Flap Barrier User Manual

Applicable Models: FBL4000 Pro / 5000 Pro

Version: 1.1   Date: Mar. 2021

Contents

Chapter 1 Overview

The flap barrier is composed of a chassis, core components, wing arms, Printed Circuit Board (PCB), infrared sensors, a reader, and access control system.

The system uses standard electric interfaces. It meets fire safety 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 flap barrier 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.

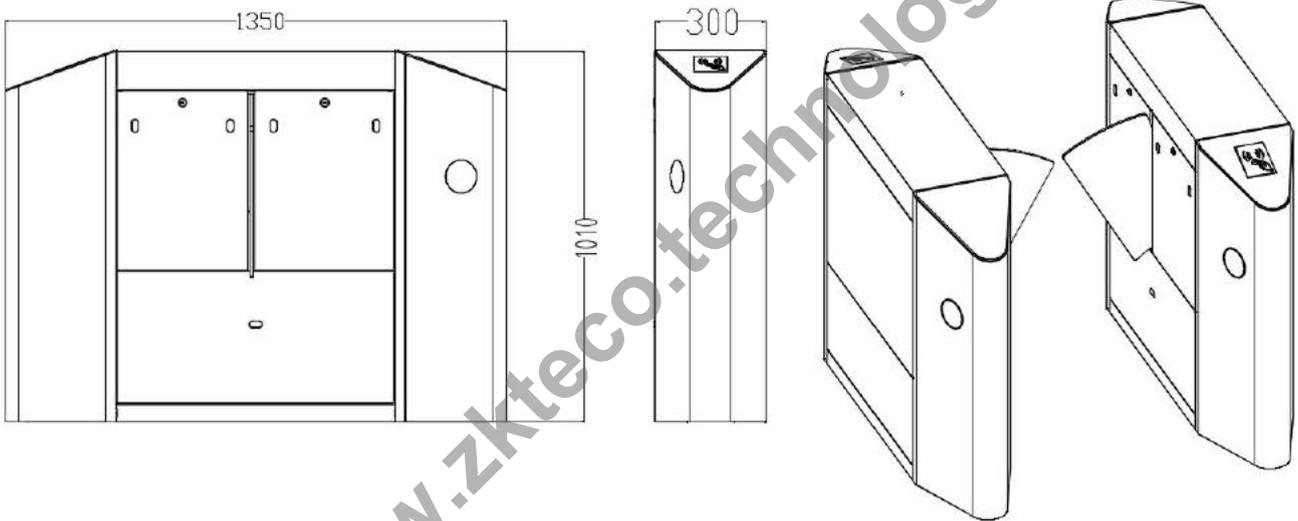## 1.1 Product Model and Appearance

As shown in the figures.
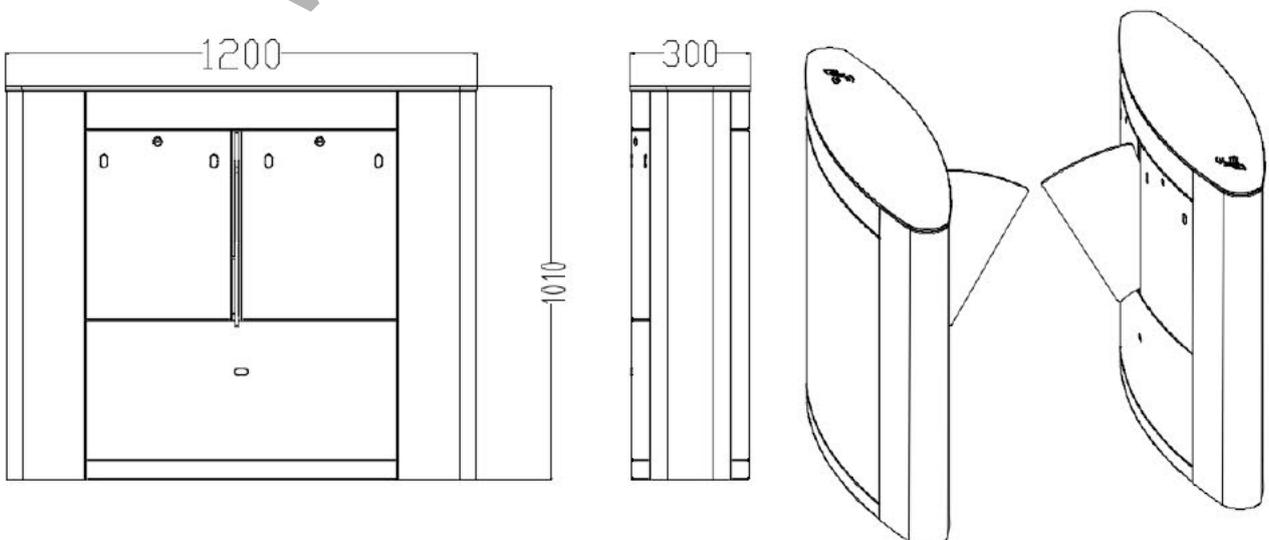

Figure 1-1A FBL4000 Pro series

Figure 1-1B FBL5000 Pro series

1.2   Features

1) Passage direction indication function: The LED light indicates whether passage is allowed or not.

2) Anti-stalking function: After each passage, the passage duration is automatically cancelled to prevent stalking.

3) Multiple working modes: The working modes, such as one-way passage, two-way passage, infrared barrier opening, or passage control by sending opening signals to the main board, can be set using the menu on the main board.

4) Automatic reset function: If no person passes through the barrier within the specified period of time after the opening signal is received, the system automatically closes the flap barrier. The specified period of time can be set by using the menu on the main board.

5) Power-off barrier opening function: This function is provided to meet special user requirements.

6) LCD screen: The product provides a LCD screen to directly display the text description of the barrier operation status.

7) Zero-point self-test function: This function is provided to facilitate maintenance and use.

8) Anti-pinch function: This function protects a person against injury caused by closing of the flap barrier or the wing arms at the end of the preset pass-through duration.

9) RS485 serial communication port: This port can be used to control the opening of the barrier.

1.3   Technical Parameters

Overall dimensions (mm)	FBL4000 Pro series: L = 1350, W = 300, H = 1010 FBL5000 Pro series: L = 1200, W = 300, H = 1010		
