

# **USER MANUAL**

**Sentinel Z58B Flap Barrier  
(Z1116B-H V1.0)**

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## Chapter 1 Product

### 1.1 Introduction

It is a new generation of access gate adapted to modern “safe, fast, efficient, and quality” management and carefully designed and developed based on years of experience in the industry, with high standards, high quality, and high integration. It is fashionable, artistic and durable. Equipped with standard signal input interface, it is compatible with all kinds of access control, and applicable to business buildings, communities, exhibition halls, government buildings, financial institutions, and other sites, to meet different scenarios and user needs.

The product you bought is developed and produced in accordance with the requirements of the ISO9001 quality management system and is rated as qualified after strict and careful inspection. It has been strictly tested before shipment, but to ensure its safe and reliable operation, it is recommended that users read the manual carefully before use, so as to avoid improper operation and damage to their rights and interests.

**This instruction applies to Flap Gate FJC-Z1116B-H.**

### 1.2 Structure

#### Internal structure diagram of FJC-Z1116B-H

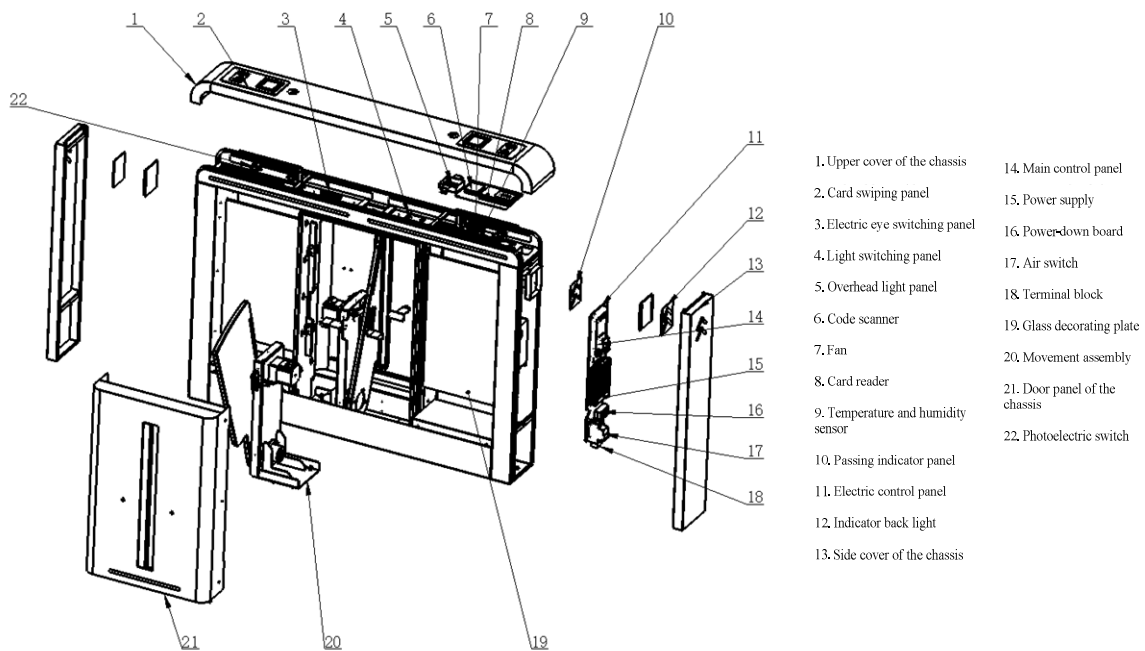


Figure 1 Internal Structure Diagram of FJC-Z1116BW-H

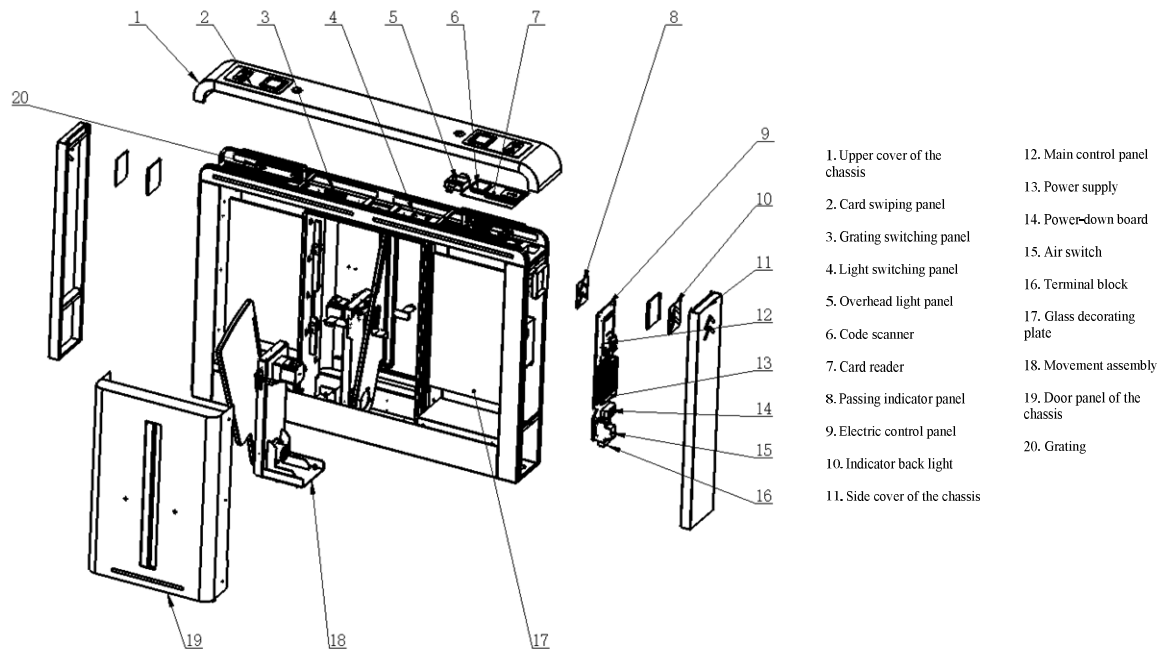


Figure 2 Internal Structure Diagram of FJC-Z1116BN-H

### 1.3 Technical parameters

Technical parameters of FJC-Z1116B

Item		FJC-Z1116BW-H	FJC-Z1116BN-H
Material process	Body frame	304 stainless steel	
	Side frame material	304 stainless steel	
	Top cover material	304 stainless steel	
	Gate material	Acrylic plate	
Specification and dimension	Dimension (L*W*H)	1400*280*980mm	
	Lane width	500mm~550mm	
Supply voltage	Voltage	AC 220V/110V $\pm 10\%$ , 50/60Hz	
	Motor power	40W	
	Total power	100W	
Access indicator	Normally closed mode	30 people/minute	
	Normally opened mode	40 people/minute	
	Open-closing speed	0.5s-1s adjustable	
Access detection	Detection method	Photoelectric switch	Grating
	Number of electric eyes	6	40

