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Tristar J18 (Gen3)
Turnstile Manual Instructions

05/2026

Preface

The purpose of this section is to ensure that users can operate the product correctly by following this manual, to avoid potential hazards or property damage during use. Before using this product, please read this manual carefully and keep it properly for future reference.

Symbol Conventions
The following symbols may appear in this document, and their meanings are as follows:

Symbol	Conventions
	**Note:** Indicates supplementary information and explanations to the main text.
	**Caution:** Indicates important operations or alerts users to prevent potential injury or property damage.
	**Warning:** Indicates potential risks which, if not avoided, may result in personal injury, equipment damage, or operational interruption.
	**Danger:** Indicates a high level of risk which, if not avoided, may result in serious injury or death.

Applicable models

Applicable models	Product model	Product Name
Turnstile	J18 V3 FJC-Z3319C	Fully Automatic Tripod Turnstile Z3319C

Contents

Chapter 1: Main Product Features

1.1 Product Introduction

Based on years of industry experience, Rotech Automation has launched a new generation of full automatic tripod turnstiles. The product adopts a modular design, allowing different modules to be configured according to various requirements, thereby meeting diverse application scenarios and user needs.

The product you have purchased is designed and manufactured in accordance with the requirements of the ISO9001 Quality Management System and has passed strict and thorough inspections. Although the equipment has been rigorously tested before delivery, to ensure safe and reliable operation, users are strongly advised to read this manual carefully before use to avoid improper operation that may affect user interests.

Product Overview:

Product Type	Model	Product Name
Turnstile	J18 V3 FJC-Z3319C	Full Automatic Tripod Turnstile Z3319C

1.2 Main Features

Category		Description
Appearance	Design	Minimalist design combined with the refined texture of brushed stainless steel, delivering a simple yet elegant appearance
Functional Features	Voice Broadcast	Rich voice functions supporting both Chinese and English, with adjustable volume
	Automation	Equipped with power-on self-test and power-off drop arm function; supports fire alarm signal integration to meet safety requirements
	Passage Modes	Supports both bidirectional and unidirectional passage, configurable as required
	Audio & Visual Indication	Provides sound and light prompts or alarm functions
	Automatic Reset	Equipped with automatic reset function. The system resets automatically after every 120° rotation, or cancels the current access authorization if no passage occurs within a specified time (multi-level delay adjustable), and locks the barrier arm automatically
	Counting Function	Supports counting function: after N card swipes, N persons can pass continuously before the gate closes (N ≤ 100)
Mechanical Structure	Clutch	Enables zero-position locking and unlocking of the turnstile; adopts a toothed clutch mechanism with fast engagement and disengagement response
	Rotor	Features a precision-engineered rotor assembly
Electrical Control	Motor	Uses a brushless DC motor for smooth operation and reliable performance

Design	Main Controller	Integrates voice broadcast, voice control, brushless DC motor control, RS485 communication bus, and TCP/IP network interface
O&M Delivery	Easy Installation	Modular design simplifies structure and facilitates installation
	Expandability	Supports multiple access control methods, including facial recognition, IC card, QR code, and ID card
		Provides standardized external electrical interfaces for integration with other reading/writing devices, enabling expansion into automatic identification systems for access control, flow management, and attendance management. Supports remote control and management via a central management computer
		Supports multiple gate-opening signal inputs (signals can be triggered by access control systems, push buttons, or other external devices)
	Easy Maintenance	Core components can be replaced within 30 minutes, ensuring efficient maintenance and service implementation

1.3 Product Specifications and Parameters

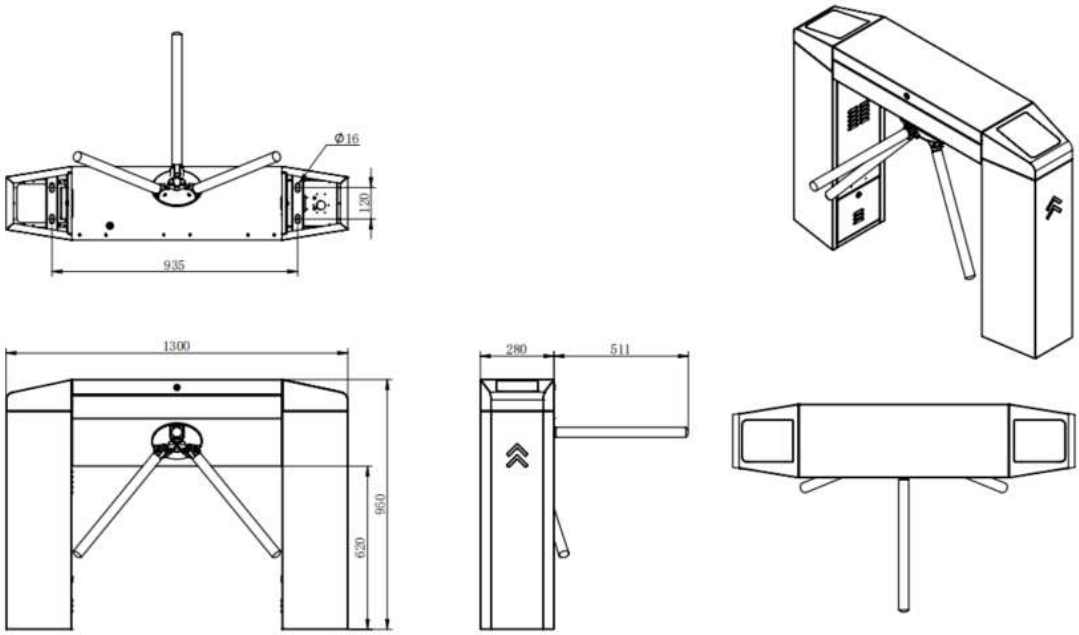
Item		**J18 V3 FJC-Z3319C**
Material and workmanship	Housing Material	SUS304 Stainless Steel
Specifications and dimensions	Dimensions (L*W*H)	1300mm*280mm*950mm
	Passage Width	550mm
Power Supply Voltage	Power Supply	AC 220V/110V ±10%，50/60HZ
	Motor Power	40W
	Total Power Consumption	50W
Throughput Performance	Throughput	20–35 persons/min (actual performance depends on user flow and passage mode)
Related interfaces	Communication Interface	Serial port and multiple I/O interfaces
	Communication Method	RS485、TCP/IP
Usage environment	Noise Level	≤65dB
	Operating Temperature	-25℃ ~ +70℃
	Storage & Transportation Temperature	-30℃ ~ +70℃
	Operating Humidity	≤90%，(non-condensing)
	Storage & Transportation Humidity	≤95%，(non-condensing)
	Protection Rating	IP54
	Application Environment	Indoor / Outdoor