Length of wing arms	270mm	Input voltage	AC 100-120V/200-240V, 50-60Hz
Input control signal	ON/OFF signal	Output voltage	DC 24V,6.5A
Flap barrier ON/OFF duration	1s	Pass through speed	25-30 persons/min
Ambient temperature range	-28°C to +60°C	Relative humidity	5% to 80%
Number of infrared correlation tubes	5 pairs	Operating environment	Indoor and outdoor (It is recommended that a canopy be set up.)

1.4   Product Model and configuration

FBL4000 Pro series include FBL4000 Pro, FBL4011 Pro and FBL4022 Pro; FBL5000 Pro series include FBL5000 Pro, FBL

5011 and FBL 5022, the configuration of each model as shown in figure 1-4.

Control Panel / Model	none	C3-200 and a pair of KR100E	inBIO260 and a pair of FR1200/ID
FBL4000 Pro	√		
FBL4011 Pro		√	
FBL4022 Pro			√
FBL5000 Pro	√		
FBL5011 Pro		√	
FBL5022 Pro			√

Figure 1-4 Product Model and configuration

2.1   Structure of the Mechanical System

The mechanical system of a flap barrier includes the chassis and the core component. The chassis is a carrier where readers, dust cover, control panel, flap barrier main board, infrared correlation tubes, and door lock are installed. The core component consists of column, electric motor, proximity switch, and wing arms.

2.2   Electronic Control System

The electronic control system mainly consists of readers, control panel, flap barrier main board, infrared correlation tubes, proximity switch, 24V power supply, indicator light and battery (optional). The functions of the main parts are as follows:

1)   Reader: The reader reads the user information and sends it to the control panel.

2)   Control panel: The control panel judges and processes information from the reader, and then sends it to the flap barrier main board.

3)   Flap barrier main board: It is a product control center that receives signals from the control panel, the infrared correlation tubes and the proximity switch.

4)   Infrared correlation tube: It detects the position of a pedestrian and plays the role of safety protection. The infrared correlation tubes at the entrance and exit detect the position of a pedestrian. The anti-pinch infrared correlation tubes play the role of safety protection for the user to avoid injury.