Item		FJC-Z1116BW-H	FJC-Z1116BN-H
Related interfaces	Communication interface	Serial port and multiple-channel I/O interface	
	Communication method	RS485, TCP/IP	
Working environment	Noise	$\leq 65\text{dB}$	
	Working temperature	$-25^{\circ}\text{C}-+70^{\circ}\text{C}$	
	Storage and transportation temperature	$-30^{\circ}\text{C}-+70^{\circ}\text{C}$	
	Working humidity	$\leq 90\%$ , no condensation	
	Storage and transportation humidity	$\leq 95\%$ , no condensation	
	Working environment	Indoor and outdoor	Indoor

#### 1.4 Functional features

Type		Description
Functional features	Voice broadcast	Rich voice content, supporting Chinese and English voice, and supporting voice volume adjustment
	Anti-pinch detection	Infrared anti-smashing effectively protects the passerby.
	Fire alarm	When the system receives the fire alarm signal, the gate opens automatically and stays in the mode of free pass.
	Power off opening	Standard power-off opening device, automatic power-off opening, automatic power-on reset, in line with security requirements
	Partition detection	Set up strict protection zone by zoning detection + fuzzy algorithm to effectively protect pedestrians
	Counting	With the function of counting, the gate can let N persons pass if all of them have had their card swiped continuously.
	Automatic reset	If the user does not pass within the specified time after having the valid card swiped, the system will automatically cancel the user's permission to pass and close the gate.
	External interface	Unified external electrical interface
	Automatic fault detection	Automatic fault detection function facilitates the maintenance and use by users
	Anti-following	Strict Anti-following mechanism, such as trailing alarm or trailing gate closure

Type		Description
	Anti-reverse access	Accurate determination of reverse passing, and the corresponding sound and light prompts to ensure the legality and effectiveness of access
Maintenance & Installation	Easy installation	Modular design, simpler structure, easy installment
	Expandable	Diversified access permissions, and expandable to face recognition, IC card swiping, QR code, and ID card swiping, etc.
	Easy maintenance	It takes less than 30 minutes to remove and replace core components to achieve rapid operation and maintenance

## Chapter 2 Definition

### 2.1 Flap gate

The gate is composed of a chassis and two movable door wings, which can be extended and withdrawn to dissuade or release; Since the main chassis and movable wings are shaped like an eagle with outstretched wings, the gate is also known as wing gate/speed gate.

There are “side unit” flap gate and “central unit” flap gate as shown in the figure below, 2 single-movement flap gates constitute 1 flap gate channel, of which 1 is the master machine and another is the slave machine; 2 side unit flap gates and 1 central unit flap gate constitute 2 channels, and so on for multiple channels.

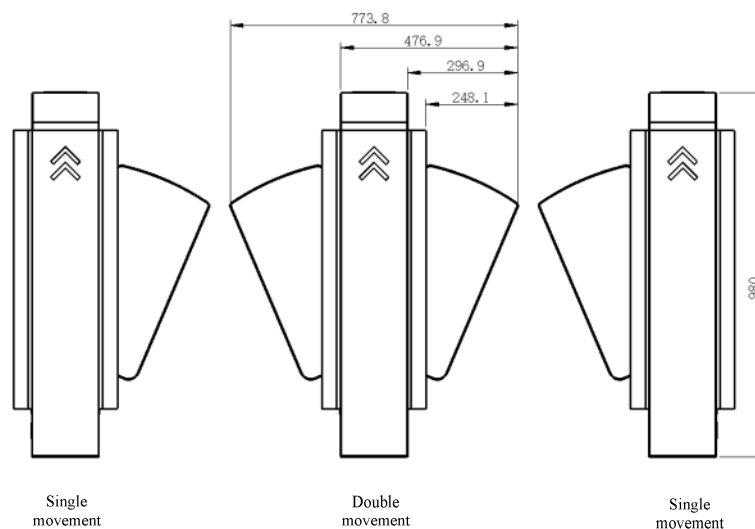


Figure 4 Schematic Diagram of flap Gate Channel

### 2.2 Gate passing mode

**Access by control:** Passage under control is the default standby mode. When the legal opening signal is given, the gate will open to allow pedestrians to pass. The legal opening signal is dry contact signal, and enabling instruction by communication protocol.

**Free access:** When the infrared ray detects a pedestrian accessing the passage, the gate opens, and pedestrians can pass freely.

**Prohibit to pass:** When the legal enabling signal is given, the gate does not open and allow pedestrians to pass.

For detailed configuration, please refer to Appendix 2 Parameter Description

## Chapter 3 Product Installation and Commissioning

### 3.1 Product installation

- (1) Prepare the tools needed to install the gate and pick out the auxiliary parts according to the packing list.
- (2) Determine the composition and operation mode of the system, and prepare for installation after completing the system planning.
- (3) After determining the hole location, drill holes and pre-bury expansion bolts. Please refer to the installation diagram for details:
- (4) Separate the strong/weak cables and place them in the corresponding outlet holes of the equipment.
- (5) Open the chassis door, select a gate as a reference (it is recommended to select the middle gate as a reference), align the drilled holes of the bolts on the base plate with the ground bolts respectively, and then initially tighten the nuts.
- (6) Open the door of the adjacent gate chassis, align the drilled holes of the bolts on the base plate with the ground bolts respectively, refer to the appropriate arrangement of the reference gate linkage, and then initially tighten the nuts.
- (7) In accordance with the wiring diagram of the gate, correctly connect the power cord, the control cord and the ground wire of the system.
- (8) Adjust the size and horizontal position and fasten the gate.
- (9) installation diagram

