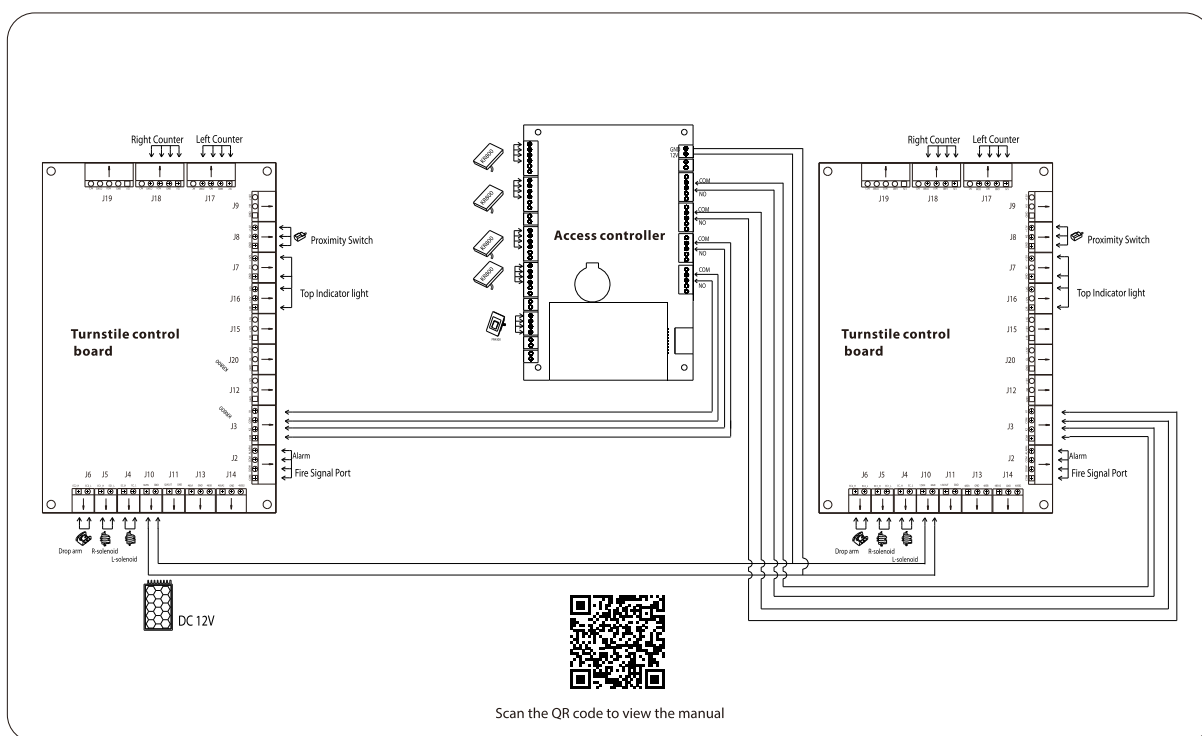
3 Control System Introduction

If you are using TS1211 Pro or TS1222 Pro, all the connections between access control and turnstile control boards are done in factory. Just plug in communication cable to access controller and do the setting.