5)   Proximity switch: This switch is used to detect the position of the wing arm.

6)   24V power supply: The mains voltage is changed by a transformer to 24V and supplied to the main board.

7)   Indicator light: This light helps the pedestrian determine whether it is currently allowed to pass through the barrier. This light also indicates the passage direction. If the indicator light turns green, it means the pedestrian can pass through the channel. If the indicator light turns red, passage is not allowed.

8)   Battery (optional): The backup battery serves as the backup power opening the barrier in the event of a power failure.

2.3   Operating Principle of the System

1)   After powered on, the flap barrier main board performs self-test to check whether the hardware works normally. If any failure is detected, the system will display a text prompt on the LCD screen. The user can quickly solve the problem based on these prompts.

2)   After the reader receives valid user information, the control panel sends barrier opening signals to the flap barrier main board.

3)   The flap barrier main board receives, judges and processes the information from the control panel, the infrared correlation tubes and the proximity switch, and then sends commands to the indicator light and the electric motor. The indicator light turns from red to green and the electric motor is activated to open the flap barrier so that the pedestrian can pass through the channel.

Test Procedure

① Connect a temporary test cable to the device and supply the input power of AC 100-120V / 200-240V adaptive to the device (Note that a ground cable must be connected).

② Start the air switch inside the flap barrier and wait 10 seconds till the flap barrier completes the self-test procedure.

③ Check whether the flap barrier and the LED indicators functions properly. If they all function properly, then start the civil installation. If an exception occurs, contact your sales agent.

4.1   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 flap barrier, 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 flap barrier by referring to Figure 4-1A, Figure 4-1B and Figure 4-2.

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

When a flap barrier is installed against the wall, reserve 100 mm space for opening the upper cover of the flap barrier for maintenance and commissioning. The master machine and slave machine of the FBL4000 Pro flap barrier not only can form a passage, but also can be installed to form dual passages with one FBL 4200 flap barrier, as shown in Figure 4-1A. The master machine and slave machine of the FBL5000 Pro flap barrier not only can form a passage, but also can be installed to form dual passages with one FBL 5200 flap barrier, as shown in Figure 4-1B. The unit of data in the figures is mm.
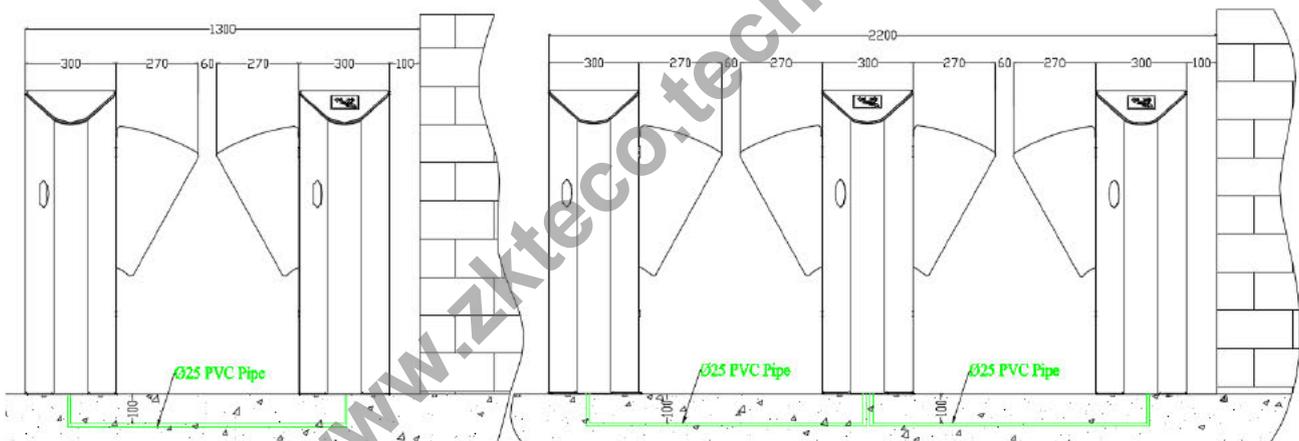