Installation diagram of Z1116B-H

Pre-bury 4 M12\*120 expansion bolts

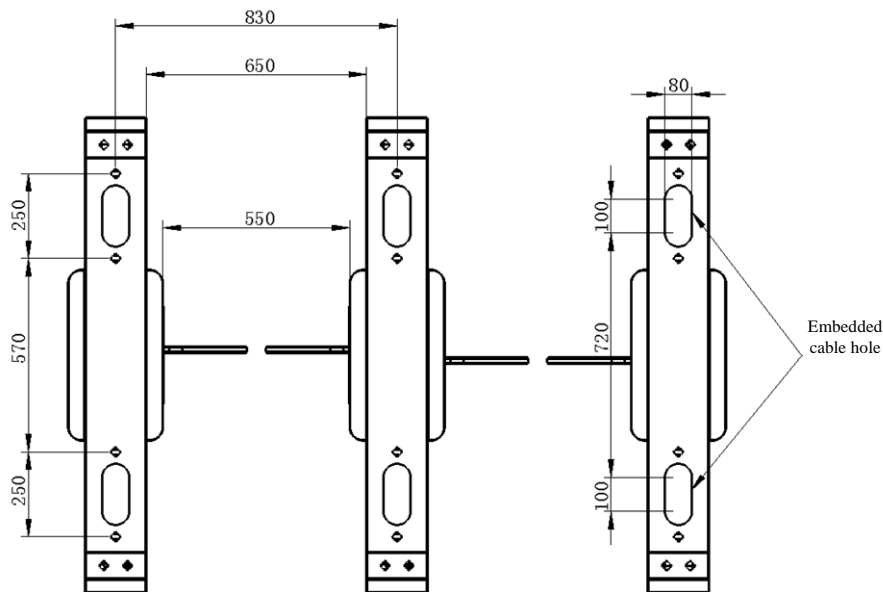


Figure 5 Installation Diagram of Z1116B Series

### 3.2 External wiring

To facilitate field wiring, we have connected the pins that need to be wired on the master controller to the relevant external terminals. Only the external terminals need to be connected during field wiring. Only one triplex button needs to be connected to a group of channels, either to the master machine or to the slave machine. The connection cable of the master machine and the slave machine can be an internally wired RVVP 6\*0.75 or 6\*1.0 6-core conductor.



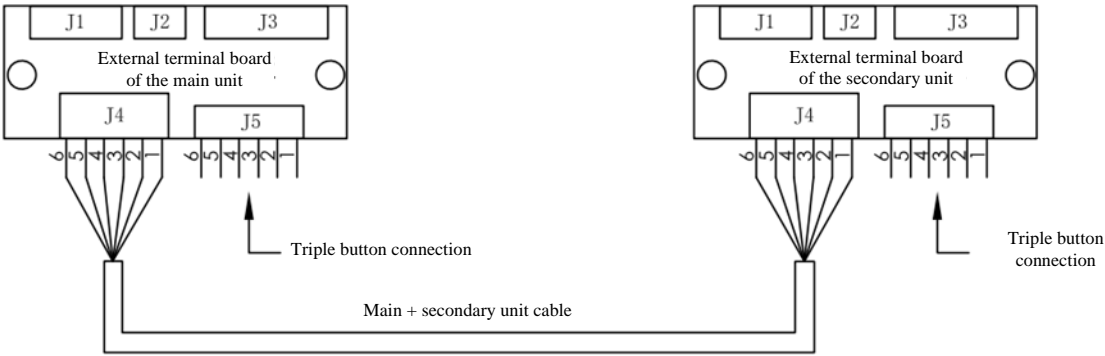


Figure 7 External Wiring Diagram

J4	1	SYN SYN	Synchronous signal line of the master machine and the slave machine
	2	RS485A RS485A	
	3	RS485B RS485B	
	4	+24V +24V	
	5	GND GND	
	6	+12V +12V	
J5	1	VDD VDD	External control signal line (connected to triplex button)
	2	Left opening gate	
	3	Right opening gate	
	4	Close the gate	
	5	Fire alarm (normally opened)	
	6	GND GND	

- ◆ When the external total power supply enters the chassis, the front-end circuit breaker must have a leakage protection device. Bring the external 220V/110V power supply into the chassis, and equip the master machine with 24V switching power supply.
- ◆ If there are 4 or more channels, another RVV3\*1.0 power cable should be laid between master machines.
- ◆ All chassis should ensure good grounding and connect the ground wire.

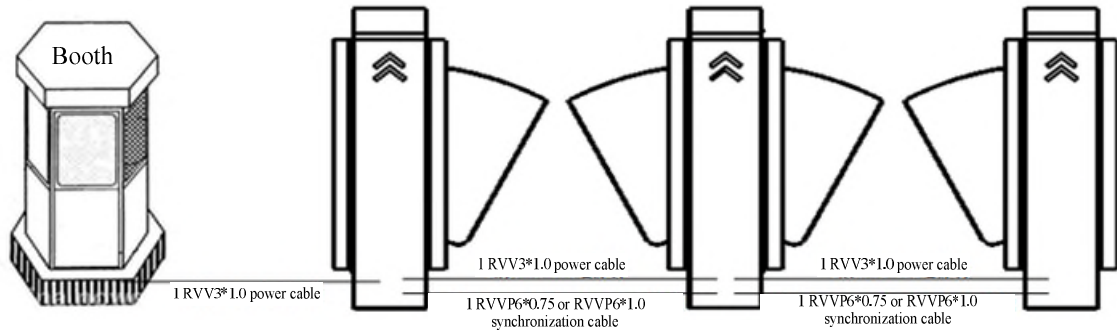


Figure 8 Cabling Diagram

Description: The control line for manually controlling the channel gate is an RVVP6 \* 0.5 control cable, and the master machine is connected to the control buttons in the management duty room (If the booth needs to control by triple buttons, a control cable shall be laid in each group of channels).

