

Wing Gate Instructions

Applicable Models: FB1000 / FB3000 FB1200 / FB3200

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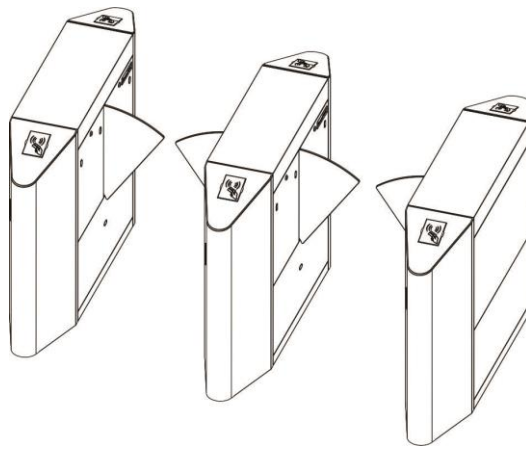
Chapter 1 Overview

The wing gate is composed of a chassis, core component, wing arms, Printed Circuit Board (PCB), infrared sensors, read head, and access control system.

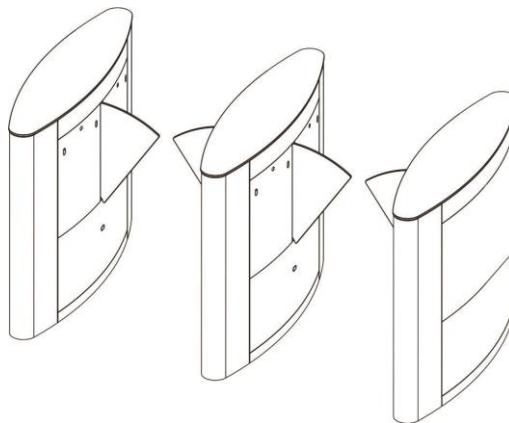
The system uses standard electric interfaces. It meets fire-fighting passage requirements and is equipped with dedicated fire control linkage interfaces. The entire system complies with the same quality standard to ensure reliability, stability, and smoothness of the system during operation.

The wing gate is applicable to work attendance, access control, consumption management, and special passage control of enterprises and institutional organizations. It is conducive to management of ticket check passages in stations, wharfs, convention and exhibition centers, and swimming pools.

1.1 Product Model and Appearance



Sharp-angled Wing Gate FB1000 & FB1200



Oval Wing Gate FB3000 & FB3200

In the preceding models, FB1200 and FB3200 are dual-passage wing gates, as shown in the middle of the preceding figures; FB1000 and FB3000 are single-passage wing gates, as shown on both sides of the preceding figures.

Note: The functions, installation methods, wiring, commissioning, and wiring diagrams of all models are the same. This document uses sharp-angled wing gates FB1000 & FB1200 as an example for description.

1.2 Features

- **Power-ON self-test:** The device automatically tests whether functions are normal during power-ON or restart.
- **Humanized passage indicators:** When the wing gate is closed in standby mode, the indicator of the wing gate delivers a static light (a dual in-line package (DIP) switch is provided for selecting red light or green light). When the wing gate is opened, the green indicator is turned ON and on the opposite passage red indicator indicating access forbidden is turned ON. Any false action will trigger the red indicator and the generation of an audible alarm. The software-based access control mode is used in perfect combination with visual alarms.
- **Passage mode setting:** A DIP switch is available to set one-way passage, two-way passage, and free passage (wing arms collapsed).
- **Automatic reset function:** If no person passes through the wing gate within the specified period of time after the wing gate is opened, the system automatically closes the wing gate. The default duration is 5 seconds. The pass-through duration can be set by using a DIP switch. For details, see 4.5.1 "Setting Gate Opening Duration."
- **Infrared anti-pinch and anti-bump functions:** Four pairs of infrared sensors are installed inside the anti-pinch and anti-bump area (close to the wing arm movement area). When the infrared sensor detects a person or object in the anti-pinch area, the wing arms automatically stop the action and continue the action after the person or object leaves the anti-pinch area.
- **Audible and visual alarms:** The system generates alarms in any of the following cases: illegal break-in, reverse pass-through, pass-through timeout, and illegal signal input.
- **Fire control function (optional):** The fire linkage alarm function can be configured to open the wing gate.
- **Counting function (optional):** The system automatically collects statistics of pass-through persons and displays the statistical results using LEDs in a visualized manner.
- **Fire control function (optional):** When a power failure occurs, the wing gate automatically opens and no storage batteries are required. The wing arms retract into the chassis by virtue of the elastic force and the passage is open for crowd evacuation. This function better resolves the problem that the wing gate cannot be opened due to a power failure caused by storage battery aging.
- The wing gate is equipped with a read head conversion board, which allows replacing different types of read heads easily.
- The wing gate can be connected to an ON/OFF button or remote controller, which is set to normally open to meet requirements of different sites.
- **Anti-follow function:** After receiving a legal signal, the device opens the wing gate. After a person passes through the wing gate, the device judges that a follow event occurs and generates an audible and visual alarm if another person follows the person ahead.