Chapter 2 Appearance Overview

2.1 Front View Description

Figure 2-1 Front View of J18 V3 FJC-Z3319C

2.2 J18 V3 FJC-Z3319CSix views



Chapter 3 Installation Instructions

3.1 Product Installation

(1) Prepare the necessary tools for installing the turnstile, and select the auxiliary components according to the packing list.

(2) Determine the system configuration and operating mode, and proceed with installation after completing system planning.

(3) After determining the hole positions, drill the holes and pre-embed expansion bolts. Refer to the installation diagram for details.

(4) Lay power cables (strong current) and signal cables (weak current) separately, and route them to the corresponding cable outlet positions of the equipment.

(5) Open the cabinet door and select one turnstile as the reference unit (it is recommended to choose the middle unit). Align the base plate mounting holes with the anchor bolts on the ground, then initially tighten the nuts.

(6) Open the cabinet door of the adjacent turnstile. Align its base plate mounting holes with the ground anchor bolts, and position it properly in alignment with the reference unit for linkage installation, then initially tighten the nuts.

(7) According to the wiring diagram of the turnstile, correctly connect the power cable, control cable, and grounding wire of the system.

(8) When the external main power enters the cabinet, the upstream circuit breaker must be equipped with a residual current device (RCD). Connect the external 220V/110V power supply into the main cabinet and then to the internal switching power supply. Ensure all cabinets are properly grounded and connected to the earth wire.

(9) The control cable for manual operation of the turnstile uses an RVVP 6×0.5 shielded cable. The main unit is connected to the control buttons in the management room. If a three-button control panel in the booth is used to control each lane, a separate control cable must be laid for each lane; otherwise, this cable is not required.

(10) Adjust alignment, level positioning, and then fully tighten and secure the turnstile.

3.2 Installation Diagram

Pre-embed four M14×150 expansion bolts.