### 3.3 Product status inspection

The user must check the gate status after correctly installing the gate. The specific inspection steps are listed as follows:

- (1) Check if electrical control components are correctly connected. Please refer to the appendix for details.
- (2) Power on the gate system after the inspection of the gate's electrical accessory connection is qualified.
- (3) A self-check will be conducted after the flap gate is powered on. The swings on both sides should swing back and forth once, and remain closed after the self-check.
- (4) Check if the gate works as the user requires. Please refer to the appendix table for details and adjustments.
- (5) Check if the gratings of each lane work well: check in pairs, block each grating, and the corresponding indicator light on the motherboard - grating receiving board will be on.
- (6) Check the working status of swings of each lane: When the gate is in standby, press the testing button attached for an opening signal. The swings should be opened/closed synchronously and stably, and the gate should be opened or closed completely. If the swings run abnormally, please ask for technical support.

Note:

The product has undergone a series of inspections and tests before delivery, but it is necessary to check the gate status after the gate is installed correctly on site to ensure the system's smooth operation. The inspection operations should be confirmed by a professional before execution, and the gate parameters can't be modified without the manufacturer's permission.

### 3.4 Product function configuration

After the checking of the gate status, check the gate functions, including the power-on self-check function test, normal passing test, entrance and exit passing mode configuration, alarm function configuration, anti-pinch function configuration and emergency escape function configuration.

### 3.5 Normal passing test

When the gate is in standby, the swings should be closed. When pedestrians press the opening button attached for a legal opening signal, the swings should be opened, and pedestrians can pass within the allowed passing time (usually 8 seconds). During passing, the gate shouldn't give an alarm. After passing, the swings should be closed.

### **3.6 Alarm function configuration of the gate**

During configuration, in case of the gate's power-on self-check, as well as illegal passing, reverse passing or tailing passing of pedestrians, the buzzer and voice should give an alarm prompt.

### **3.7 Anti-pinch function configuration of the gate**

The gate's anti-pinch function for doors' obstruction: provide a legal opening signal, and the swings should stop working when they're blocked by hand in the opening or closing process.

Infrared anti-pinch function of the gate: if the infrared ray in the anti-pinch area is blocked when the swings work, the swings should stop working. After pedestrians/obstacles leave the anti-pinch area, the swings should continue to work.

## **Chapter 4 Product Cleaning and Maintenance**

It is recommended to clean the gate once a week, and daily cleaning and maintenance should be carried out as follows:

- (1) Laymen shouldn't open the chassis for configuration, maintenance and product services;
- (2) It is forbidden to wipe the gate's surface with hard objects, or the gate may be scratched and ugly;
- (3) It is forbidden to rinse the gate, or its electrical accessories are prone to short circuit, and the gate can't work well;
- (4) It is forbidden to clean the chassis' stainless steel surface with strongly basic or acidic solvents;
- (5) It is necessary to regularly check the connection of each interface of the motor mechanism to prevent connection fasteners from being loose;
- (6) It is necessary to regularly lubricate the motor mechanism's components;
- (7) It is necessary to regularly check the connection between sockets and wires to ensure the stable connection of wires;
- (8) It is necessary to regularly check the grounding connection of electrical system to prevent electric leakage;
- (9) After the inspection and maintenance, please power on the gate system and close the repair door.

## Chapter 5 Common Troubleshooting

### 5.1 Common faults and maintenance

As the channel gate is an integrated product of machinery and electronics, appropriate care and maintenance are necessary in its use. Effective upkeep and maintenance can prolong its service life and ensure the user's use quality.

Maintenance parts	Potential faults	Checking method	Solutions
Movement	1. No self-check upon power-on 2. Movement got stuck	1. Check whether the motor cable is properly connected, whether the power supply is normal, and whether the main control panel is faulty; 2. Whether there is something stuck or structural interference in the power-off driving plate	1. Check the circuit, and replace the main control panel 2. Replace the motor
Grating board/photoelectric switch	Abnormal gate logic	Check if the grating board/photoelectric switch is damaged or misaligned; check if the relevant wires are inserted correctly after the grating board is replaced.	Align or replace the grating board or photoelectric switch
Power off opening	The gate will not open automatically after the power is off	Whether the power-off opening device is properly connected, and whether it is damaged	Replace the power-off opening device, and detect the power-off opening circuit
Access control	The card reader doesn't read the card, or it reads the card but the gate doesn't open	If the connection between the card reader and gate is loose, if the card is out of service, or if the card reader fails.	Check the circuit and card reader, detect the card

### 5.2 Fault description

In case of any device error, the motherboard will buzz to report it. Please refer to Appendix 3 for error information and solutions.

## Chapter 6 Maintenance and Precautions

Although the gate has undergone a series of inspections before delivery to ensure its safe and smooth operation, but the users must correctly install and configure the delivered gate in strict accordance with the operation manual before use. The manufacturer may refuse to be liable for any consequences caused by incorrect operation and man-made damage. Before the product is installed, please pay attention to the following safety precautions:

- ◆ Technicians without an electrician certificate or undergoing electrical training are not allowed to be engaged in strong current and other electrical connection operations.
- ◆ It is forbidden to install fixed gates without a suitable installation foundation.
- ◆ During maintenance, please disconnect the system power supplies (e.g. access control, visitor system) other than the gate.
- ◆ There must be a leakage protector or other current control operating device.
- ◆ It is necessary to connect the gate's wires according to the wiring diagram in the appendix.

- ◆ Please ensure that the gate function test is passed before the gate is put into use.
- ◆ Please check the fastening bolts during maintenance.
- ◆ Do not touch such live parts as the switching power supply and heating device since they may be at a high temperature and may burn the skin after the gate system is electrified.
- ◆ Heavy objects can't squeeze and press the gate in case of unnecessary damage.
- ◆ It is recommended to separate the power interfaces of the gate from those of other equipment, or the product is prone to faults due to mutual interference of the equipment.
- ◆ Without explosion-proof devices, the equipment is not allowed to be used in flammable and explosive environments.