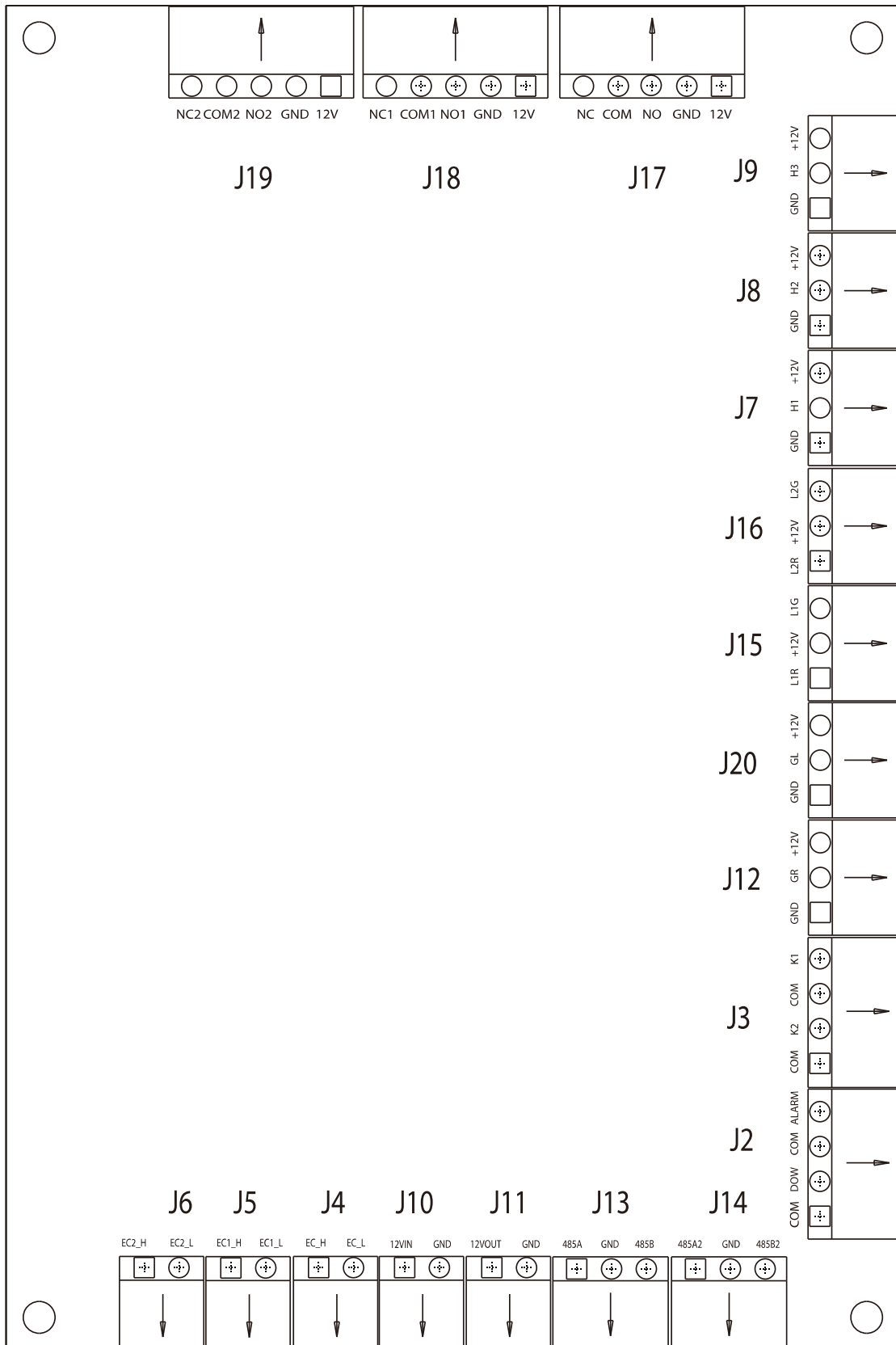
If you are using TS1200 Pro, you need to connect access control system to the control board, please check the content in this chapter carefully.

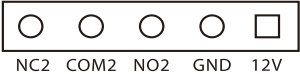

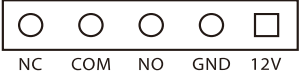


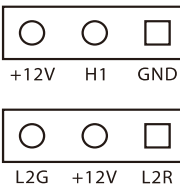







Warning: The third party access control system lock relay trigger time should be 1 second or less than 1 second.