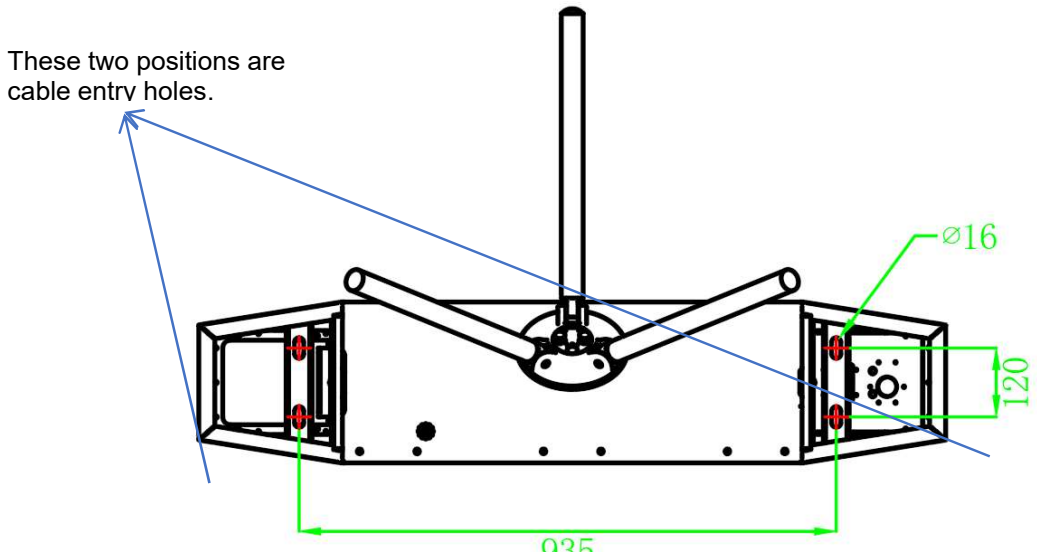


Figure 3-1 Installation Diagram of FJC-Z3219

Chapter 4 Terminal Connections and Wiring Instructions

4.1 Main Controller Terminal Connections

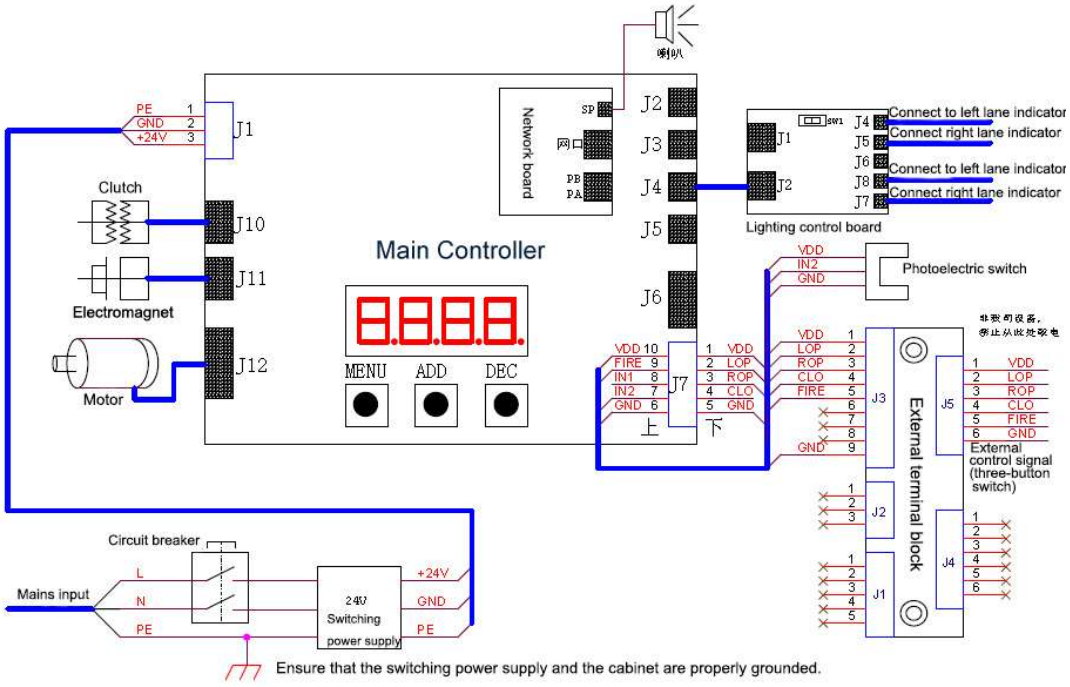


Figure 4-1 FJC-Z20D020Main controller

4.2 Main Controller External Terminal Description

Table 4-1 Description of Main Controller External Connection Terminals

Terminal Name	Terminal Description	Main Controller	
J5	External control signal line (connect to three-button switch panel)	1	VDD
		2	LOP(Left open)
		3	ROP(Right open)
		4	CLO(Close)
		5	Fire alarm (Normally open)
		6	GND
J7 (lower row)	Gate open/close control	1	VDD
		2	LOP(Left open)
		3	ROP(Right open)
		4	CLO(Close)
		5	GND

Chapter 5 External Wiring Diagram

5.1 Wiring Diagram of Access Control Equipment

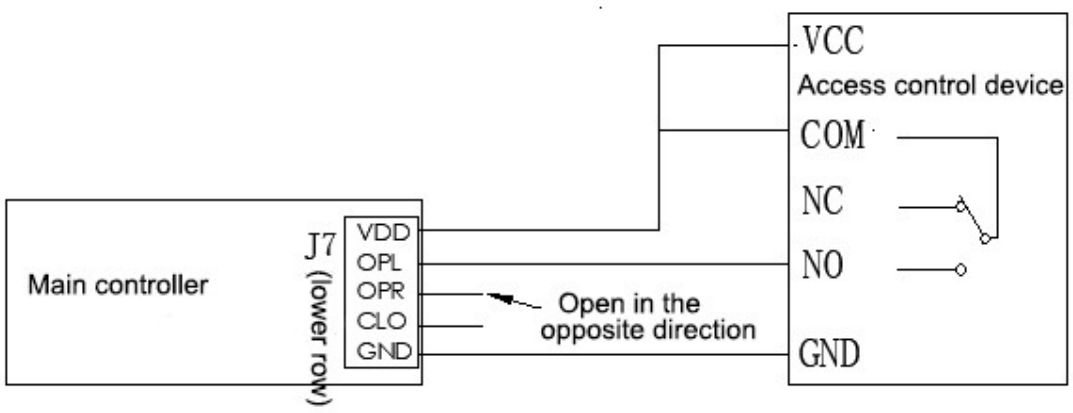


Figure 5-1 Wiring Diagram of Access Control Equipment 1

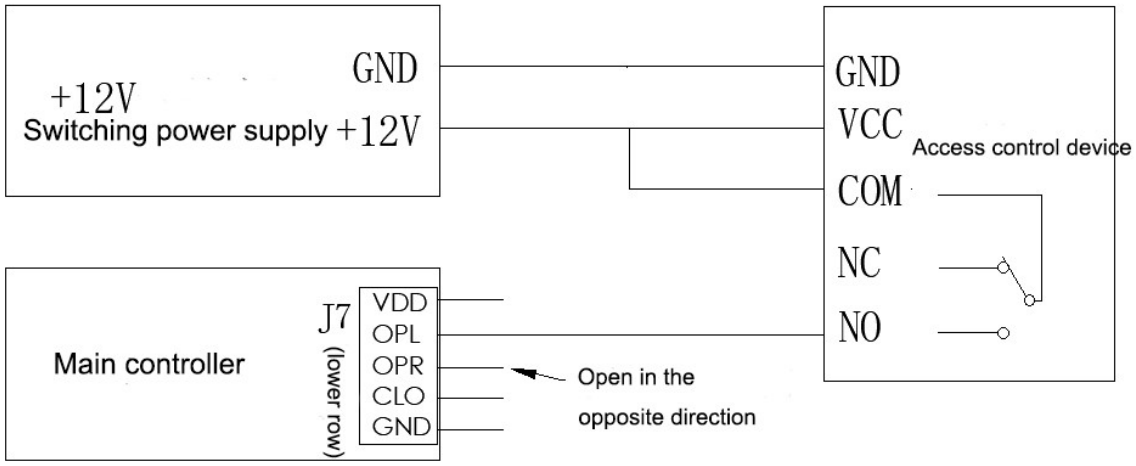


Figure 5-2 Wiring Diagram of Access Control Equipment 2

说明

(1) When using our integrated access control system, the wiring between the access control device and the turnstile is shown in Figure 5-1.