(1) Description of step setting

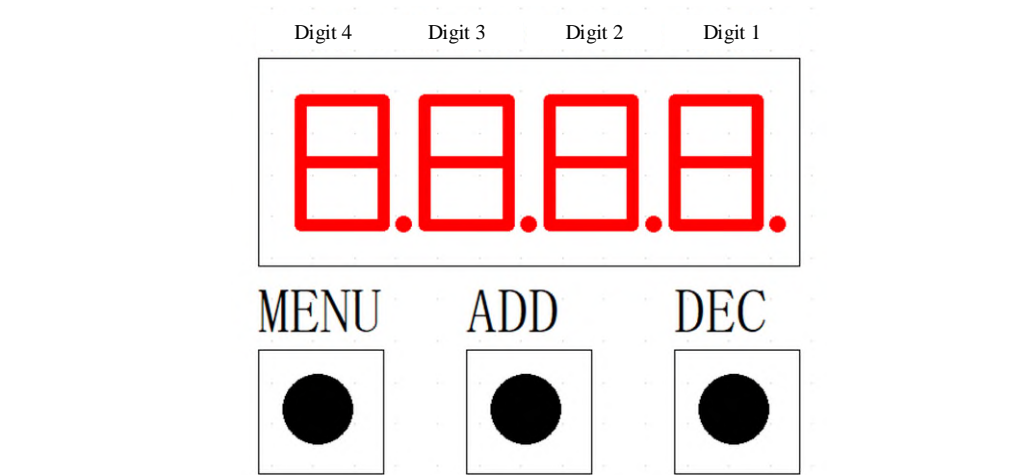


Figure 3

- (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.
- (2) Parameter description

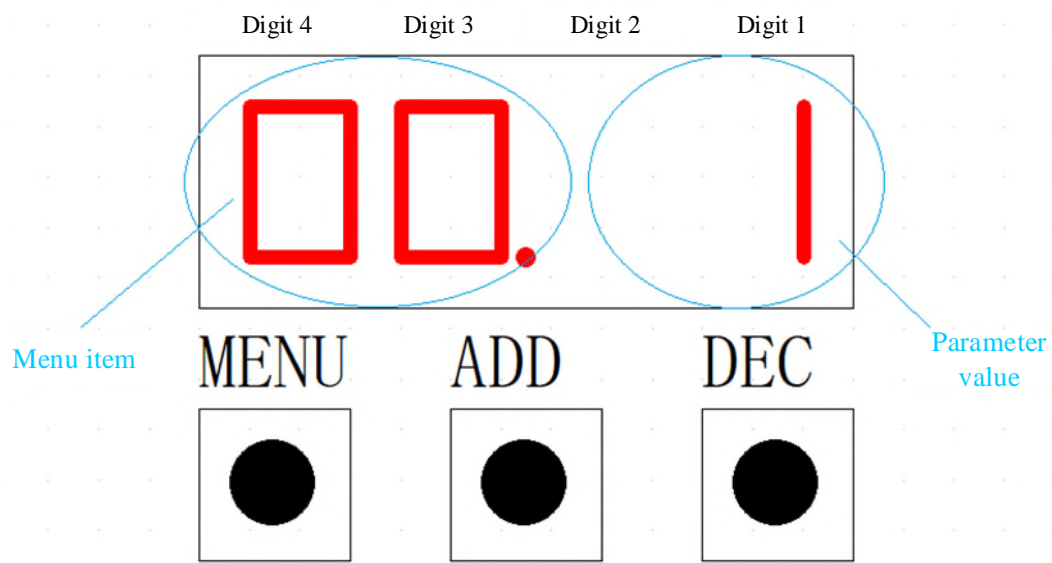


Figure 4

Menu item	Parameter value
P00- Display setting	0- Default display 1- Pulse display 2- Version display 3- Detection display Note: after the setting mode is quit, the content is displayed digitally.

Menu item	Parameter value
P01- Operating mode	0- Normal operation 1- Aging test
P02- Masterand slave machines	0-- Single machine 1- Master machine 2- Slave machine
P03- Access 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: the gate's inside faces the master machine, with the left hand side as left and the right hand side as right.
P04- Opening count (memory)	0- Not count 1-- Count
P05- Entrance and exit settings	0- Left in and right out 1- Left out and right in Note: the gate's inside faces the master machine, with the left hand side as left and the right hand side as right.
P06- Effective passing time	3-60s
P07- Opening or closing speed level	0~10 (Slow >> Fast)
P08- Deceleration stroke setting	0-50, increase appropriately at the time of being in place and overshooting.
P09- Brake speed setting	0-50, reduce appropriately when the gate plates are heavy.
P10- Forward in-place setting	0-10 (angle)
P11- Backward in-place setting	0-10 (angle)
P12- Zero adjustment	0- Reserve, 1 - Adjust, only for the swing gate. After the gate is completely closedcompletely closed, adjust its position, quit the menu and save the settings.
P13- Opposite delayed card swiping time	0-10s



Menu item	Parameter value
P14- Voice type	0- Chinese 1- English 2- Mute
P15- Entrance voice selection	0-DING DONG 1- Welcome 2-Welcome home
P16- Exit voice selection	0-DING DONG 1- Have a safe journey 2- Bon voyage
P17- Protection action	0- OFF 1- ON Note: when the swing gate protection stops, the blocking swing protection can be selected as "OFF/ON".
P18- Completely closed Completely closed clutch locking setting	0- Loose 1- Lock
P19- If the card swiping is effective within the gate	0- Effective 1- Non-effective
P20- Opening entrance & exit passing mode	0-- Disable 1- Enable
P21- Closing position selection	0- Middle infrared closing 1- Rear infrared closing
P22- Reverse passing closing setting	0-- Open 1- Closing
P23- Device No.	1-99
P24- If there is a clutch	0- NO 1- YES

Table 1 Parameter Items of Main Control Board

## (3) Display setting description

Set the display by pressing P00. After the setting mode is quit, the content is displayed digitally.