1.3 Technical Parameters

| | | | |
|--|--|-----------------------------|---|
| Overall dimensions (mm) | FB1000 / FB1200: L = 1400, W = 300, H = 1008 FB3000 / FB3200: L = 1212, W = 316, H = 1017 | | |
| Outer package dimensions (mm) | FB1000 / FB1200: L = 1440, W = 365, H = 1072 FB3000 / FB3200: L = 1257, W = 365, H = 1090 | | |
| Net weight of FBX000 series (master machine + slave machine) | FB1000: 156 kg FB3000: 138 kg | Net weight of FBX200 series | FB1200: 103 kg FB3200: 93 kg |
| Length of wing arms | 260 mm | Input voltage | AC 100 V ~ 240 V, 50 Hz ~ 60 Hz |
| Input control signal | ON/OFF signal | Output voltage | DC 24 V 5 A, DC 12 V 3 A |
| Wing gate ON/OFF duration | 1s | Rated power | Standby mode: 60 W; gate-opening working mode: 150 W |
| Ambient temperature range | -28°C to +60°C | Pass-through speed | 25-30 persons/min (normally closed mode) |
| Average failure-free operation count | 5 million times | Relative humidity | 5% to 80% |
| Number of infrared correlation tubes | 4 pairs | Operating environment | Indoor and outdoor (It is recommended that a canopy be set up.) |

Chapter 2 Power-on Test Prior to Installation

Test Procedure

- ① Connect a temporary test cable to the device and supply the input power of AC 100-240 V adaptive to the device (Note that a ground cable must be connected.)
- ② Wait 30 seconds till the wing gate completes the self-test procedure.
- ③ Start the air switch inside the wing gate to check whether the wing gate and the LED indicators functions properly. If they all function properly, then start the civil installation. If an exception occurs, contact your sales agent.

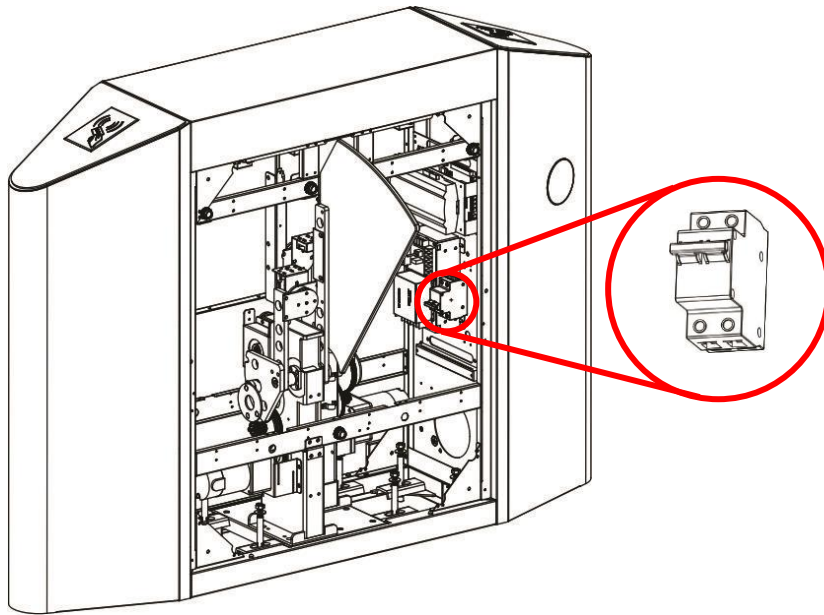


Figure 2-1 Air Switch

Chapter 3 Electric and Civil Installation

3.1 Device Installation Conditions and Installation Position

The ground foundation for installation must be a concrete structure to ensure that expansion screws can be fastened securely. If the ground foundation does not meet this condition, consult professional building or decoration personnel and create stable conditions for reliably fastening the wing gate, for example, drive piles or lay out steel plates.