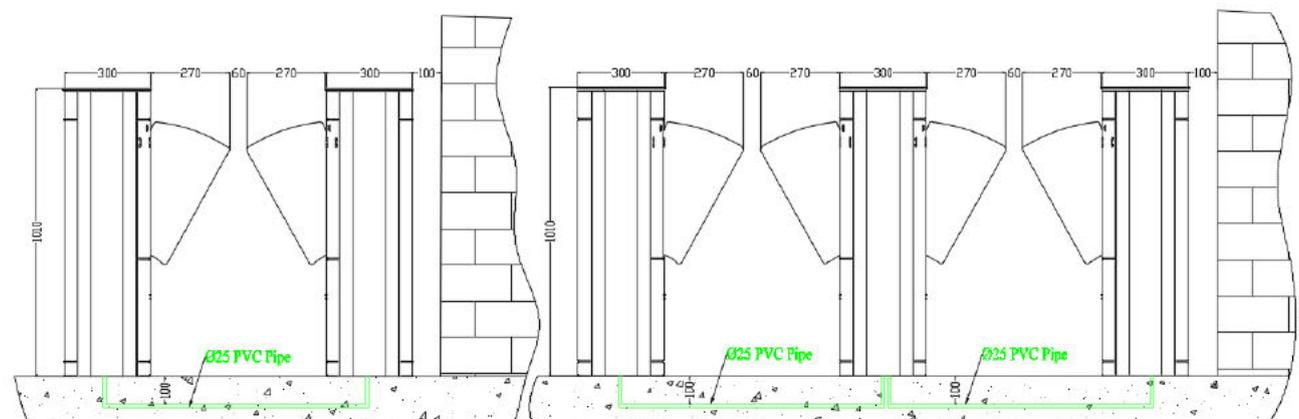Figure 4-1A Single-Passage and Dual-Passage with FBL4000 Pro

Figure 4-1B Single-Passage and Dual-Passage with FBL5000 Pro

4.2   Cable Installation

For the outlet of concealed cables, see the installation hole positions of the flap barrier in Figure 4-2.

The device uses 6 x 1.5 mm² cables with the voltage input range of AC 100-240 V as the power supply cable (including ground cables).

Only professional electricians are allowed to wire the flap barrier and a ground cable must be connected for the flap barrier. 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. Note that the PVC conduits should be buried under the ground for more than 60mm, and the part exposed above the ground should exceed 50mm. In addition, the conduit outlet must be bent to prevent water from entering the conduit.

4.3   Device fixing and Installation

Procedure

① Power ON the master machine and slave machine, adjust the wing arms to ensure that the distance between the wings is 60 mm. Make the wings to be in the OFF state.

② Test whether the infrared rays 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 devices, see Figure 4-2 for installation hole positions. The unit of data in the figures is mm.
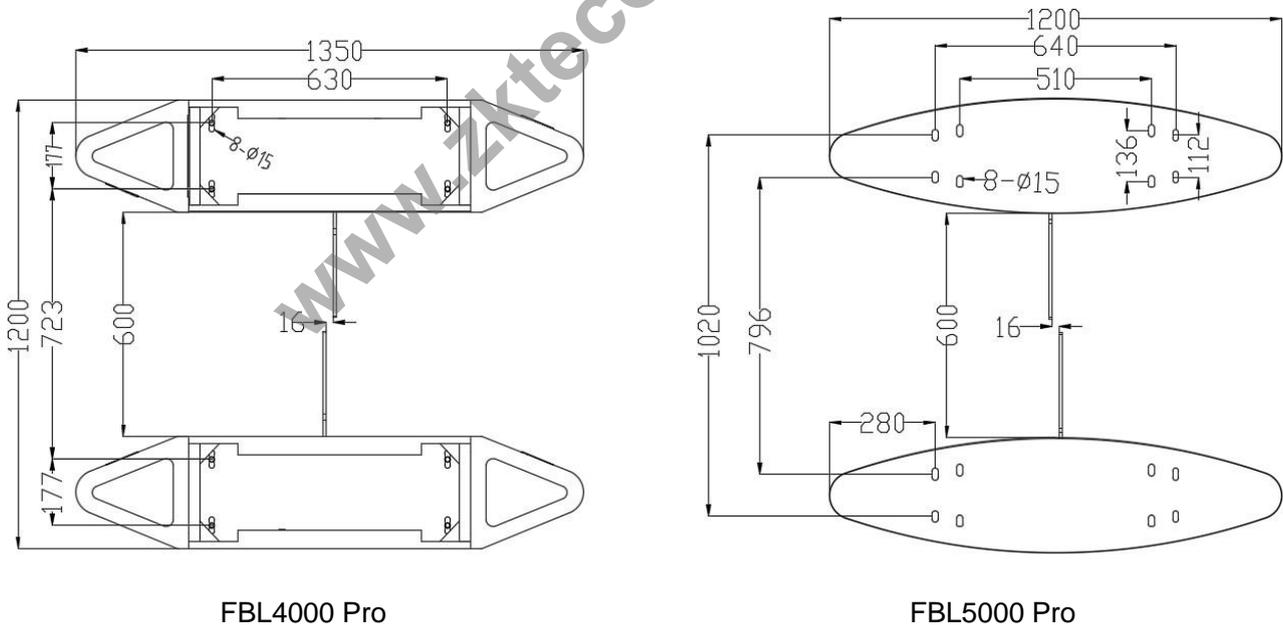