## (1) Default display

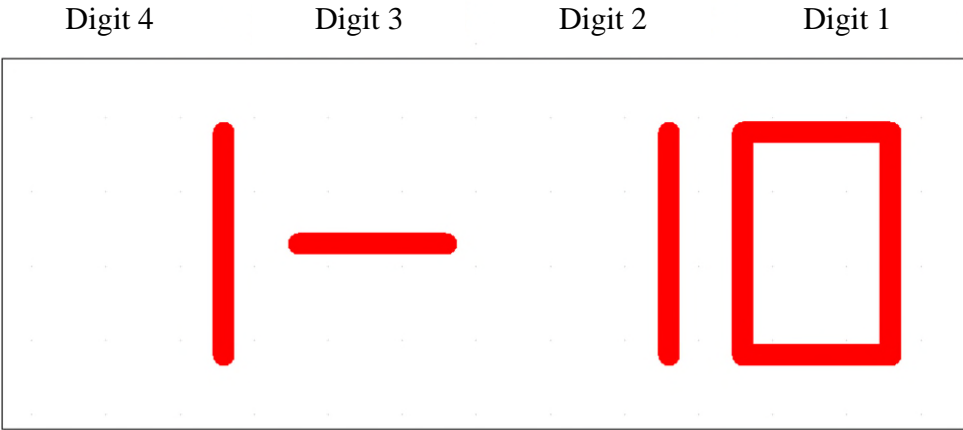


Figure 5

	Description
Digit 1	Passing mode
Digit 2	Master and slave machines
Digit 3	Keep flashing, indicating operation
Digit 4	Gate type 1- Z2689/Z2358GB-H 2- Half-height gate 3- Z1116B-H 4- Z2318-H/Z2318L-H/Z2528-H

Table 2

(2) Pulse display

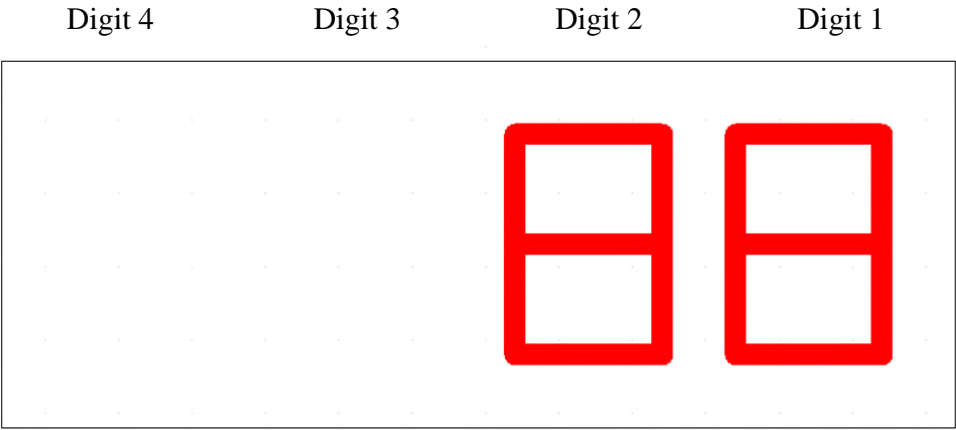


Figure 6 indicates the motor's current position

**(3) Version display**

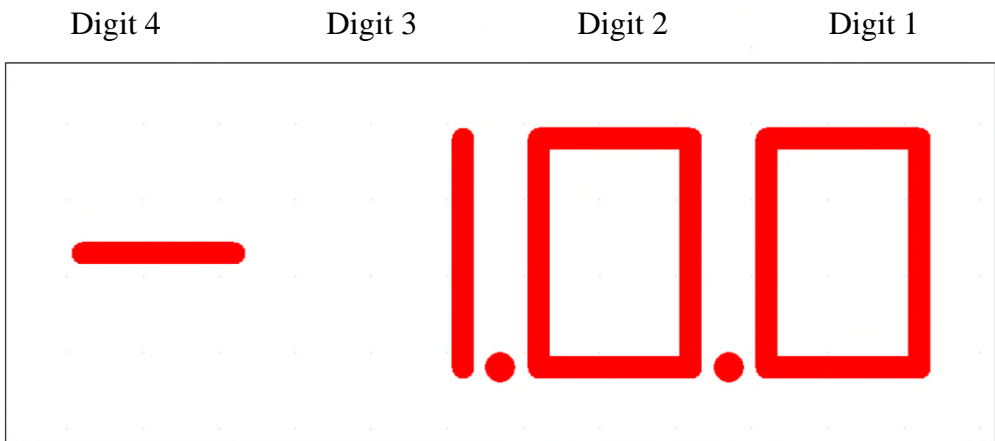


Figure 7 indicates that the current program version is V1.0.0

**(4) Detection display**

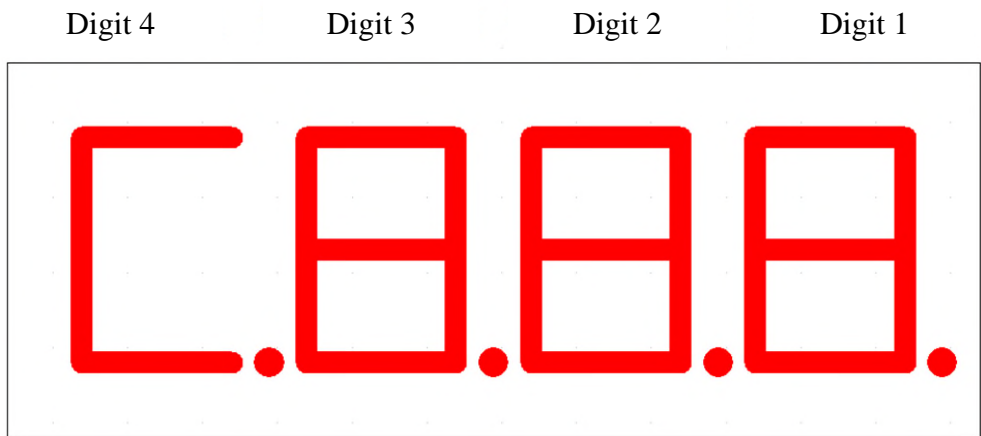


Figure 8

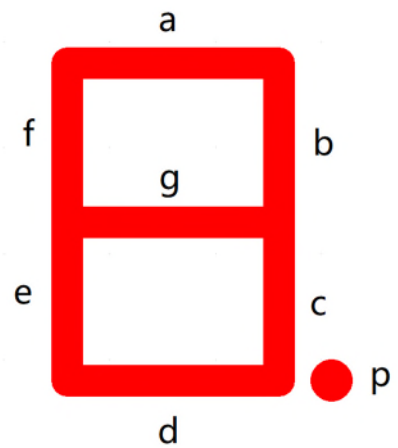


Figure 9

	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."