Determine the device installation position.

Determine the installation position based on the space proportion of the wing gate by referring to Figure 3-1A, Figure 3-1B, and Figure 3-2.

Determine the installation scheme and build one or multiple intelligent management passages.

When a wing gate is installed against the wall, reserve 100 mm space for opening the upper cover of the wing gate for maintenance and commissioning. The master machine and slave machine of the FB1000 wing gate form a passage, as shown in [Figure 3-1A](#). Two FB1000 wing gates and one FB1200 wing gate can be installed to form dual passages, as shown in [Figure 3-1B](#). The unit of data in the figures is mm.

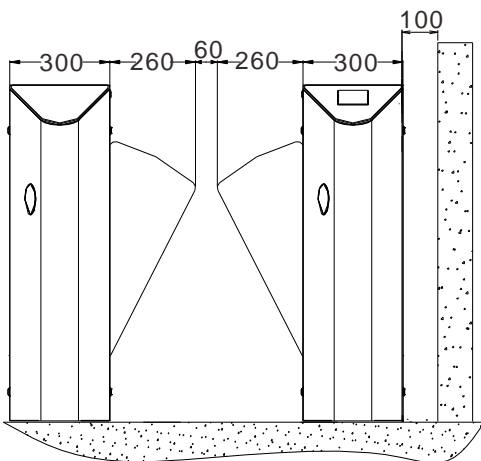


Figure 3-1A Single-Passage Wing Gate

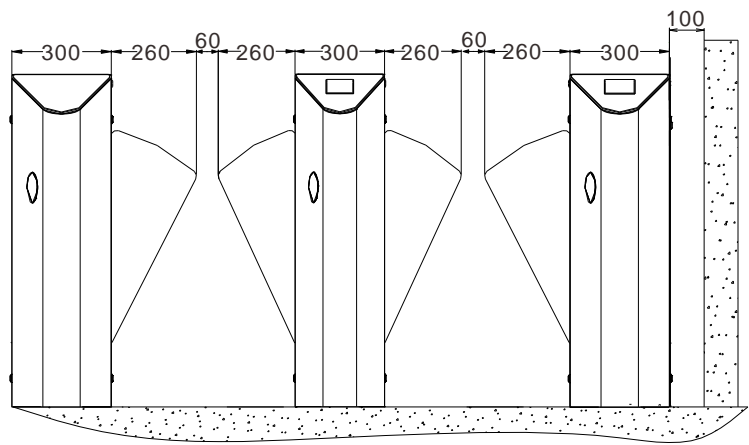


Figure 3-1B Dual-Passage Wing Gate

3.2 Cable Installation

For the outlet of concealed cables, see the installation hole positions of the FB1000 wing gate in [Figure 3-2](#).

The device uses 3 x 1.5 mm² cables with the voltage input range of AC 100-240 V as the power supply cable (including ground cables) and 4 x 0.5mm² shielded cables or RJ45 network cables as the signal cable. The power cable and signal cable must be laid out independently to prevent communication interference.. The power cable (strong current) and the signal cable (weak current) are laid out through different rubber hoses.

Only professional electricians are allowed to wire the wing gate and a ground cable must be connected for the wing gate. A dedicated ground cable binding post is provided on the inner bottom side of the chassis, to ensure that the ground cable at the far end is grounded reliably.

3.3 Device fixing and Installation

Procedure

- ① Power ON the master machine and slave machine, adjust the wing arms to ensure that the wing arms are in the same line and the distance between the wings is 60 mm. Make the wings to be in the OFF state.
- ② Test whether the infrared frays transmitted by infrared sensors on both sides align with each other.
- ③ Make marks: Mark the screw hole centers of the base and chassis base edges on the ground.
- ④ Drill holes: Move away the chassis, get ready a hammer drill and a 14 mm drill bit, and vertically drill a hole with the depth of 80 mm in the screw hole center marks.