(2) The power supply reserved on the main control board is 12V/3A. When one Z3319C is connected to only one of our face recognition devices, it can be powered by the main control board. When one Z3319C is connected to two face recognition devices, an additional switching power supply is required, and wiring should be carried out according to Figure 5-2.

(3) For non-company access control devices, it is strictly prohibited to use the main control board for power supply. A separate third-party power supply must be provided.

5.2 Three-button switch wiring

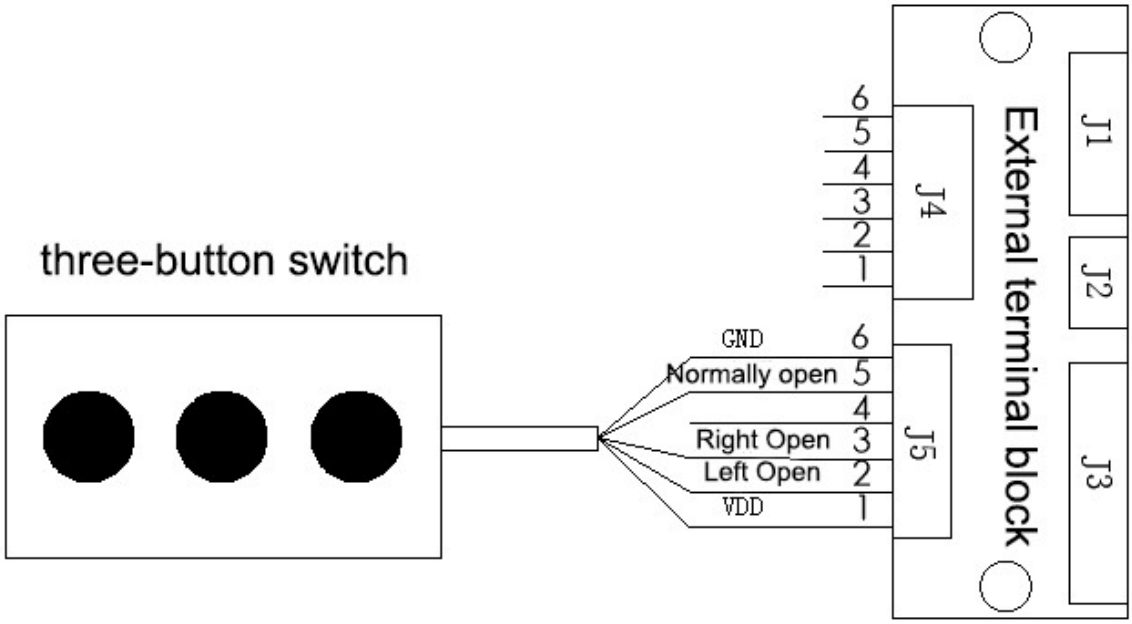


Figure 5-3 Wiring Diagram of Three-Button Switch

Chapter 6 Parameter Settings

6.1 Setup Procedure Description

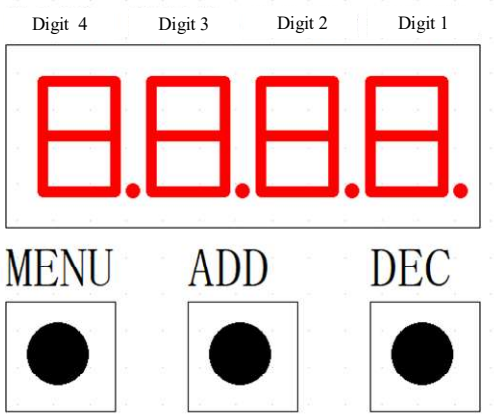


Figure 6-1

(1) Press and hold "MENU" for two seconds to enter the menu;

(2) Short press "MENU" to select the menu item;

(3) Short press "ADD" to increase parameters, while short press "DEC" to decrease parameters;

(4) Press and hold "MENU" for two seconds to quit the menu and save the parameters.