3.1 Wiring Diagram



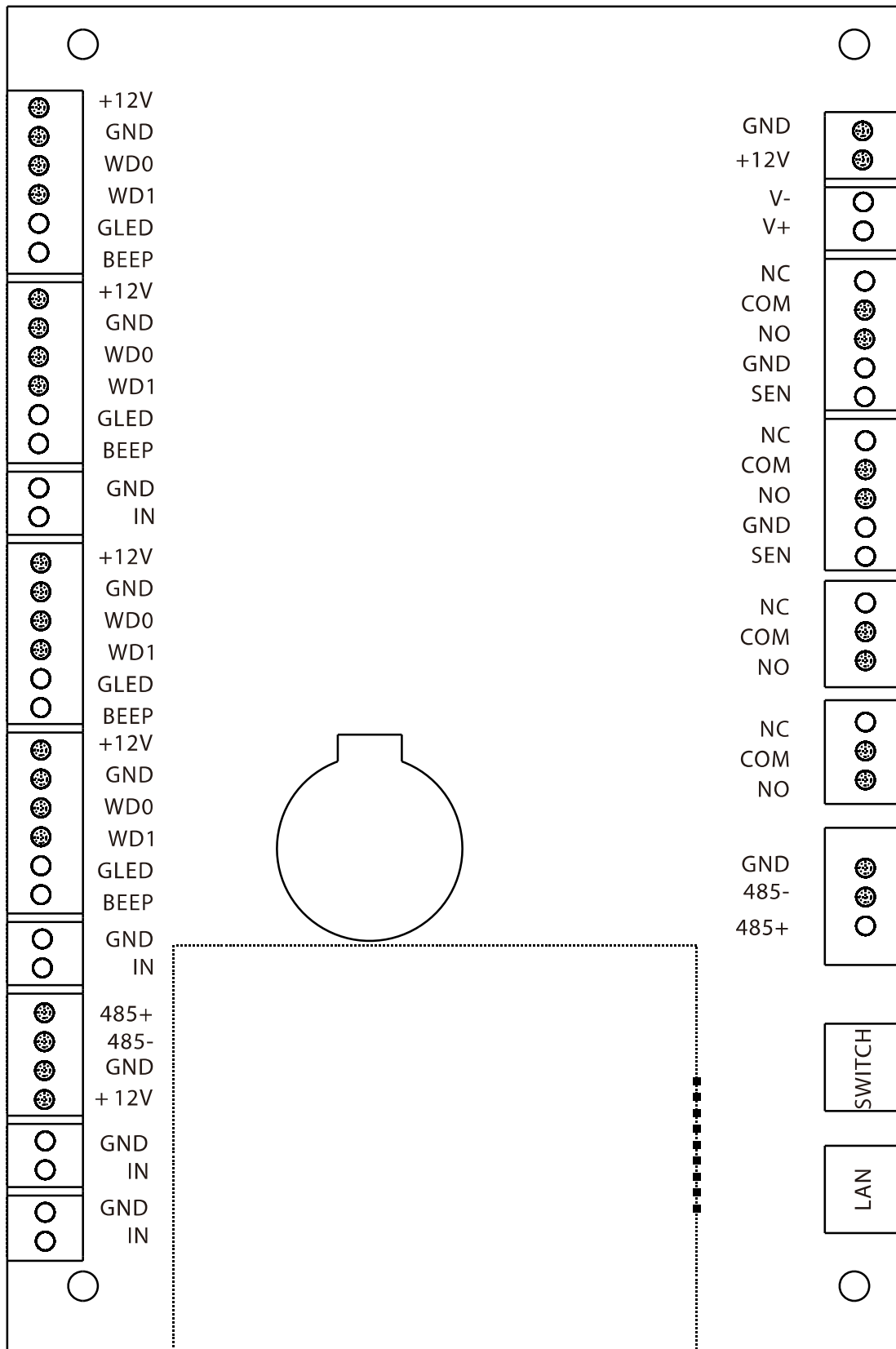
3.2 Turnstile Control Board

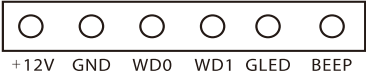


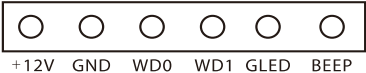







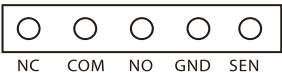
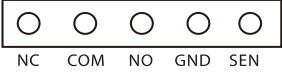