Alternatively, drill holes according to installation hole positions. For FB1000/2000/3000/4000/5000 devices, see [Figure 3-2A](#) for installation hole positions. For FB3000 devices, see [Figure 3-2B](#) for installation hole positions. The unit of data in the figures is mm.

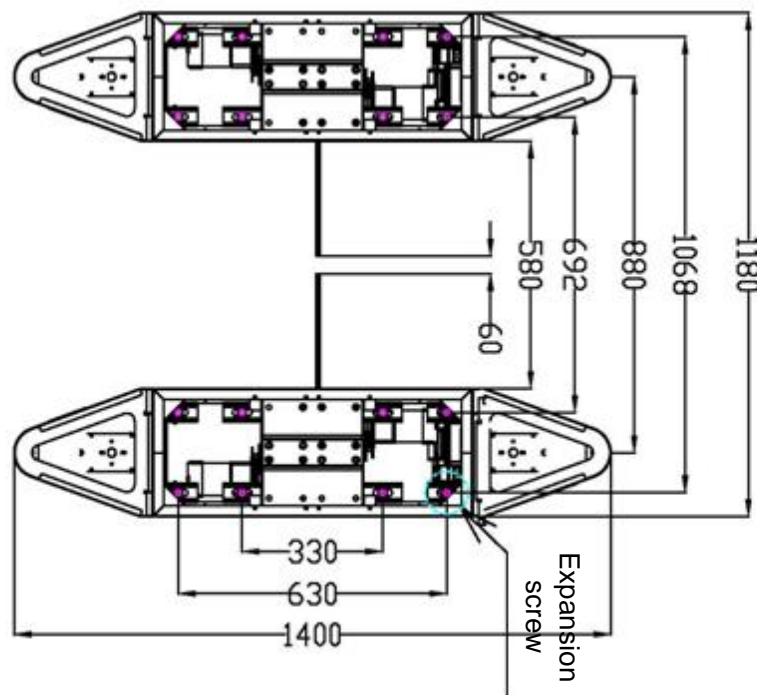


Figure 3-2A

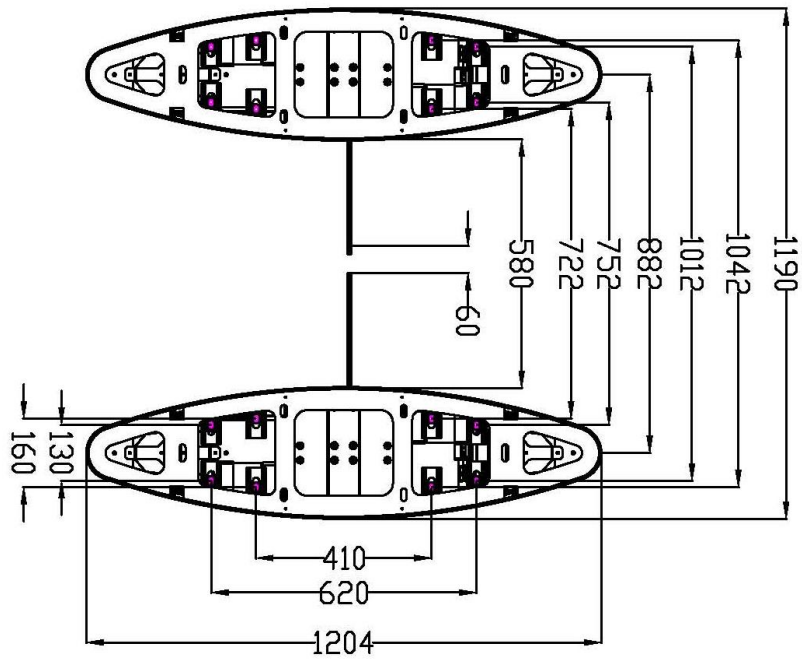


Figure 3-2B

- ⑤ Apply screw glue to the outer surface and threads of the expansion screws, insert expansion screws, and fix the master machine and slave machine in the marked positions. Use a level checker (or spirit level) to check whether the installation ground foundation is in correct level. If not, use a pad for adjustment.

Note: Eight expansion screws must be completely inserted, as shown in [Figure 3-3](#).