6.2 Parameter description

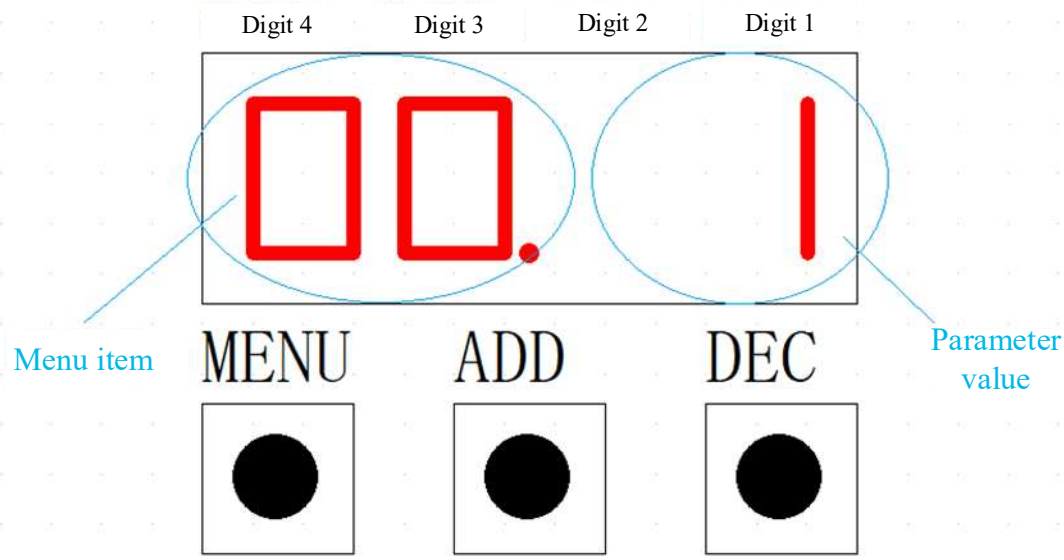


Figure 6-2 Parameter

Table 6-1 Main Control Board Parameters

Menu Items	Parameter Values
P00 – Display Settings	0---Default display 1---Pulse display 2---Version display 3---Detection display 4---Operation count display 5---Speed display Note: After exiting the settings, the digital display content will be shown.
P01 – Operating Mode	0---Normal operation 1---Aging test mode
P02-Master/Slave Mode	0---Standalone 1---Master unit 2---Slave unit
P03 – Passage Mode	0 — Left controlled, right controlled 1 — Left free, right controlled 2 — Left controlled, right free 3 — Left free, right free 4 — Left controlled, right prohibited 5 — Left prohibited, right controlled 6 — Left free, right prohibited 7 — Left prohibited, right free 8 — Left prohibited, right prohibited Note: When standing inside the gate facing the main unit, left is the left side and right is the right side.
P04 – Passage Count (Memory)	0 — No counting 1---Counting enabled
P05 – Entry/Exit Setting	0 — Left entry, right exit

	1 — Left exit, right entry Note: When standing inside the gate facing the main unit, left is the left side and right is the right side.
P06 – Valid Passage Time	3~60S
P07 – Opening/Closing Speed Level	0–10 (slow → fast)
P08 – Deceleration Position Setting	0–50 (increase appropriately if there is overshoot at the end position)
P09 – Braking Speed Setting	0–50 (reduce appropriately when the gate leaf is heavy)
P10 – Forward Limit Position Setting	0–10 (angle) Note: Applicable to swing gates and flap barriers; not applicable to tripod turnstiles.
P11 – Reverse Limit Position Setting	0–10 (angle) Note: Applicable to swing gates and flap barriers; not applicable to tripod turnstiles.
P12 – Zero Position Adjustment	0 — Reserved 1 — Adjustment mode Applicable to swing gates and tripod turnstiles: adjust position after closing limit is reached; settings are saved upon exiting the menu. Not applicable to flap barriers.
P13 – Anti-Tailgating Swipe Delay Time	0~10S
P14 – Voice Type	0 — Chinese 1 — English 2 — No voice
P15 – Entry Voice Selection	0 — DING DONG 1 — Welcome 2 — Welcome home
P16 – Exit Voice Selection	0 — DING DONG 1 — Have a safe trip 2 — Smooth journey
P17 – Protection Action	0 — Stop on protection 1 — Open on protection Note: Swing gates default to stop-on-protection; flap barriers can select stop/open protection; not applicable to tripod turnstiles.
P18 – Clutch Lock Setting at Close Position	0 — Release clutch 1 — Lock clutch Note: Applicable to swing gates and flap barriers; not applicable to tripod turnstiles.
P19 – Card Validity Inside Gate	0 — Valid 1 — Invalid Note: Applicable to swing gates and flap barriers; not applicable to tripod turnstiles.
P20 – Bidirectional Passage Mode at Opening	0 — Disabled 1 — Enabled
P21 – Close Position Selection	0 — Close after passing middle infrared sensor 1 — Close after passing final infrared sensor Note: Applicable to swing gates and flap barriers; not applicable to tripod turnstiles.

P22 – Reverse Passage Close Setting	0 — Do not close 1 — Close gate Note: Applicable to swing gates and flap barriers; not applicable to tripod turnstiles.
P23 – Device Address (ID)	1~99
P24 – Clutch Presence Setting	0 — No clutch 1 — With clutch Note: Only applicable to swing gates; not applicable to flap barriers or tripod turnstiles.

6.3 Display Settings Description

After setting via P00, the digital display content will be shown after exiting the settings menu.

(1) Default display

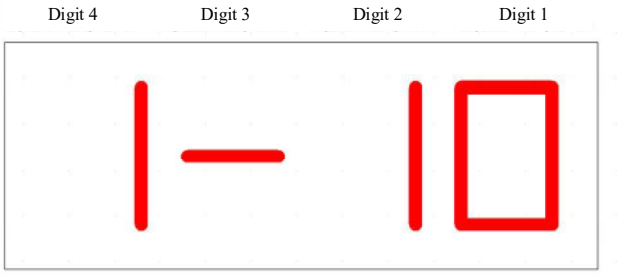


Figure 6-3 LED segment display mode

Table 6-2 Table of Default Digital Display Parameters

Digital tube	**说明**
Digital tube 1	Passage mode
Digital tube 2	Master/Slave unit
Digital tube 3	Flashing continuously indicates normal operation
Digital tube 4	Turnstile type 1- Z2689/Z2358G/Z2688 2- Z2688 high glass/Z2689 high glass 3- Z1116/Z1118 4- Z2318/Z2528 **5- Z3219,** Factory default

(2) Pulse display

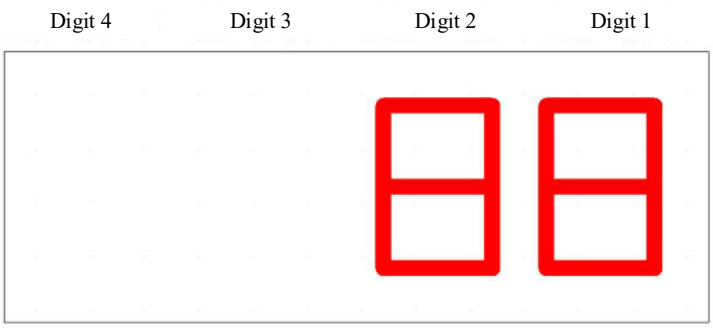


Figure 6-4 **indicates the motor's current position**

(3) Version display

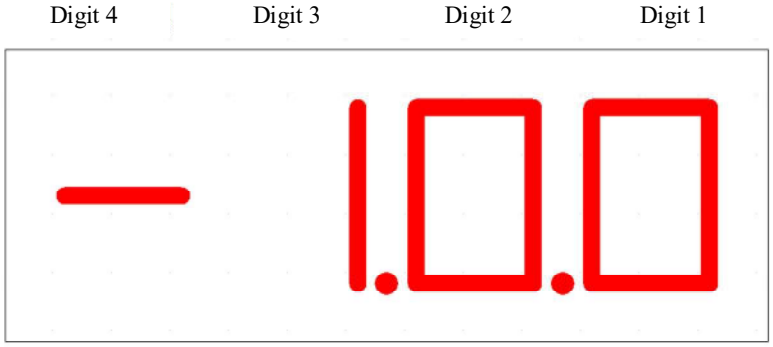


Figure 6-5 Program version display
indicates that the current program version is V1.0.0