FBL4000 Pro   FBL5000 Pro

Figure 4-2

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: It is recommended that a canopy be set up out of door;

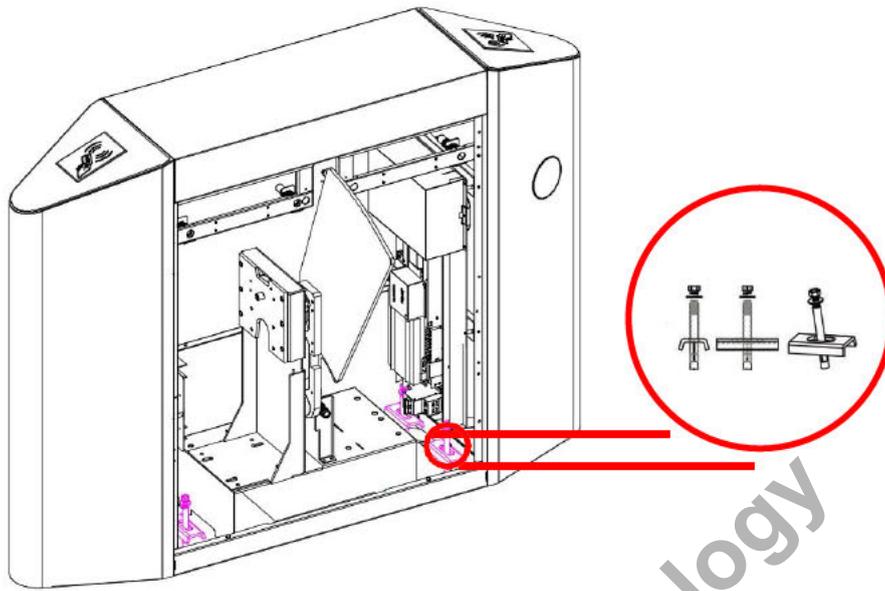All expansion screws must be completely inserted, as shown in Figure 4-3.