**Table 3**

(4) Recommended speed for opening or closing configuration

Model	Recommended opening or closing speed level	Remarks
Z1116B	3	1S in gear 10, and 0.2S in gear 0. There may be too much noise if it is too fast.

### Appendix 3: Machine Function Detection

(1) Self-check function

After being powered on, the gate conducts a self-check. In case of any error, the motherboard will buzz. See Table 4 for error information and solutions. The system self-check must be passed before the next operation.

Error code	Error description	Solution
F-01	Memory chip fault	Replace the main control board
F-02	Input power overvoltage (>26V)	Check the input power voltage of the motherboard
F-03	+24V undervoltage/power outage	Check the input power voltage of the motherboard without power outage
F-04	+12V undervoltage/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	Infrared sensor fault	Check if the infrared ray is blocked
F-07	Motor stuck/drive fault	Check if the structure is stuck
F-08	Overcurrent detection fault	Slow down opening or closing/replace the main control board
F-09	Communication fault of master and slave machines	Check if parameters of the master and slave machines are set properly or if the communication wire is connected well.

**Table 4 Error Code Description Table**

(2) Digital tube detection

When being powered on, digital tubes of the motherboard will be on and off for three times. Observe if the digital tubes are intact.

(3) LED indicator detection

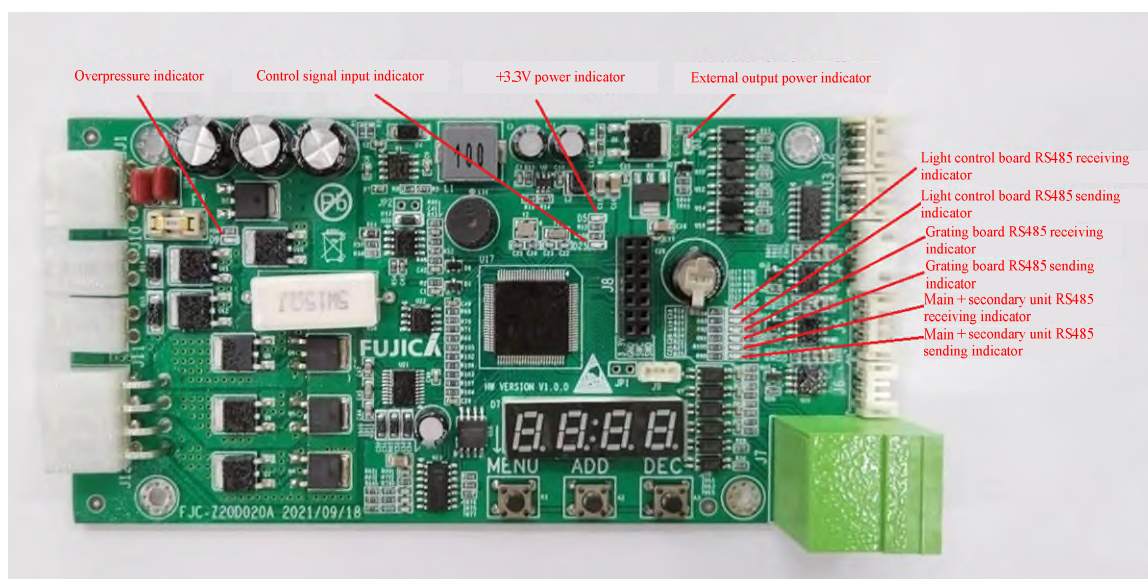


Figure 10

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	Grating board RS485 sending indicator light
D20	Grating board RS485 receiving indicator light
D22	Master and slave machines RS485 sending indicator light
D23	Master and slave machines RS485 receiving indicator light
D25	Control signal input indicator light

Table 5 LED Indicator Table

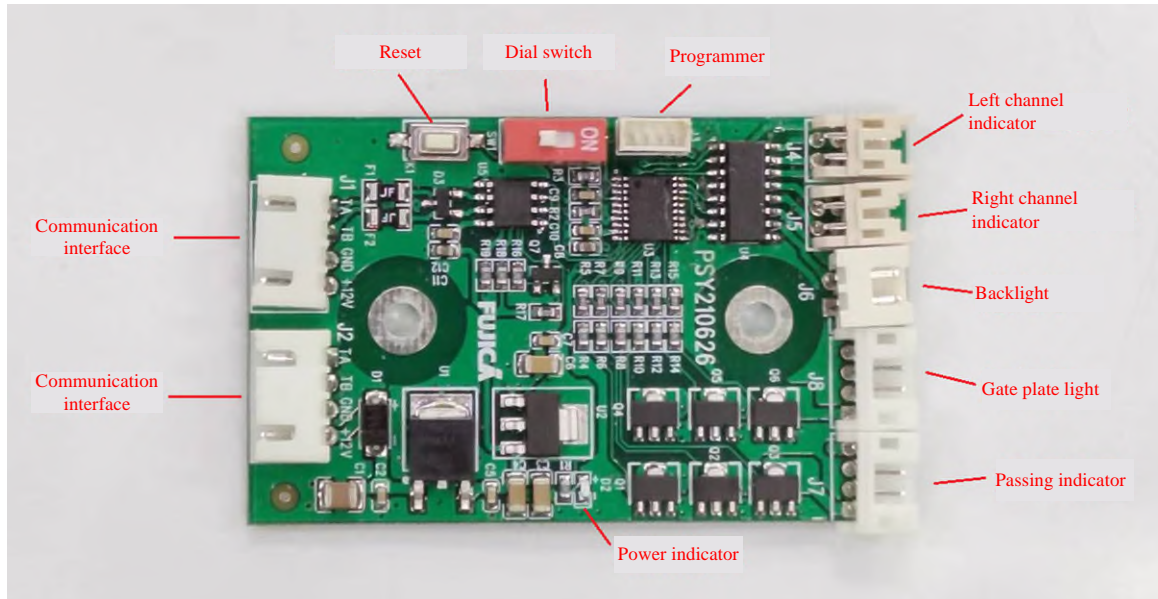
(4) Control signal detection

Operation	Reflection	Remarks
Completely closedCompletely closed, and provide the "LOP" port with high-level pulse signal	Gate plates are opened	Do after the lane gate self-check is passed, and it is not in setting mode.
Completely closedCompletely closed, and provide the "ROP" port with high-level pulse signal	Gate plates are opened	
Completely open, and provide the "CLO" port with high-level pulse signal	Gate plates close	