(4) Detection display

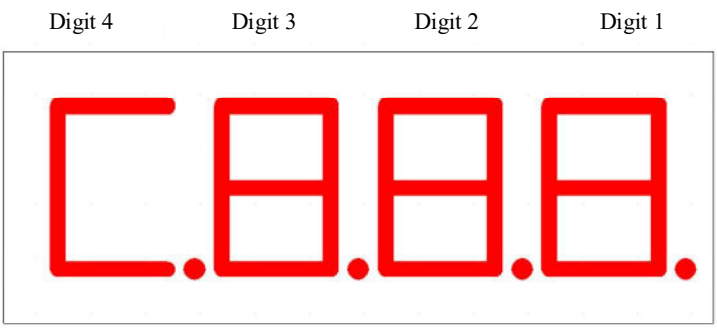


Figure 6-6 Digital Display Test Illustration 1

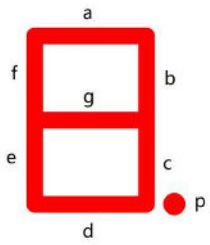


Figure 6-7 7-segment Display Test Mode Diagram 2

Table 6-3 able of 7-Segment Display Test Descriptions

Digital tube	Digital segment	Description
Digit 1	a	OPL input
	b	OPR input
	c	CLO input
	d	FIRE input
	e	Reserved signal (IN1) input
	f	Reserved signal (IN2) input
	g	Reserved
	p	Reserved
Digit 2	a	Infrared Signal 1 input/Grating Board 1 signal input
	b	Infrared Signal 2 input/Grating Board 2 signal input
	c	Infrared Signal 3 input/Grating Board 3 signal input
	d	Infrared Signal 4 input/Grating Board 4 signal input
	e	Infrared Signal 5 input/Grating Board 5 signal input
	f	Infrared Signal 6 input/Grating Board 6 signal input
	g	Grating Board 7 signal input
	p	Grating Board 8 signal input
Digit 3	a	Reserved
	b	Reserved
	c	Reserved
	d	Reserved
	e	Motor HallA signal input
	f	Motor HallB signal input
	g	Motor HallC signal input
	p	Reserved
Digit 4		Display "C."

Chapter 7 Test Instructions

7.1 Basic Function Test

1. After power-on, the device automatically performs a self-check. Once the self-check is completed, the three arms can rise normally.

2. Swipe a valid card from either the left or right direction, and the arms should allow passage in both directions.;

3. External control interface test:

(1) Left Open Gate (LOP) input: short-circuit with 12V, and the left direction should allow passage.

(2) Right Open Gate (ROP) input: short-circuit with 12V, and the right direction should allow passage.

(3) Close Gate (CLO) input: short-circuit with 12V, reset to zero position, and passage should be blocked.

(4) Fire Alarm (normally open, FIRE) input: short-circuit with 12V, the arms should drop automatically, enabling free passage.

4. Buzzer test: When illegal pushing occurs, the buzzer should emit an alarm sound.

5. Power-off test: The arms should drop automatically after power failure. The final dropped angle should be less than 30°.

7.2 Indicator Light Test

1.Under normal power-on conditions, the left/right passage indicator lights are white, and the channel indicator light is green.;

2.When a valid card is swiped from the left/right direction, the corresponding left/right passage indicator light turns green, and the channel indicator light remains green.

3.In case of illegal pushing, the left/right passage indicator light turns red, and the channel indicator light also turns red.

7.3 Overall Function Test

7.3.1 **Self-check function**

After the device is powered on, it performs a self-check. If an error is detected, the main control board will issue a buzzer alarm. The error messages and troubleshooting methods are shown in Table 7-1. The system can proceed to the next operation only after the self-check is successfully completed.

Table 7-1 Error Code Description Table

Error code	Error description	Solution
F-01	Memory chip fault	Replace the main control board
F-02	Input power over voltage (>26V)	Check the input power voltage of the motherboard
F-03	+24V under voltage/power outage	Check the input power voltage of the motherboard without power outage
F-04	+12V under voltage/short circuit	Check if there is a short circuit in the input power voltage or external power supply of the motherboard
F-05	Motor Hall sensor fault	Check if the motor wires are well-connected
F-06	/	/
F-07	Motor stuck/drive fault	Check if the structure is stuck
F-08	Over current detection fault	Slow down opening or closing/replace the main control board
F-09	/	/

7.3.2 **7-Segment Display Test**

When powered on, all segments of the main board's 7-segment display will flash on and off three times. This is used to check whether the display is functioning properly.