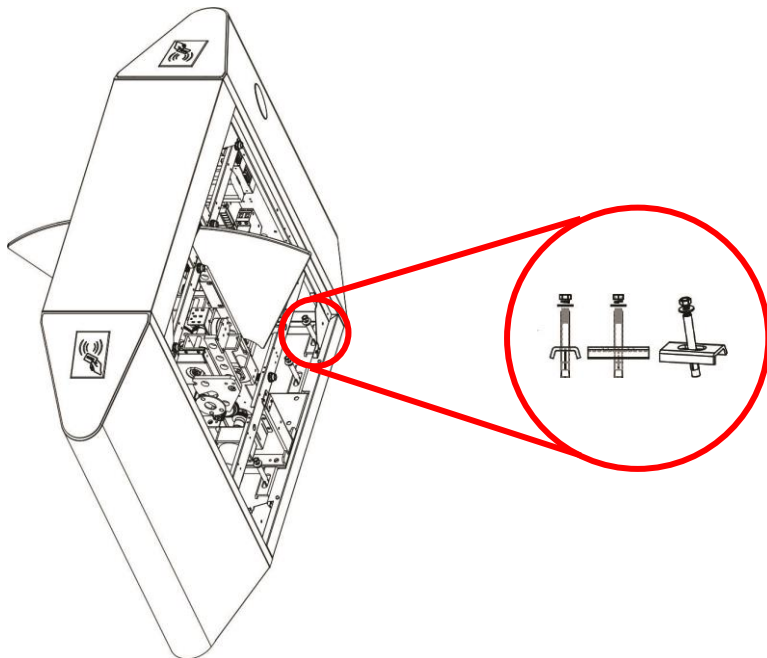


Figure 3-3

3.4 Card Swiping Guard Lines

It is recommended to set guard lines to prompt the users to swipe cards outside the guard lines, as shown in [Figure 3-4](#).