Operation	Reflection	Remarks
Provide the "FIRE" port with high-level pulse signal when a fire alarm is not given	Gate plates are opened towards the exit direction	
Provide the "FIRE" port with high-level pulse signal when a fire alarm is given	Gate plates close	

**Table 6 Control Signal Detection Operation Table**

(5) Indicator board detection



**Figure 11**

The indicator boards are all connected to the interfaces of the lighting control board for power-on testing.

In the modes of power-on self-check, parameter setting and entrance & exit prohibited, all indicator lights are red, and other items should be detected according to Table 6.

Indicator board	Condition	Indicator light color
Lane indicator board	In "prohibited" mode	Red
	Not in "prohibited" mode, no one is passing (completely closed)	White
	Normal passing	Green
	Illegal passing	Red
Passing indicator board	No one is passing (completely closed)	White
	Normal passing	Green
	Illegal passing	Red
Gate plate light	No one is passing (completely closed)	White
	Normal passing	Green
	Illegal passing	Red

**Table 7 Indicator Light Control Table**

(6) Signal switching panel detection



Figure 12

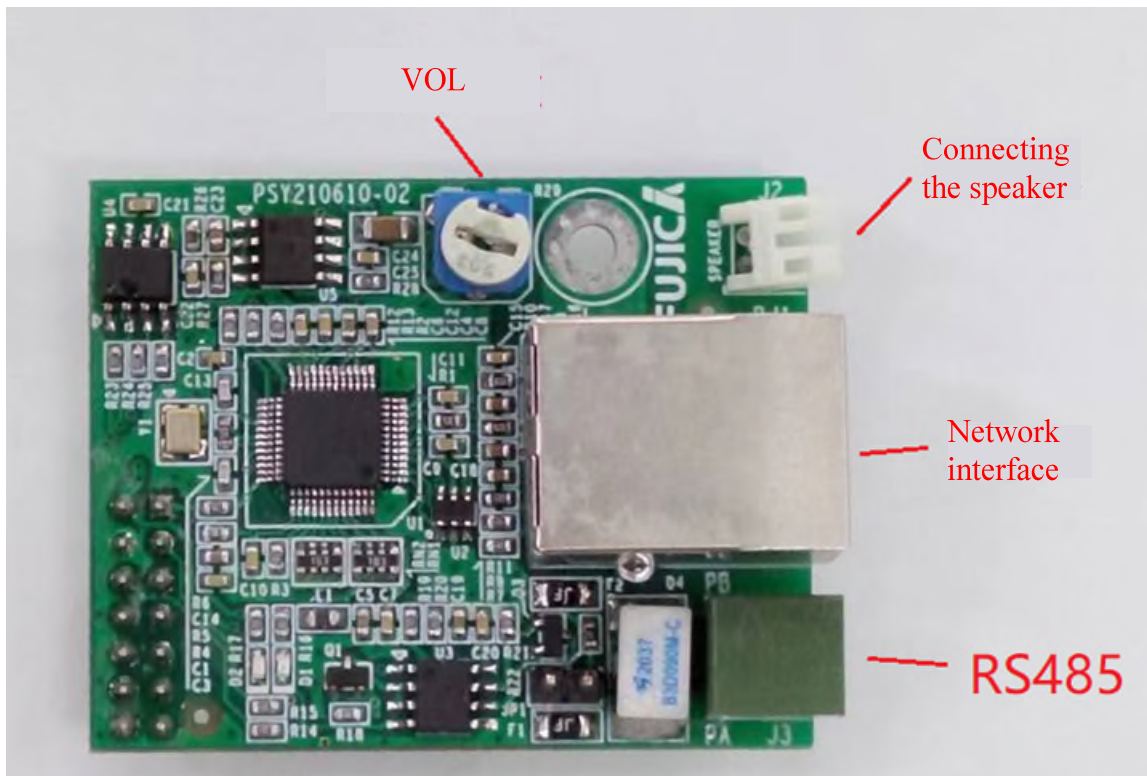
In flap gate Z1118B, the signal switching panel connects the channel direction indicator - G6D004E and the gate plate light (light strip Z1D007C- Red & Green - channel)

In the modes of power-on self-check, parameter setting and bidirectional no passing, all indicator lights are red, and other items should be detected according to Table 8.

Indicator board	Condition	Indicator light color
Channel indicator plate (channel direction indicator - G6D004E)	In "No" mode	Red
	Not in "No" mode, no one is passing (completely closed)	Green
	Illegal intrusion	Red
Gate plate light (light strip Z1D007C- Red & Green - channel)	No one is passing (completely closed, or closing)	Red
	Normal passing (completely open, or opening)	Green
	Illegal passing	Red



(7) Voice detection



**Figure 12**

- ① Swipe the card or break in to test if the speaker sounds;
  - ② Turn the adjustable resistor on Figure 11 to test if there is any change in volume.
- (8) Detection of pedestrians going through the gate  
Swipe the card or pass freely to check if the gate is closed immediately after the pedestrians pass.
- (9) Anti-smashing protection detection  
Simulate the fact that infrared ray is blocked in the protection area at the time of opening or closing to check if the gate immediately stops working.
- (10) Emergency unlock detection  
Power off to check if the gate plates open automatically.

**Revision Record Form**

Version No.	Revision date	Revised content	Edit	Audit
V1.0	4-Apr-23	Initial release	Zhang Peng	