Figure 4-3

4.4 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 4-4.
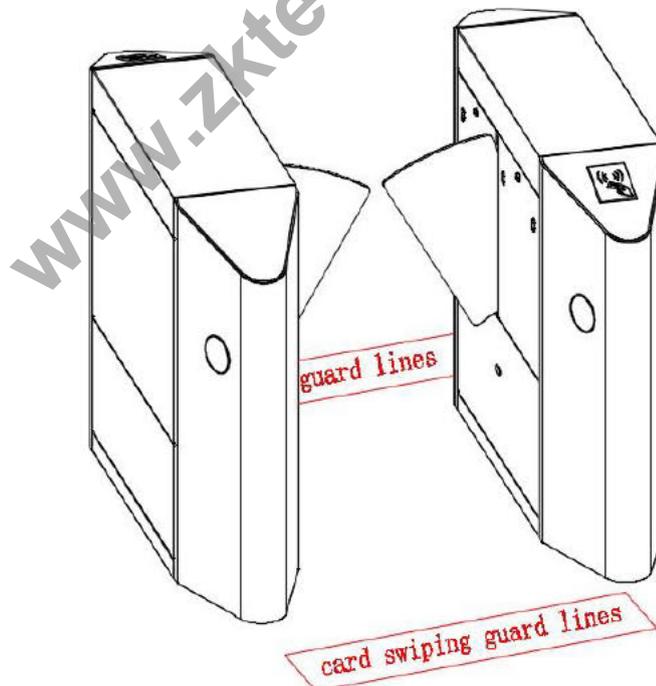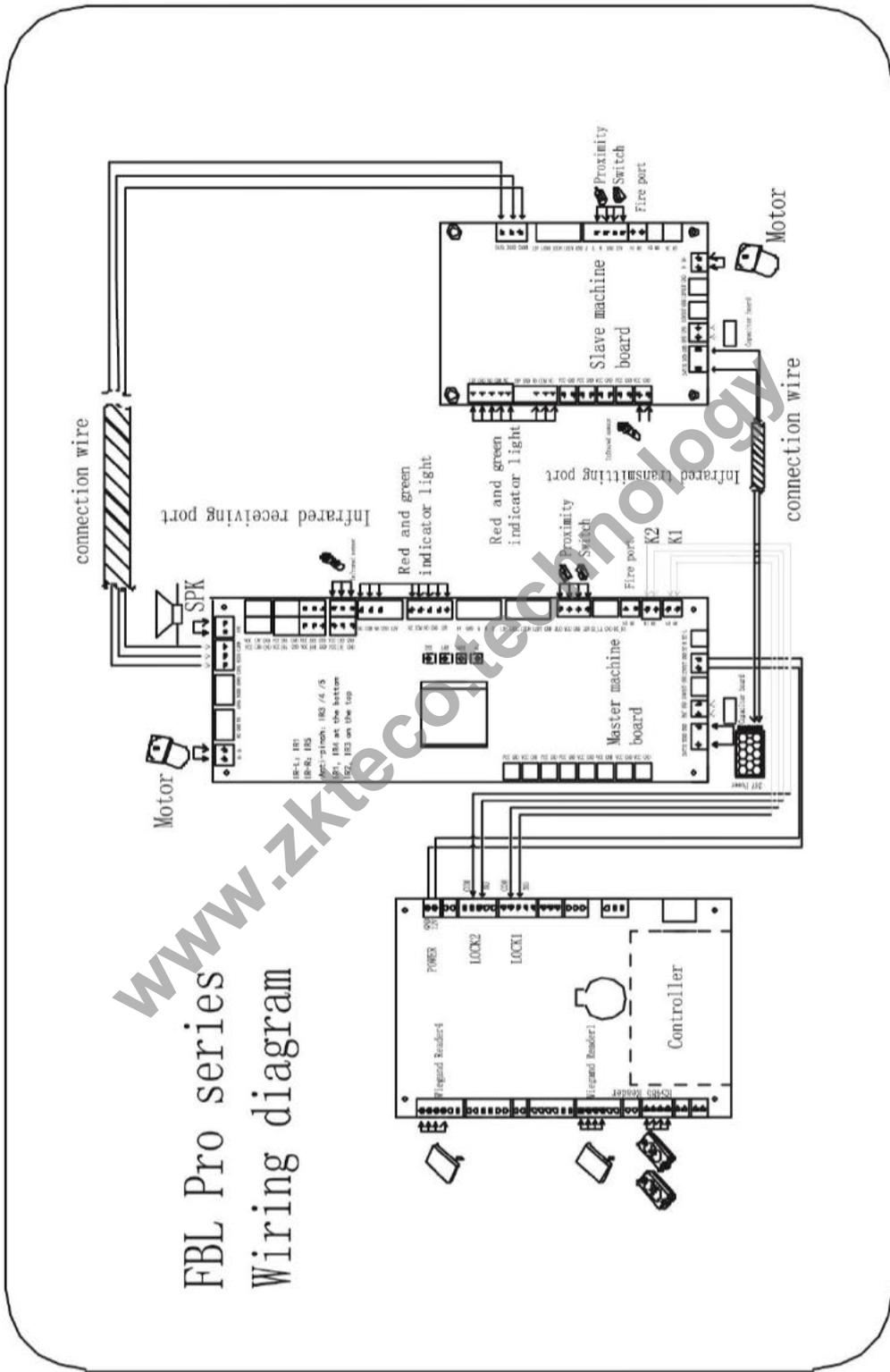