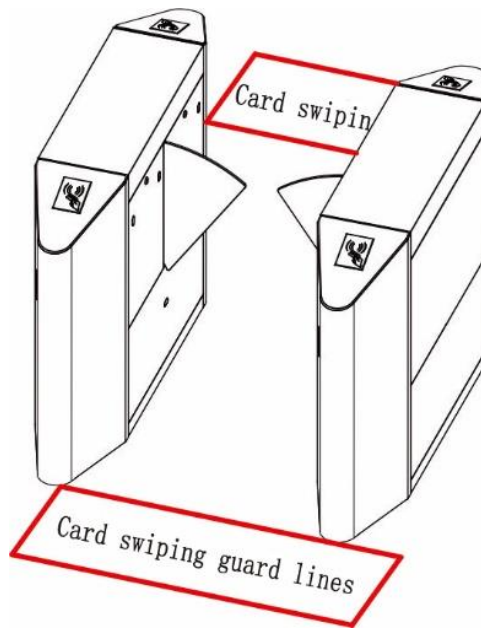


Figure 3-4

Chapter 4 Device Wiring and Commissioning

4.1 Function Description of Terminals on the Gate Control Board

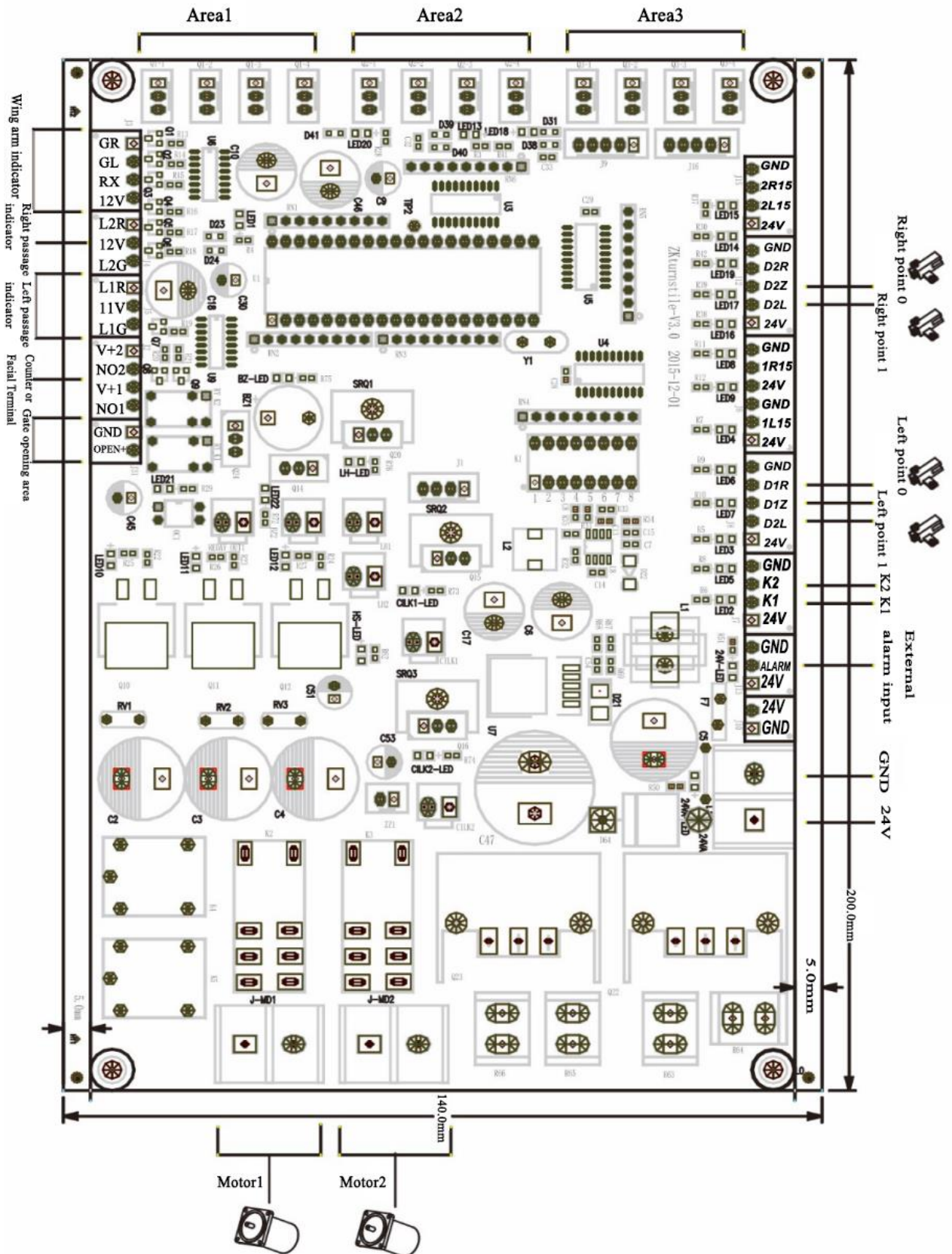


Figure 4-1

The functions of terminals in areas are described as follows:

Wing arm indicator: passage indicator

Left/Right passage indicator: the users judge whether they can pass through the wing gate based on the passage indicators. If green indicator is turned ON, they can pass through the wing gate. If red indicator is turned ON, they are not allowed to pass through the wing gate.

Counter or Facial Terminal: This area can be connected to fingerprint readers, card readers, Facial Terminal, and other devices.

Gate opening area: The terminal in this area controls the wing arms for allowing users to pass through.

Area 1: The terminal in this area detects whether passengers enter the passage area and judges whether an illegal break-in occurs.

Area 2: After passengers pass through area 2, the wing gate starts the wing arm closing procedure. The terminal in this area judges whether passengers pass through the wing gate to prevent pinch.