Terminal	Description
 <p>NC2 COM2 NO2 GND 12V</p> <p>J19</p>	Reserved
 <p>NC1 COM1 NO1 GND 12V</p> <p>J18</p>	Right Counter
 <p>NC COM NO GND 12V</p> <p>J17</p>	Left Counter
 <p>+12V H3 GND</p> <p>J9</p>	Reserved
 <p>+12V H2 GND</p> <p>J8</p>	Proximity Switch
 <p>+12V H1 GND</p> <p>L2G +12V L2R</p> <p>J7 / J6</p>	Top Indicator Light
 <p>L1G +12V L1R</p> <p>J15</p>	Reserved
 <p>+12V GL GND</p> <p>J20</p>	Reserved
 <p>+12V GR GND</p> <p>J12</p>	Reserved
 <p>K1 COM</p> <p>J3</p>	Right Open
 <p>K2 COM</p> <p>J3</p>	Left Open
 <p>ALARM COM</p> <p>J2</p>	Alarm
 <p>DOW COM</p> <p>J2</p>	Fire Signal

 485A2 GND 485B2	J14	RS485
 485A GND 485B	J13	RS485
 12VOUT GND	J11	12V Power Supply Output
 12VIN GND	J10	12V Power Supply Input
 EC_H EC_L	J4	L-solenoid
 EC1_H EC1_L	J5	R-solenoid
 EC2_H EC2_L	J6	Drop Arm

3.3 Access Control Board



Terminal	Description
 <p>+12V GND WD0 WD1 GLED BEEP</p>	Reader
 <p>+12V GND WD0 WD1 GLED BEEP</p>	Reader
 <p>GND IN</p>	Button
 <p>+12V GND WD0 WD1 GLED BEEP</p>	Reader
 <p>+12V GND WD0 WD1 GLED BEEP</p>	Reader
 <p>GND IN</p>	Button
 <p>485+ 485- GND +12V</p>	RS485
 <p>GND IN</p>	Auxiliary Input
 <p>GND IN</p>	Auxiliary Input
 <p>GND +12V</p>	Power In
 <p>V- V+</p>	Lock
 <p>NC COM NO GND SEN</p>	Lock
 <p>NC COM NO GND SEN</p>	Lock
 <p>NC COM NO</p>	Auxiliary Output
 <p>NC COM NO</p>	Auxiliary Output
 <p>GND 458- 485+</p>	485 Connections

SWITCH	Switch
LAN	Ethernet

4 Default Parameters

No.	Function	Default
1	Lock Driving Duration	5s
2	Door Sensor	None
3	Verification Interval	1s
4	Controller Communication	TCP/IP: 192.168.1.201
5	Turnstile Opening Duration	5s
6	Passing Direction Indicator	Passing is allowed in both directions
7	Continue Passing Function	Disabled
8	Alarm Function	Disabled

Note: The Lock Driving Duration is default 5 seconds, please set to 1 second.