7.3.3 **LED indicator detection**

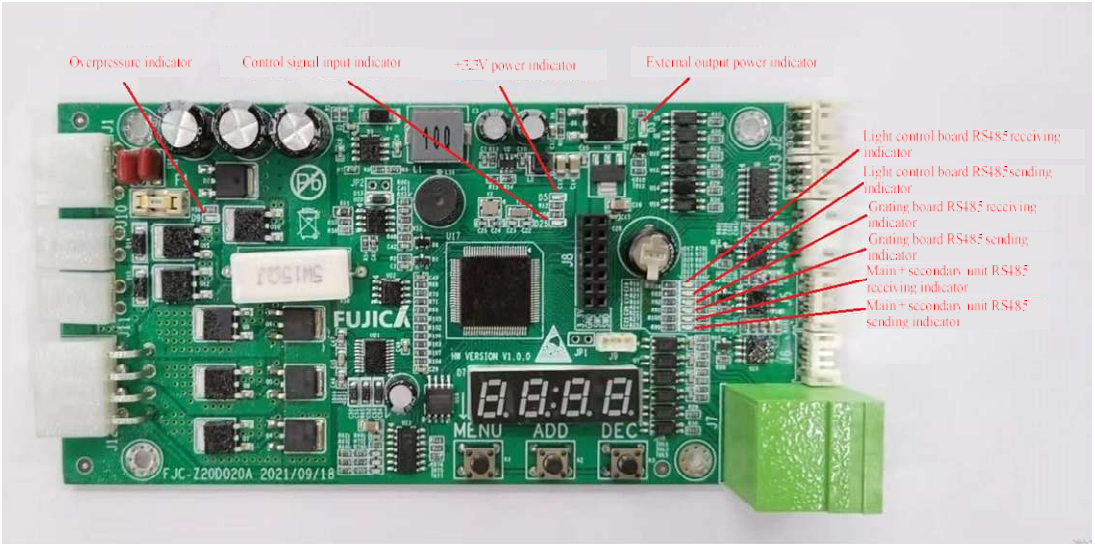


Figure 7-1 Main Control Board Indicator Diagram

Table 7-2 LED Indicator Table

LED position	Description
D3	External output power (+12V) indicator light
D5	+3.3V power indicator light
D9	Overpressure relief indicator light. (Shot connect Test Point JP2 quickly and observe if D9 is on)
D16	Light control board RS485 sending indicator light
D17	Light control board RS485 receiving indicator light
D19	Photoelectric grid board RS485 transmit indicator light. Note: Applicable to swing gates and flap barriers; not applicable to tripod turnstiles.
D20	Photoelectric grid board RS485 receive indicator light. Note: Applicable to swing gates and flap barriers; not applicable to tripod turnstiles.
D22	Master/Slave RS485 transmit indicator light. Note: Applicable to swing gates and flap barriers; not applicable to tripod turnstiles.
D23	Master/Slave RS485 receive indicator light. Note: Applicable to swing gates and flap barriers; not applicable to tripod turnstiles.
D25	Control signal input indicator light.

7.3.4 Control signal detection

Table 7-3 Control Signal Test Operation Table

Operation	Reflection	Remarks
Completely closed, and provide the "LOP" port with high-level pulse signal	The barrier arm rotates forward by a certain angle (about 5°). When pushed manually, the arm automatically rotates forward to the limit position.	Operate after the turnstile self-check is successfully completed and not in setting mode.。
Completely closed, and provide the "ROP" port with high-level pulse signal	The barrier arm rotates forward by a certain angle (about 5°). When pushed manually, the arm automatically rotates forward to the limit position.	
Completely open, and provide the "CLO" port with high-level pulse signal	The barrier arm returns to the closed limit position.	
Provide the "FIRE" port with high-level pulse signal when a fire alarm is not given	Arm drop.	
Completely closed, and provide the "LOP" port with high-level pulse signal	The arm rises again and performs self-check.	

7.3.5 Indicator board detection

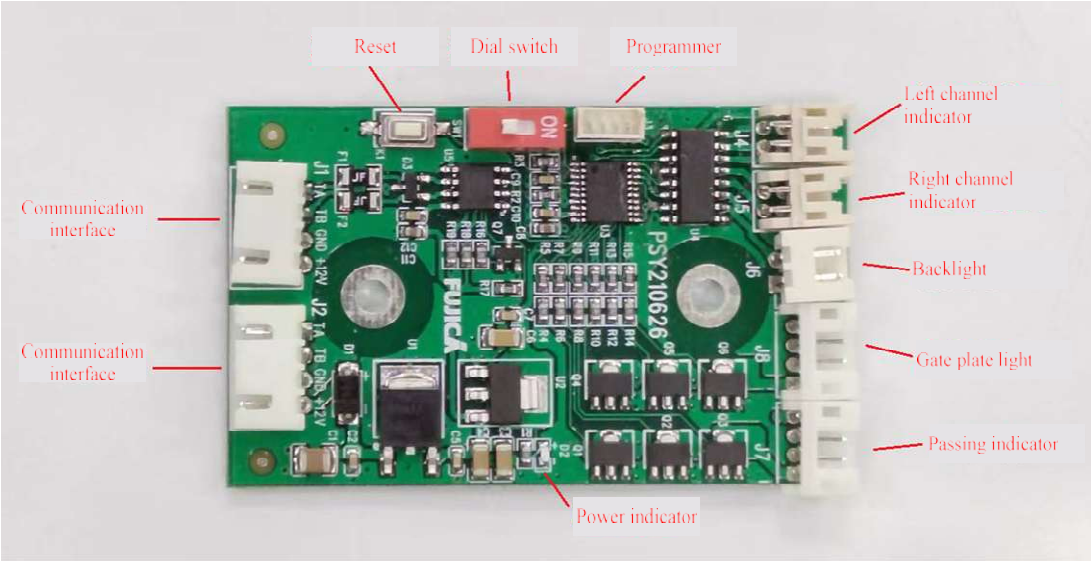


Figure 7-2 Lighting Control Board Interface Diagram

Connect the indicator light board to the interface of the lighting control board and perform a power-on test.