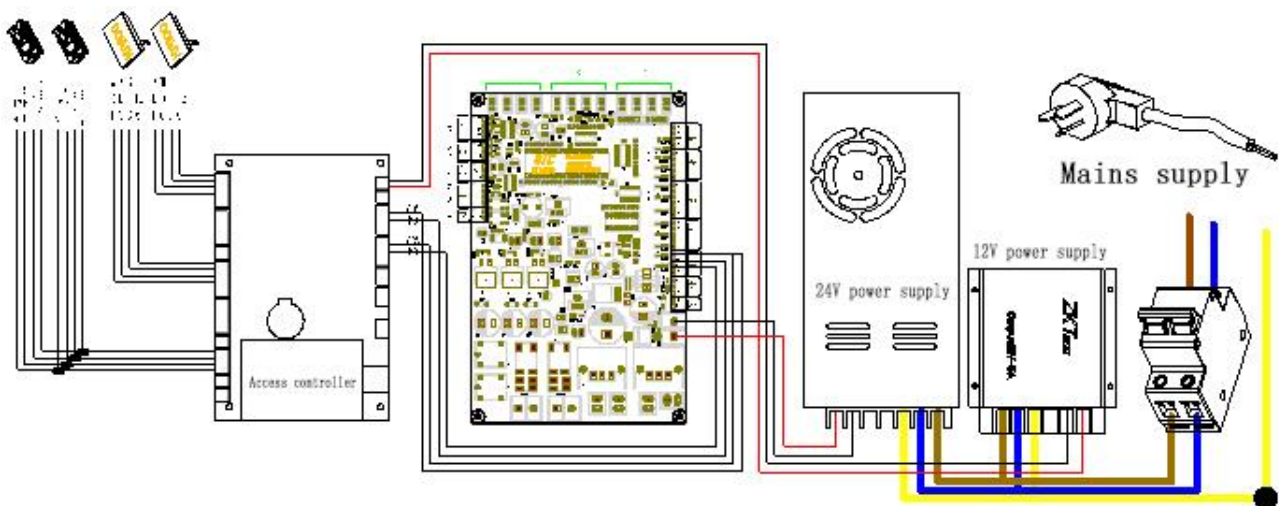
Area 3: After a user passes verification, the wing gate is opened. The terminal in this area also judges whether a user breaks in from the opposite side. A DIP switch can be used to set this area as an anti-pinch function area.

Right point 0/1: The terminal here detects the ON/OFF state signal of the wing arms. Point 0 indicates the OFF state and point 1 indicates the ON state.

GND, +24 V: The terminal here is connected to an external power supply.

Motor: The terminal here converts the electrical energy into mechanical movement of the wing gate.

4.2 Wiring Diagram of the Controller



4.3 Connection Cables Between the Master Chassis and the Slave Chassis

Three 6-core connection cables (totaling 18 cores) are deployed between two wing gates. On the wiring terminal of the slave machine, there is a white transparent ruler marked with terminal numbers (1-20). Complete the wiring according to the following table.

| | | | | | | | | | | | | | | | | | | | | |
|------------------|----------------|-------|-----------------------|-------|---|--------|--------------|-------|-------|-------|--------|--------|----------------|-------|---------------------------|-------|--------|--------|----|----|
| Output End | J-MD2 (Motor) | | CILK2 (Magnetic Lock) | | Optical Coupler for Gate Opening of Slave Machine + Optical Coupler for Gate Closing of Slave Machine + Pass-through Indicator + Side Indicator | | | | | | | | | | Read Head (Yellow 6 Pins) | | | | | |
| Polarity | +24 V | GND | +24 V | GND | NC1 | NC2 | +24 V | GND | +12 V | RX | GL | GR | L2R | L2G | | | | | | |
| Terminal No. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| Small Line Color | Red | Black | Green | White | Yellow | Orange | Red | Black | Green | White | Yellow | Orange | Red | Black | Green | White | Yellow | Orange | | |
| Cable Color | Black (6 pins) | | | | | | Red (6 pins) | | | | | | Green (6 pins) | | | | | | | |

4.4 Wiring Diagram of the Access Control System

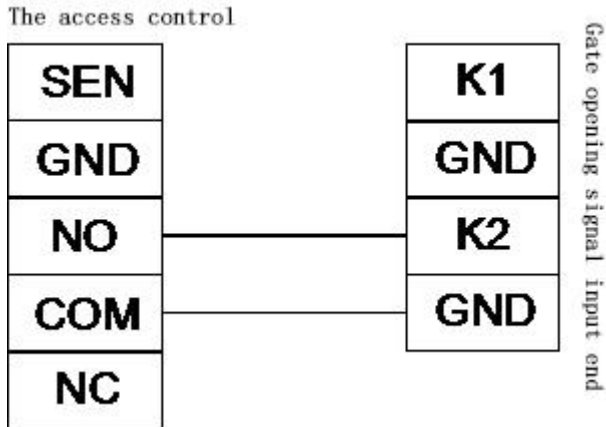


Figure 4-3

Note: The duration of the lock driver needs to be set to 1s or 0s for the access control device and access controller, and the door magnet status is none.