5 Troubleshooting

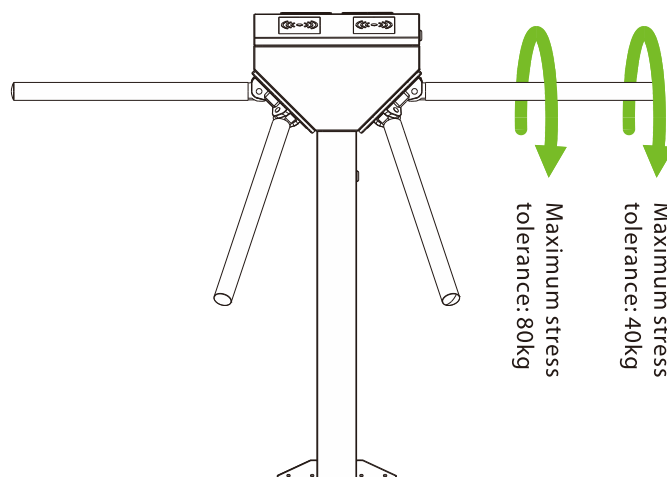
Failure Description	Solution
The indicator is not lighted when the equipment is powered on	<p>It may be caused by the power supply or circuit.</p> <ul style="list-style-type: none"> • Check whether the connection cable and power cable between are damaged, or the wiring is loose.
The device can't be manually lift arm after power on	<ul style="list-style-type: none"> • Whether the limit seat is topped with the Disk Wheel when lift arm. • Check whether the arm drop magnet is working, open the upper cover of the chassis, open the movement cover with a hexagonal screwdriver and check the working status of the electromagnet.
No gate opening after authentication	<ul style="list-style-type: none"> • Check whether the user has permission. • Please refer to the 3 wiring diagram to check the wiring.
After opening the gate, the passage is not smooth, the resistance of the push rod is large, and the rotation cannot be homed	<ul style="list-style-type: none"> • The tension spring can be adjusted by adjusting the live joint bolt at the tension spring.
Dropping the arm during use	<ul style="list-style-type: none"> • Check if the limit seat is topped or if there is a gap. • Check whether the arm drop magnet is fully absorbed, if not fully absorbed, please power off for 2 minutes and then power on.
Continuous single-sided passage during use, without locking the lever.	<ul style="list-style-type: none"> • Check if the gate opening magnet is working, open the top cover of the device and open the movement cover with a hexagonal screwdriver. Check if the gate opening magnet is stuck or the shrapnel is disconnected.

6 Precaution

1. It is recommended to purchase optional accessories to use in outdoor environment.
 - a) It shall install optional cooling fans for the equipment if the working temperature is often above 50 °C.
 - b) It is equivalent to IPX4 waterproof under proper installation. However, it cannot work in the region that may suffer typhoon.
 - c) If the temperature is -30°C, a heating plate is suggested to install. It might need multiple times to power on while getting hot automatically through the self-check program.
 - d) The service life of this equipment may be shortened if it works outdoors in coastal areas or a region prone to acid rain.
2. If the power and signal cables are connected properly, this equipment can be immersed in water of 250 mm deep, but it must not be powered on for operating when it is immersed in water.
3. It is highly recommended that a card swiping warning line to set for prompting passers-by to swipe cards properly and a reasonable passage width shall be set to prevent passers-by from squeezing in illegally.
4. It is recommended that a warning sign is placed at a conspicuous position, and prompt: "**Please swipe your card outside the warning line and pass in order. Thank you!**"

The maximum tolerance of the tripod turnstile's arms

Please note that the maximum stress tolerance at the center of the arm is 80kg and at the ends of the arm is 40kg. When the impact force on the tripod turnstile reaches the designed limit, the arms break down first to ensure that the whole equipment is not damaged and the passer-by is not injured.



In case of emergencies

This equipment is designed to drop down arms automatically if there is power failure thus make the passage being open to the public. And there is interface in the turnstile control board to connect an emergency switch (Drop Arm) which would make the tripod turnstile keep open in case of emergencies. Note after power restoration, wait for more than 6s and then lift the arms manually.

7 Maintenance

7.1 Chassis Maintenance

The chassis is made of SUS304 stainless steel or cold rolled sheet steel. If it has been used for a long time, the surface may have rust stains. Clean the surface thoroughly with a clean cloth on a regular basis. Coat the surface with anti-rust oil, but do not cover the infrared sensor.

7.2 Movement Maintenance

Before doing maintenance, turn off the power. Open the door, wipe the surface dust, and apply lubricant for smooth movement.

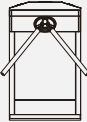









7.3 Power Supply Maintenance

- 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 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.

8 Packing List

The package consists of the following items:

	TS1200 Pro Series	1
	Power Cable	1
	Card (TS1211 Pro, TS1222 Pro)	1
	Expansion Screw M12*100	6
	Stainless Steel Maintenance Wipes	1
	Hex Wrench	1
	Allen Screw	3
	Key	2
	Washer	6
	Damper	1

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