During power-on self-check, parameter setting mode, and bidirectional no-passage mode, all indicator lights are red. Other functions should be tested according to Table 7-4.

Table 7-4 Indicator Light Control Table

Indicator board	Condition	Indicator light color
Lane Indicator Light	Lane unavailable, access prohibited, or illegal pushing of the arm	Red
	Lane available; passage allowed according to configured access conditions	Green
Access Indicator Light	Lane available; idle state	White
	Lane available; authorized passage	Green
	Illegal pushing of the arm	Red

7.3.6 Voice detection

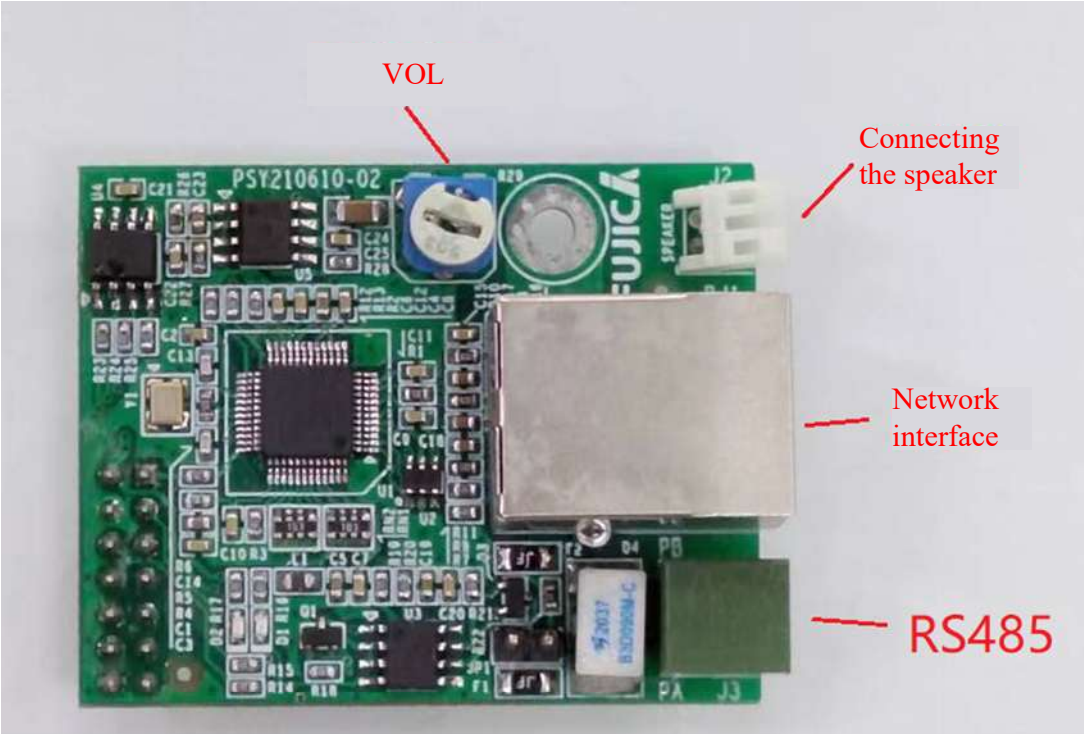


Figure 7-3 Voice Board Diagram

(1) Tap a card or attempt to force entry to verify that the speaker is working properly.;

(2) Adjust the variable resistor shown in Figure 7-3 to verify that the volume changes accordingly

7.3.7 **Lock Clutch Detection**

When the gate is fully closed, check whether the arm clutch is engaged.

Chapter 8 Maintenance and Precautions

Although the turnstile has undergone a series of tests before leaving the factory to ensure safe and stable operation, it must be properly installed and commissioned in strict accordance with this user manual before use. The manufacturer shall not be held responsible for any consequences caused by improper operation or human damage. Before installing the product, please pay attention to the following safety precautions:

1、For turnstiles installed indoors or outdoors, after being powered off and left unused for a long period, the entire circuit must be inspected and maintained before reuse, to prevent damage to electronic components caused by condensation formed during the idle period.

2、Before operation, familiarize yourself with the functional characteristics of each interface terminal to avoid circuit board damage caused by incorrect wiring or connection errors;

3、During operation, ensure safety. Improper operations are strictly prohibited, such as touching PCBA or conductive terminals of components without wearing insulating gloves;

4、During commissioning, avoid direct sunlight shining on the limit switch;

5、After operation, ensure that all conductive connections of components are intact and that the system functions properly and meets inspection and testing requirements.

Chapter 9 Common Faults and Troubleshooting

As the turnstile is an electromechanical integrated product, it requires proper maintenance during use. Effective maintenance can extend the service life of the equipment and ensure its operational performance and reliability.

Maintenance Part	Possible Fault Phenomenon	Inspection Method	Corrective Action
Clutch Brake	Abnormal or stiff rotation of the turnstile rotor, accompanied by noise	Check whether the bearings of the clutch brake are damaged. Check whether the clutch can slide smoothly to switch between clutch and braking states	If the bearings are not damaged, apply lubricant. If the bearings are damaged, replace them immediately before further use. If the issue is caused by clutch damage or related connected components, repair or replace the relevant parts
Rotor	Loose or shaking movement when the tripod reaches the correct position	Check whether the screws on the rotor are loose	Tighten the screws
Compression Spring	Arm drops automatically under normal conditions or does not drop when power is off	Check the elasticity of the compression spring	Replace the compression spring inside the rotor assembly
Drop Arm Mechanism	Arm fails to rise when powered on or fails to drop when power is off	Check whether the drop arm mechanism is correctly positioned	Adjust the position of the drop arm mechanism
Photoelectric Sensor Switch	Self-test failure or misalignment	Check whether the photoelectric sensor is functioning properly or misaligned	Replace the photoelectric sensor switch if damaged