Figure 4-4

5.1 Wiring diagram

FBL Pro series
Wiring diagram

5.2 Connection Cables between the Master Chassis and the Slave Chassis

Two 6-core connection cables are deployed between two flap barriers.

5.3 Commissioning of the Standard Machine

1) 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 flap barrier runs properly.

② Trigger access controller to open and close the wings, and check whether the flap barrier runs properly.

2) Commissioning of the integrated access control machine

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

6.1   Buttons specification

MENU: to enter menu interface.

UP: to move up a menu item or increase the value.

DOWN: to move down a menu item or reduce the value.

OK: to enter the menu setting item or confirm the current changed value.

CANCEL: to return to the previous menu or to cancel the current operation.

6.2   The operation of the menu

User can press "MENU" button, enter the password and then press "OK" to enter the menu interface. The default password is "UP, UP, DOWN, DOWN, DOWN, DOWN". If any step fails, the user can press the "CANCEL" button to get back.

After entering the menu, user can press "UP" or "DOWN" to choose a menu item and then press "OK" to enter the interface and change function or value.

6.3   The system menu specification

1)   Passing mode

Two-way swipe (default)
Left free, Right swipe
Left swipe, Right free
Two-way free
Left Prohibit, Right swipe
Left swipe, Right Prohibit
Left Prohibit, Right free
Left free, Right Prohibit
Two-way Prohibit

2)   Opening speed

Low speed
Medium speed(default)
High speed

3)   Closing speed

Low speed
Medium speed(default)
High speed

4)   Volume setting

Volume: off
The value ranges from 1 to 16 (default 5).
1 is the minimum value; 16 is the maximum value.

5) Opening duration

After the gate is opened, it will be automatically closed if no one passes through within a certain duration. The default value is 10 seconds. The value ranges from 5 to 60.

6) Reset the counter

Exit counter
Entry counter
All (default).

7) Gate closing delay time

Time: 0~10s (default 0s).

8) Trailing alarm detection

Mode: Close the door and audio alarm
Audio alarm only (default)
Disable the alarm function

9) Swiping mode

Method: Allow card swiping in the channel (default)
Do not allow card swiping in the channel

10) False direction entry

Mode: Close the door and audio alarm
Audio alarm only (default)
Disable the alarm function.

11) Set fire signal

Enable (default)
Disable

12) Exchange voice of door opening

Yes
No (default)

13) Speed compensation of master machine

Compensation value: 000
1~20 (default: 000)

14) Speed compensation of slave machine

Compensation value: 000
1~20 (default: 000)

15) Gate closing mode

Out of the anti-pinch area, close the gate. (default)
Out of the channel, close the gate.

16) Memory opening

Whether to open: No (default)

Yes

17) System working mode

Mode: Working mode (default)
Test mode
Restore to factory

18) Version number

Version: V7.0.3

Chapter 7 Product Maintenance

1) Non-professional personnel are not allowed to open the chassis and perform tests, maintenance, or repairing on the product.

2) The chassis is made of semi-gloss stainless steel. The chassis surface should be cleaned frequently with a soft silk fabric. Do not use a hard article to wipe the surface to avoid scratches. Water flushing is strictly forbidden to avoid water from entering the product, which may result in short circuit of the electronic control system.

3) Each movable part of the product should be checked on a regular basis to prevent loosening of fasteners; otherwise the barrier may fail after long-time operation.

4) Apply lubricating oil to the movable points and the connecting points on a regular basis.

5) Check the circuit connectors and wiring points on a regular basis to ensure reliable connection.

6) Check on a regular basis whether the system's protective earth wire is reliably connected.

7) After repairing or maintaining the product, close the circuit board protection cover and the chassis door.