4.5 DIP Switch Functions and Setting

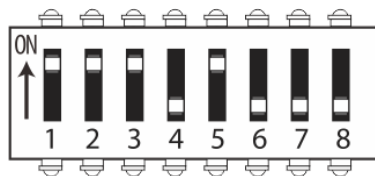


Figure 4-4

| Pin | K1-1 | K1-2 | K1-3 | K1-4 | K1-5 | K1-6 | K1-7 | K1-8 |
|------------------|-----------------------|------|------|---------------------------|------|------|--|----------------|
| Function Setting | Gate opening duration | | | Passage direction setting | | Idle | Wing arm indicator color in standby mode | Passage closed |
| Default Value | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 0 |

4.5.1 Setting Gate Opening Duration

Gate opening duration refers to the time range from wing gate opening to wing gate closing when a user passes verification but does not pass through the wing gate.

DIP switches K1-1, K1-2, and K1-3 are used for setting the duration, which ranges from 5s to 60s. See the following table.

| Switch Status | Duration | Switch Status | Duration |
|---------------|----------|---------------|----------|
| 111 | 5s | 011 | 30s |
| 110 | 10s | 010 | 40s |
| 101 | 15s | 001 | 50s |
| 100 | 20s | 000 | 60s |

4.5.2 Setting the Passage Direction Indicator

The passage direction indicator is used to prompt a user whether the passage is passable. The green arrow indicates passable and the red "X" indicates access forbidden. The DIP switches K1-4 and K1-5 control the passage direction indicator. See the following table.

| K1-4 | K1-5 | Passage Direction |
|------|------|---|
| 0 | 1 | Two-way passage |
| 1 | 0 | One-way passage on the right side (towards the front cover opening direction) |
| 1 | 1 | One-way passage on the left side (towards the front cover opening direction) |
| 0 | 0 | Invalid setting |

4.5.3 Setting the Color of Wing Arm Indicators

The wing gate allows selecting different standby state colors, including green and red. That is, the wing arm indicator can be set to green or red to indicate whether the wing gate is in standby state.

| K1-7 | Color of Wing Arm Indicator in Standby Mode |
|------|---|
| 0 | Green |
| 1 | Red |

4.5.4 Passage Status

You can set the passage status in standby mode.

| K1-8 | Selection of Anti-pinch or Anti-follow Function |
|------|---|
| 0 | Anti-pinch function |
| 1 | Anti-follow function |

Note: In the normal working state, turn K1-8 to 0 to enable the anti-pinch function.

4.6 Commissioning of the Standard Machine

The default duration is 5s for the wing gate from opening to closing.

The standard machine can be commissioned using three methods:

◆ Manual commissioning

Short-circuit K1 and GND to open the left passage. Short-circuit K2 and GND to open the right passage.

◆ User registration commissioning on the access controller software

- ① Connect to access control software, register users and grant permissions to users, verify

users, check and commission whether the wing gate runs properly.

- ② Trigger access controller to open and close the door, and check whether the wing gate runs properly.

◆ **Commissioning of the integrated access control machine**

Check that lines are connected correctly, power on the wing gate, register users on the integrated access control machine, and check whether the wing gate runs properly.

◆ **Commissioning of the two-way switch with automatic reset (optional)**

The two-way switch with automatic reset is optional for the wing gate. Open the cover in the control board installation position of the wing gate. The gate opening signal input end (J7) can be connected to a two-way switch. After the wing gate is powered ON, press the two-way switch to check whether the wing gate runs properly.

Appendix 1 Factory Defaults

| Category | No. | Function | Default Setting |
|-----------------------|-----|--|---|
| Access control system | 1 | Lock drive duration | 1s |
| | 2 | Door magnet status | For access control devices with the attendance count function, the door magnet status is normally closed; for access control devices without the attendance count function, the door magnet status is none. |
| | 3 | Access control delay | 1s |
| | 4 | Communication with the access control device | TCP/IP: 192.168.1.201 |
| Wing gate system | 1 | Gate opening duration | The gate opening duration of the wing gate is set to 5s when no user passes through the wing gate after the user passes verification. (K1-1 = 1, K1-2 = 1, K1-3 = 1) |
| | 2 | Passage direction indicator | Two-way passage (K1-4 = 0, K1-5 = 1) |
| | 3 | Wing arm indicator color in standby mode | Green (K1-7 = 0) |
| | 4 | Passage status in standby mode | Closed (K1-8 = 0) |